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Full Length Article

The effects of national culture on financial sector development: Evidence from emerging and developing economies

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Abstract

This study investigates the effects of national culture on financial sector development in emerging and developing economies. Prior literature on culture and finance has placed little focus on the multidimensionality of national culture and its potential implications for financial sector development. Therefore, this study contributes to the ongoing debate surrounding culture and finance by exploring broader cultural perspectives. The empirical findings show that national culture significantly explains cross-country differences in financial sector development. Various dimensions of national culture have a distinctive impact on financial sector development; for example, individualism and masculinity play boosting role, whereas uncertainty avoidance hampers it. The overall findings are reliable to a series of robustness checks and offer useful policy implications for governments, regulatory agencies, and other stakeholders.

JEL classification: O10; O16; Z10

Keywords: Emerging and developing economies; Financial sector development; National culture; Two-step system generalized method of moments (GMM)

1. Introduction

Despite substantial theoretical and empirical literature on the determinants of financial sector development (FSD) and reasons for cross-country differences in the level of FSD, debate on this topic is still evolving. One of the standard theoretical explanations for the cross-country disparities in FSD is the quality of the legal and regulatory institutional environment (Acemoglu & Johnson, 2005; La Porta et al., 1997, 1998). A country enjoys greater FSD in the presence of a sound legal and regulatory institutional framework that protects investors' rights and ensures contract enforcement. North (1990), divided institutions into formal and informal institutions. The national culture[1] is an informal institution that can explain various aspects of finance. Specifically, the national cultural traits (i.e., individualism, uncertainty avoidance, masculinity, power distance) outlined by Hofstede (1980) have received considerable attention in academic research and practice. A literature survey by Aggarwal, Faccio, Guedhami, and Kwok (2016) documents that national culture significantly influences the financial decisions made by households and firms and, thereby, appears to have a potential effect on a country's level of FSD.

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[1] According to North (1990), culture represents a society's shared values and noncodified standards. Hofstede et al. (1991, p. 6) define national culture as "the collective programming of the mind that distinguishes the members of one group or category of people from others."

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However, to our knowledge, there is scant literature on the role of culture in FSD, apart from Stulz & Williamson (2003) and Ang (2019). Stulz & Williamson (2003) conducted a pioneering study that proxies national culture by a country's majority religion and argues that culture determines FSD by influencing the predominant values of that country's society, which steer individuals' economic and financial decisions, the environment of formal institutions, and the pattern of resource allocation. Ang (2019) reports that individualism (one of the dimensions of national culture) plays a significantly positive role in cross-country disparities in the level of FSD and believes that countries with a cultural orientation toward individualism tend to enjoy a higher FSD. This study also states that other dimensions of culture (uncertainty avoidance, power distance, and masculinity) may also significantly affect FSD in emerging and developing economies; however, this claim has not been proved. Hence, it is essential to understand the respective roles in FSD of all these dimensions in order to formulate effective policy.

The measurement of FSD is another fundamental debate in the literature on culture and FSD, in which unidimensional measures—such as the ratio of private credit to the gross domestic product (GDP), the ratio of domestic credit to the private sector, and the ratio of market capitalization—are often criticized. Scholars (Khan et al., 2019a; Khan et al., 2019b; Liu, Islam, Khan, Hossain, & Pervaiz, 2020; Svirydzenka, 2016) believe that FSD is a multidimensional and complicated process, which might not be represented accurately with a single measure. Therefore, this study uses a relatively new measure of FSD (Svirydzenka, 2016), a comprehensive index built on financial markets and institutions' depth, access, and efficiency that offers a holistic representation of a complex multidimensional financial system.

Overall, this study systematically contributes to the literature on the dimensions of national culture (e.g., individualism, uncertainty avoidance, masculinity, and power distance) and FSD, using a sample of fifty-five emerging and developing economies (EMDEs) over the period 1984–2018. In particular, we extend on Ang's (2019) comprehensive pathway to the nexus between culture and finance. The key findings from using the two-step system generalized method of moments (GMM) reveal that individualism and masculinity boost the level of FSD, however, uncertainty avoidance hamper it. Our findings are robust to several considerations, such as the inclusion of legal origin dummies in the model, alternative measures of culture and FSD, and the use of an alternative estimator.

The rest of the study is structured as follows. Section 2 presents a literature review and hypothesis development. Section 3 presents the data and methods used. Section 4 reports the details of our empirical strategy and an analysis of the empirical results. Finally, Section 5 gives our conclusions and policy recommendations.

2. Literature review and hypothesis development

2.1. Individualism and FSD

Individualism is an essential dimension of national culture, emphasizing material success and personal accomplishment, and is significantly associated with economic development. This national culture dimension received substantial attention in the finance literature. Gorodnichenko & Roland, 2011 argue that financial resources are more likely to be allocated efficiently to more productive areas in countries with a more individualistic culture. However, a collectivist culture erodes the efficient allocation of resources through nepotism and favoritism (Ball, 2001). A recent comprehensive study by Ang (2019) hypothesizes that an individualistic culture is positively associated with FSD, attributing it to more efficient resource allocation, and gives this hypothesis sound empirical support.

In addition to resource allocation, several other mechanisms exist through which individualism promotes FSD. Breuer, Riesener, and Salzmann (2014) associate individualism with overconfidence and excessive optimism and find a significant and positive influence of individualism on financial risk-taking. They also find that a high individualism promotes FSD through greater stock market participation. Similarly, the literature reviewed suggests that individualism positively influences bank risk-taking behavior by directly conditioning the decision-making of participants (Ashraf, Zheng, & Arshad, 2016), banks' leverage and lending (Haq, Hu, Faff, & Pathan, 2018), corporate capital expenditures (Chen, Dou, Rhee, Truong, & Veeraraghavan, 2015), and R&D expenditure (Choi, 2020). Therefore, these decisions by firms and banks affect the pattern of demand for and supply of funds and, thereby, the level of FSD.

In addition to the primary mechanisms, the individualism-collectivism dimension of national culture may also influence FSD indirectly by affecting the formal institutional environment and efficiency of contract enforcement. Countries with a higher orientation toward individualism prefer more efficient contract enforcement (Cline & Williamson, 2017). The institutional layers hypothesis asserts that culture, as the first layer of informal institutions, determines the subsequent development of political institutions, implying that culture is a fundamental informal institution that underpins all formal institutions (Roland, 2004). According to a group of researchers (Gorodnichenko & Roland, 2015, p. 21117; Licht, Goldschmidt, & Schwartz, 2007), individualism is associated with better governance and democratic accountability and enhances contract enforcement efficiency and property rights protection. Thus, individualism affects FSD by influencing political institutions and promoting efficient contract enforcement. Kyriacou (2016) documents that individualism fosters the quality of governance and stimulates economic and financial development.

This theoretical and empirical discussion leads to the following hypothesis:

Hypothesis 1. Individualism has a positive effect on financial sector development in emerging and developing economies.

2.2. Uncertainty avoidance and FSD

Uncertainty avoidance is an essential dimension of national culture that has a potentially significant impact on the level of FSD. It gauges the extent to which a society tolerates

ambiguity and uncertainty about the unknown future (Hofstede, 1980). Dutta & Mukherjee (2012) argue that uncertainty avoidance hinders entrepreneurs' activities and innovation and reduces both the demand for and supply of finance because of risk aversion in countries with high uncertainty avoidance. Hence, a negative association is expected between uncertainty avoidance and FSD. Empirical findings confirm a negative link between various measures of financial institutions and stock market depth and an uncertainty avoidance index, which is also associated with individual preferences regarding regulations, risk-taking, and stability.

The literature suggests that managers in countries with higher uncertainty avoidance are less tolerant of uncertainty/ambiguity, which is negatively associated with risk-taking (Chuck & Tadesse, 2006; Díez-Esteban, Farinha, & García-Gómez, 2019; Li, Griffin, Yue, & Zhao, 2013). Likewise, a negative association exists between uncertainty avoidance and corporate capital expenditures (Chen et al., 2015). Furthermore, Ashraf et al. (2016) state that banks in countries with higher uncertainty avoidance take less risk and advance fewer loans than their counterparts in countries with lower uncertainty avoidance. Aggarwal & Goodell (2014) found a significantly negative association between uncertainty avoidance and access to finance. Their findings reveal that more credit is available in countries with low uncertainty avoidance and vice versa. Moreover, they argue that the demand for and supply of finance determine access to finance and that demand for access to finance is influenced by various factors that affect the need for borrowing—that is, entrepreneurship and the culture of risk-taking. Consequently, uncertainty avoidance hinders access to finance by reducing the demand for finance.

Based on these considerations, we expect a negative association between uncertainty avoidance and FSD and formulate the following hypothesis:

Hypothesis 2. Uncertainty avoidance has a negative effect on financial sector development in emerging and developing economies.

2.3. Masculinity and FSD

Masculinity is also an essential dimension of national culture; however, this aspect of culture is given little attention in the literature on culture and finance. According to Hofstede (2001), masculinity is attributed to dominant gender role patterns, such as male assertiveness and female nurturance. Masculinity measures the extent to which male attributes of competition, assertiveness, and success are rewarded in a particular society (Hofstede, 1980).

The masculinity trait of national culture emphasizes male assertiveness, for example, the preference for and recognition of competition, accepting challenges at work, assertiveness, material success, and achievement are the dominant values in high-masculinity countries, whereas in high-femininity countries, “female nurturance” is emphasized more, that is, the dominant values involve helping others, prioritizing relationships over money, modesty, and caring for the weak.

Evidence of a positive association between a high masculinity score/index and more risk-taking is presented in the literature. Mihet (2013) argues that, in high-masculinity countries, more value is placed on achievement, material success, and competition, and strong and successful people are given more recognition and sympathy, which influences their risk-taking behavior and encourages more risk-taking. Because assertiveness, competition, and wealth are viewed as more valuable, these attributes create confidence and a willingness to take risks to gain wealth and success. Evidenced in the literature on gender and propensity for risk in financial decision-making indicates that males engage in more risk-seeking behavior than females (Powell & Ansic, 1997).

Furthermore, Meier-Pesti & Penz (2008) document that people with a higher level of masculine attributes tend to take greater financial risk, regardless of gender. Further, in high-masculinity societies, people are more willing to take risks, which increases competition and is widely recognized as stimulating the scale and efficiency of as well as access to finance. Additionally, managers in high-masculinity countries tend to take higher risks, encouraging bank lending and leverage (Haq et al., 2018). Based on the literature, we argue that, in high-masculinity societies, individuals are more willing to take financial risks because of self-attribution and overconfidence. A higher propensity to take risks enhances demand for financial services, leading to higher FSD. Therefore, we predict the relationship between masculinity and FSD as follows:

Hypothesis 3. Masculinity has a positive effect on financial sector development in emerging and developing economies.

2.4. Power distance and FSD

Power distance is associated with the fundamental problem of human inequality. Power distance is “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally” (Hofstede & Hofstede, 1991, p. 61, p. 61).

In societies with high power distance, power is centralized, with elites and national elites holding more authoritarian views about authority. Hence, societies with high power distance are more divided and stratified and obedience and conformity are valued more highly than independence. This situation potentially hinders countries' economic and financial performance by hampering entrepreneurship, innovation, and proactiveness by emphasizing conformity (Mihet, 2013).

Furthermore, power distance concerns the issues of equality and trust. Eventually, in countries with higher power distance, conflict arises between the powerful and the powerless because the latter are considered untrustworthy and thus a threat to the former (Hofstede, 2001). In contrast, societies with lower power distance are characterized by greater harmony because the powerful feel less threatened and are readier to trust others. Similarly, Bjørnskov (2008) asserts societies with high power distance have a lack of social trust, which significantly affects financial contracting. Social trust is an

essential factor that determines the amount of information in which people need/demand to feel confident when engaging in financial contracts. In low-trust societies, people need more information. They are inclined to invest more time in gathering information and resolving information asymmetry that enhances transaction costs (Fukuyama, 1995), thereby limiting the financial system's breadth and efficiency.

Aggarwal & Goodell (2009) contend that social trust is more important for financial organizations, specifically for banks, than for nonfinancial firms because bank-customer contracts are highly trusted, intensive, and fewer, and the lack of trust increase the transaction cost. Hence, firms located in countries with lower trust are discouraged from using long-term debt financing (Zheng, El Ghoul, Guedhami, & Kwok, 2012). Accordingly, we argue that banks in high power distance countries are prevented from extending more loans because of higher transaction costs. Thus, less FSD is expected in countries with high power distance. Furthermore, trust also has a significant nexus with risk-taking. A wide range of the psychology literature documents a meaningful positive relationship between trust and risk-taking. For example, Das & Teng (2004) and Growiec & Growiec (2014) report that the more trusted people are, the more risk they will take. Similarly, firms located in countries with low power distance are more trusting and thus take more risk (Mihet, 2013).

In summary, societies with high power distance have a lower level of trust, enhancing transaction costs, and cultivating a low risk-taking culture. Lower risk-taking hampers demand for finance by influencing the need for finance, such as entrepreneurship innovation activities; at the same time, this practice hampers the supply of finance because of lower trust and a lower propensity for risk-taking. Therefore, we expect a lower level of FSD in countries with high power distance.

Based on this theoretical and empirical discussion, we hypothesize the nexus between power distance and FSD as follows:

Hypothesis 4. Power distance has a negative effect on financial sector development in emerging and developing economies.

3. Data and methods

3.1. Variables and data description

National culture is an explanatory variable in this study. Scholars have developed various measures for quantifying national culture; the one most frequently used in the empirical literature reviewed is one by Hofstede (Taras, Rowney, & Steel, 2009). This study uses Hofstede's (1980) national culture framework to measure the dimensions of a national culture—that is, individualism (*IND*), uncertainty avoidance (*UAI*), power distance (*PDI*), and masculinity (*MAS*)—based on responses to a survey of IBM employees in forty countries conducted between 1967 and 1973. However, in Hofstede & Hofstede (1991) and Hofstede, Hofstede, and Minkov (2010), two more dimensions of national culture—long-term orientation and indulgence—were introduced later. The dataset was extended to several other countries. Each country has a score on a scale of 0−100 for each of the dimensions of national culture. A higher score indicates greater influence of the respective dimension of culture in a particular country.[2] Furthermore, following Haq et al. (2018), we also employed comparable dimensions of national culture from the GLOBE national cultural framework (House, Hanges, Javidan, Dorfman, & Gupta, 2004) for a robustness check.[3] In particular, we used the GLOBE indices of institutional collectivism (*GIND*),[4] uncertainty avoidance (*GUAI*), power distance (*GPDI*), and assertiveness (*GMAS*) as an alternative measure to Hofstede's original four cultural dimensions.

The dependent variable FSD is measured with the financial development index developed by the International Monetary Fund (IMF) (Svirydzenka, 2016), which takes a value between 0 and 1, in which a higher value implies a higher level of FSD, and a lower depicts a lower level of FSD. Following the literature, we rescaled this index by 100 to align it with our explanatory variable and facilitate interpretation. The IMF financial development index is considered superior to the World Bank financial development indicators because of its comprehensive nature and its comprehensive and multidimensional measure of FSD, which comprises various indicators representing the depth and efficiency of as well as access to financial markets and institutions (Khan et al., 2020b; Khan et al., 2019b). Consistent with Aibai, Huang, Luo, and Peng (2019) and Khan et al. (2019b), we use FSDX an alternative to FSD, which is generated by averaging three indicators of financial development from the World Bank-Global Financial Development Database.[5]

The literature details various macroeconomic indicators that significantly explain FSD and must be controlled for to mitigate omitted variable bias. To be consistent with the strand of the literature studied and to produce unbiased and robust estimates, we include several control variables in our model. Specifically, following the literature (Aluko & Ajayi, 2018; Khan et al., 2019b; Zaidi et al., 2019), we include institutional quality (*INST_QLTY*), economic growth (*ECO_GROWTH*), trade openness (*TRD_OPEN*), foreign direct investment (*FDI*), the exchange rate (*EX_RATE*), inflation (*INF*), and remittances (*REMIT*) as control variables in our model.

Institutional quality is measured with an index generated using PCA and based on six indicators of institutional quality— control of corruption, government effectiveness, political stability, regulatory quality, rule of law, and voice and accountability—from the Worldwide Governance indicators'

[2] For further detail, see a group of studies by Hofstede (Hofstede, 1980; Hofstede & Hofstede, 1991, 2010).The details about Hofstede's culture measure are also available at https://www.hofstede-insights.com.

[3] For further details about the GLOBE culture framework, see House et al. (2004) and https://globeproject.com.

[4] Following Haq et al. (2018), we generated the GIND index by deducting the GLOBE's institutional collectivism index from 100 to facilitate comparison with Hofstede's IND dimension used in our initial analysis.

[5] See Table S1, available online.

World Bank.[6] *ECO_GROWTH* is measured by GDP per capita, and trade openness is measured as the total sum of exports and imports as a percentage of GDP. FDI is measured as the ratio of foreign direct investment to GDP, exchange rate is measured with official exchange rate (national currency per US$). Inflation is represented by the annual growth rate of the GDP implicit deflator which shows the rate of price change in the economy, and foreign remittances are proxied by foreign remittances as a percentage of GDP. (For the definitions and data sources of all the variables, see Table S1, available online.)

Our sample comprises emerging and developing economies (EMDEs) as designated in the United Nations World Economic Situation and Prospect Report 2018. Our selection of EMDEs is based on the rising economic significance of these economies globally and the scarcity of literature about national culture and FSD nexuses in EMDEs. The final sample in our primary analysis consists of fifty-five economies from among the group of EMDEs because of data constraints regarding the cultural indicators (for the list of sample countries, see Table S2, available online). However, when we used the GLOBE cultural indicators for robustness analysis, the sample was reduced to twenty-eight countries and when we used an alternative measure of FSD (i.e., FSDX) the sample was reduced to forty-three countries because of data constraints. Our sample period is twenty-three years, from 1996 to 2018. The descriptive statistics of the variables are presented in Table S3 (available online).

3.2. Methods and model specifications/methodology

3.2.1. Baseline regression model

Based on the foregoing theoretical and empirical literature, we specify our baseline regression model as follows:

$$FSD_{it} = \beta_0 + \beta_1 K_i + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

FSD is financial sector development, a dependent variable, and *K* indicates culture, the explanatory variable. *X* represents a vector of control variables including *INST_QLTY, ECO_GROWTH, TRD_OPEN, FDI, EX_RATE, INF,* and *REMIT*. β_0 measures the intercept, and $\beta_1 - \beta_2$ are the coefficients of explanatory and control variables. Lastly, ε is the error term, and i and t are the individual country and time, respectively. Following Dutta & Mukherjee (2012) and Singh, Li, and Roca (2017) we have used quantile regression estimation technique for the baseline analysis.

The classical assumption of traditional OLS i.e., homoscedasticity or constant variance of the error is not met with the underlying dataset. Koenker & Bassett (1978) suggested quantile regression method which considers asymmetrically weighted absolute residuals of the median rather than the mean of the distribution and generate efficient estimates. Quantile regression is nonparametric estimator and assumes no underlying distribution. It takes into account the unobserved individual and distributional heterogeneity and could generate robust results even when the classical econometric assumptions are failed (Wang, Zhu, Guo, & Peng, 2018). Before estimation we have transformed all variables into logarithm from. The logarithmic transformation mitigates the heteroscedasticity in the data without modifying the original nature of the data. Furthermore, logarithmic transformation also eliminates the inconvenience caused by various measurement units. The estimated coefficients are coefficients of elasticity that can be interpreted as the change in net %age of the explained variable with a 1% rise in the explanatory variable. Hence, Equation (1) is transformed into the logarithmic form as follows:

$$lnFSD_{it} = \beta_0 + \beta_1 ln\, K_i + \beta_2\, lnX_{it} + \varepsilon_{it} \quad (2)$$

Ln denotes the natural logarithm of the respective variable. FSD is financial sector development, a dependent variable, and K indicates culture, the explanatory variable. *X* represents a vector of control variables. β_0 measures the intercept, and $\beta_1 - \beta_2$ are the coefficients of explanatory and control variables. Lastly, ε is the error term, and i and t are the individual country and time, respectively.

3.2.2. Two-step dynamic System-GMM

Moreover, the existing literature on culture and finance has also indicated the presence of endogeneity problems in culture-finance models. In OLS-based estimations, in order for the results to be interpreted as causal, the explanatory variable should be exogenous (uncorrelated with the error term). The endogeneity might stem from three critical sources in empirical estimations: reverse causality, measurement errors, and omitted variables (Roberts & Whited, 2013).

Reverse causality is unlikely to exist in our case because, as Haq et al. (2018) argue, cultural values steer individuals' behaviors and existed long before the creation of financial systems and markets. Therefore, reverse causality is implausible and should not be a significant issue in this study. Furthermore, the literature reviewed contends that culture persists over the long run, even when significant changes occur in the economic environment or political institutions (Hofstede, 2001; Licht, Goldschmidt, & Schwartz, 2005). Because culture is slow moving and persists over the long run, our results are more likely to show causal effects.

However, the regressors can be correlated with the error terms in our empirical models because of omitted variables and measurement errors. It can undermine the performance or consistency and efficiency of our baseline OLS-based estimators. For instance, some of the unobserved omitted determinants of FSD are also correlated with culture. Further, the culture might not be correctly gauged because its measurement is constructed based on ex-post-based survey data. It can engender attenuation that may bias the least squares estimates.

Similarly, the dependent variable (FSD) and the explanatory variable (culture) both have a reasonable chance of measurement error that can also lead to endogeneity. As

[6] For the sake of brevity, we do not report the eigenvalues and scree plot of eigenvalues of INST_QLTY, but they are available from the authors on request.

discussed in detail, both culture and FSD are multifaceted and complex variables and thus are not directly available. Further, a comprehensive measure that can fully encompass culture and FSD does not exist. Although we use relatively comprehensive proxies to measure culture and FSD, we cannot fully preclude the existence of measurement error.

Therefore, to address endogeneity, we use a two-step dynamic system-GMM estimator (Arellano & Bover, 1995; Blundell & Bond, 1998). GMM is the most widely used method to address endogeneity concerns, and the empirical literature shows that it allows endogenous covariates in the model and produces unbiased estimates (Bond, Hoeffler, & Temple, 2001). This method is also used in related literature (Díez-Esteban et al., 2019; Disli, Ng, & Askari, 2016; Khan, Domicián, et al., 2020).

The consistency of system-GMM estimators depends on two conditions: the absence of higher-order/second-order serial correlations of the residuals and the validity of instruments. Therefore, we use the Hansen J test of overidentifying restrictions (Hansen, 1982) to assess the validity of instruments and the Arellano-Bond test AR (1) and AR (2) to evaluate the presence of autocorrelation.

We specify the two-step dynamic system-GMM model as follows:

$$lnFSD_{it} = \alpha_0 + \beta_1 lnFSD_{it-1} + \beta_2 lnK_i + \beta_3 lnX_{it} + \mu_{it} \quad (3)$$

where FSD_{it} is a dependent variable, FSD_{it-1} is its lagged form, and K indicates culture, which is the explanatory variable. X represents a vector of control variables including INST_QLTY, ECO_GROWTH, TRD_OPEN, FDI, EX_RATE, INF, and REMIT. α_0 measures the intercept, and $\beta_1 - \beta_3$ are the sequential coefficients of FSD_{it-1}Explanatory variables, and control variables, respectively. Lastly, μ is the error term, and i and t are the individual country and time, respectively.

4. Empirical results and discussion

4.1. Baseline results

Before discussing the main results of the dynamic system-GMM in detail, we discuss our baseline results in Table 1 in which Columns 1 to 4 show the results of estimations when individual dimensions of national culture—*IND, UAI, MAS,* and *PDI*—are used as explanatory variables for FSD. The coefficients of all these dimensions of culture (except PDI) are significant at the 1 percent level of significance but have different signs and magnitudes. In particular, the coefficient of *IND* in Column 1 (Table 1) is positive and statistically significant at the 1 percent level, which is consistent with H1. However, the coefficient of *UAI* in Column 2 (Table 1) is negative and statistically significant at the 1 percent level, indicating that *UAI* undermines FSD and supports H2. Similarly, the coefficient of *MAS* in Column 3 (Table 1) is positive and statistically significant at the 1 percent level and, therefore, supports H3.

However, the coefficient of PDI in Column 4 (Table 1) is insignificant and indicates no effect of PDI on FSD in EMDEs which is contrary to H4. The control variables in models 1 to 4 have mixed results and are consistent with the existing literature. Overall, our baseline results support all our hypotheses except H4 and are consistent with the literature reviewed.

4.2. Two-step System-GMM results

Considering the potential endogeneity bias (as discussed in Section 3.2) and to ensure a robust estimation, we use dynamic two-step system-GMM as baseline estimator. The results are reported in Table 2.

Columns 1 to 4 (Table 2) contain the empirical results of our estimations concerning the impact of national cultural

Table 1
National culture and FSD - baseline result.

Dependent variable: FSD				
Explanatory variables	IND	UAI	MAS	PDI
Column	(1)	(2)	(3)	(4)
IND	0.119 (2.86)***			
UAI		−0.260 (−3.60)***		
MAS			0.288 (3.98)***	
PDI				0.171 (1.54)
INST_QLTY	0.191 (6.35)***	0.206 (6.45)***	0.273 (8.94)***	0.238 (7.54)***
ECO_GROWTH	0.306 (16.00)***	0.335 (15.16)***	0.254 (12.59)***	0.304 (15.19)***
TRD_OPEN	−0.089 (−2.52)**	−0.197 (−4.89)***	−0.008 (−0.23)	−0.140 (−3.40)***
FDI	0.040 (2.17)**	0.042 (2.06)**	0.004 (0.23)	0.038 (1.95)*
EX_RATE	0.033 (4.41)***	0.021 (2.51)**	0.035 (4.61)***	0.029 (3.65)***
INF	−0.021 (−1.66)*	−0.015 (−1.05)	−0.002 (−0.18)	−0.008 (−0.60)
REMIT	0.095 (5.45)***	0.090 (4.64)***	0.080 (4.42)***	0.094 (5.10)***
Constant	0.978 (3.46)***	2.730 (6.79)***	0.385 (1.03)	0.863 (1.76)*
Observations	1265	1265	1265	1265
Number of countries	55	55	55	55
Pseudo R2	0.3336	0.3360	0.3448	0.3308

Note: This table reports baseline results of national culture's impact (i.e., IND, UAI, MAS, and PDI) on the FSD. t-statistics are in parenthesis. *, **, and *** indicate level of significance at 10%, 5% and 1% respectively.

Table 2
National culture and FSD − SYS-GMM result.

Dependent Variable: FSD				
Variables	IND	UAI	MAS	PDI
Column	(1)	(2)	(3)	(4)
FSD_{t-1}	0.787 (0.018)***	0.803 (0.018)***	0.809 (0.023)***	0.788 (0.030)***
IND	0.032 (0.015)**			
UAI		−0.061 (0.015)***		
MAS			0.061 (0.014)***	
PDI				0.009 (0.038)
INST_QLTY	0.038 (0.006)***	0.041 (0.006)***	0.049 (0.005)***	0.050 (0.006)***
ECO_GROWTH	0.068 (0.009)***	0.065 (0.008)***	0.052 (0.010)***	0.064 (0.012)***
TRD_OPEN	−0.027 (0.011)**	−0.015 (0.012)	−0.007 (0.010)	−0.016 (0.013)
FDI	0.007 (0.003)**	0.004 (0.003)	0.006** (0.003)	0.005** (0.002)
EX_RATE	0.004 (0.003)	0.004 (0.002)	0.004 (0.002)**	0.005 (0.003)
INF	−0.005 (0.001)***	−0.005*** (0.001)	−0.004*** (0.001)	−0.006*** (0.001)
REMIT	0.018 (0.004)***	0.017 (0.004)***	0.010 (0.005)**	0.018 (0.005)***
Constant	0.239 (0.059)***	0.502*** (0.082)	0.065 (0.049)	0.279* (0.144)
Observations	1210	1210	1210	1210
Number of countries	55	55	55	55
AR (2) p-value	0.163	0.162	0.163	0.162
Hansen J statistic p-value	0.275	0.175	0.139	0.145

Note: *This table reports the main results obtained using the two-steps dynamic system-GMM estimator of the impact of national culture (i.e., IND, UAI, MAS and PDI) on the FSD. All models are estimated using the Blundell & Bond (1998) dynamic panel system GMM estimations (Stata xtabond2 command). z-statistics are in parenthesis. *, **, and *** indicate level of significance at 10%, 5% and 1% respectively.*

dimensions—*IND, UAI, MAS,* and *PDI*—on FSD. Our empirical results show significant coefficients of three dimensions of national culture (i.e., *IND, UAI, MAS)* which implies that national culture significantly explains FSD in EMDEs. Although these coefficients are significant, they have different signs and magnitudes—for example, the coefficient of individualism in Column 1 is positive and statistically significant at the 1 percent level, which indicates that individualism has a significantly positive effect on the level of FSD. Thus, it is consistent with the theoretical and empirical literature; Ang (2019) recently documented a significant positive impact of individualism on financial deepening. Hence, we achieve robust, practical support for H1. Individualism enhances FSD directly by increasing resource allocation efficiency, enhancing financial risk tolerance for individuals and firms, and indirectly improving the quality of governance and contract enforcement efficiency (i.e., institutional layering hypothesis).

However, the coefficient of *UAI* in Column 2 (Table 2) is negative and statistically significant at the 1 percent level, which indicates the negative effect of uncertainty avoidance on FSD in EMDEs and supports H2. Similar findings are reported by Dutta & Mukherjee (2012). Consistent with the literature reviewed, we argue that uncertainty avoidance hinders entrepreneurs' activities and innovations and reduces the demand for and supply of finance because of risk aversion in countries with high uncertainty avoidance. Hence, uncertainty avoidance undermines FSD by negatively influencing both the demand for and supply of finance in countries with high uncertainty avoidance.

Similarly, the coefficient of *MAS* (Table 2, Column 2) is positive and statistically significant at the 1 percent level and, therefore, supports H3. *MAS* is positively associated with a higher level of risk tolerance, enhancing the demand for and supply of finance and stimulating FSD. However, interestingly opposite to our prediction in H4, the coefficient of *PDI* in Column 4 (Table 2) is statistically insignificant, which indicates that this dimension of culture has no influences on FSD in EMDEs. Furthermore, the coefficient of the lagged dependent variable (i.e., FSD_{t-1}) across all models is significant and positive, which justifies the use/suitability of a dynamic panel estimator.

The results for the control variables are consistent with those in the prior theoretical and empirical literature, and we find no anomaly in this context. In addition, the results of the diagnostic tests prove that our models are well specified. Specifically, the *p*-value of AR (2) shows that the absence of second-order serial correlation cannot be rejected. Similarly, the *p*-value of Hansen J tests indicates that the instruments are valid across all models. Hence, the diagnostic test shows that the system-GMM estimator is the right choice, and our empirical results are reliable for statistical inferences.

4.3. Robustness testing

To validate the results, we perform various robustness tests. Specifically, we use additional control variables (dummies for legal origin) in the model, alternative measures of the explanatory variables (*IND, UAI, MAS,* and *PDI)*, an alternative measure of the dependent variable (i.e., FSD), and an alternative estimation strategy, that is, panel corrected standard errors (PCSE), for robustness analysis. The results are discussed below.

4.3.1. Additional controls

The legal origin hypothesis proposed by (La Porta et al., 1997, 1998) is among the most influential theoretical

perspectives for explaining cross-country variations in the level of FSD. Therefore, we test the validity of the legal origin hypothesis for explaining FSD with respect to each of the dimensions of culture by adding dummy variables for legal origin to the models.[7] Our main findings still hold after the inclusion of these variables (see Table S4, available online).

4.3.2. Alternative measures of culture

In this section, we use alternative national culture measures from the GLOBE national cultural framework (House et al., 2004) for robustness.[8] The results are consistent with the primary findings (see Table S5, available online). Specifically, the coefficients of *GIND* and *GMAS* are positive and significant at the 1 percent level, which shows the significantly positive impact of individualism and masculinity on the level of FSD and supports our main findings. Furthermore, consistent with our preliminary results, the coefficients of *GUAI* is negative and significant, indicating the negative impact of uncertainty avoidance on FSD and the coefficient of *GPDI* is insignificant which shows no effect of PDI on FSD in EMDEs.

4.3.3. An alternative measure of FSD

We also test for robustness with an alternative proxy, *FSDX* (for details, see Section 3.1 and Table S1, available online), for our dependent variable FSD. The results (see Table S6, available online) shows a significantly positive effect of individualism and masculinity and a significantly negative effect of uncertainty avoidance on FSD, consistent with our primary findings. Hence, we find robust evidence that our results are consistent and reliable.

4.3.4. Alternative estimator

We also tested the sensitivity of our findings to diagnostic issues (e.g., potential heterogeneity, autocorrelation, and cross-sectional dependence) using a PCSE regression estimator. PCSE corrects for heterogeneity, autocorrelation, and cross-sectional dependence and is suitable for panel data with T of less than N (Beck & Katz, 2012; Jönsson, 2005). The results of PCSE (see Table S7, available online) are also consistent with our main results and bolster our findings' reliability.

5. Conclusion and policy recommendations

This study investigates the effects of Hofstede's cultural dimensions (individualism, uncertainty avoidance, masculinity, and power distance) on financial sector development in emerging and developing economies, which has not been systematically investigated in prior literature. Furthermore, unlike earlier studies, this research employs a comprehensive financial development index, which encompasses the multidimensional financial system. In adopting this approach, we overcome the limitations in prior literature and offer more comprehensive insights into the culture-finance nexus in emerging and developing economies.

Our empirical results, based on two-step dynamic system-GMM show the significant and heterogeneous effects of individualism, uncertainty avoidance, masculinity, and power distance on financial sector development in emerging and developing economies. Specifically, our empirical results show that individualism and masculinity have a significantly positive effect on the level of financial sector development. In contrast, uncertainty avoidance negatively influences financial sector development in emerging and developing economies. Interestingly, our empirical findings show no significant effect of power distance on financial sector development in emerging and developing economies. Our findings provide robust support to all our hypotheses except H3. These results are robust to alternative variables, including legal origin dummies and an alternative estimation strategy. The robust findings ensure a reliable basis for offering policy implications.

Supported by these empirical results, we conclude that national culture significantly explains cross-country differences in the level of financial sector development in emerging and developing economies. Formal institutions are essential for financial sector development, and national culture is a significant determinant of cross-national financial sector development differences. In particular, we conclude that a higher level of individualism and masculinity are essential dimensions of culture that boost financial sector development, but higher uncertainty avoidance in an economy hinder financial sector development.

This study has policy implications for both practitioners and policymakers. Our results are informative for policymakers in emerging and developing economies regarding how national culture influences financial sector development. The policymakers should be encouraged to tailor their financial strategies by considering indigenous cultural aspects for attaining greater financial sector development benefits. The disregarding of national culture in any financial sector development strategy is unlikely to produce optimal benefits and might prove imprudent. Furthermore, governments and policymakers can mitigate the inhibiting effects of national culture (i.e., uncertainty avoidance) by minimizing risk in financial contracts through building appropriate risk-sharing mechanisms and developing strong regulatory and informational environments.

In sum, stakeholders and policymakers need to understand and consider national culture before pursuing financial sector development goals. We believe that this study contributes to the literature on this topic and offers future research avenues to expand the field further.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.bir.2021.02.003.

[7] Our sample countreis belong to British, French and German legal origins. Further, the data regarding legal origins come from (La Porta, Lopez-de-Silanes, & Shleifer, 2008) and CIA Factbook.

[8] For an explanation of the GLOBE cultural framework, see Section 3.1 and Table S1, available online.

References

Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *Journal of Political Economy, 113*(5), 949−995. https://doi.org/10.1086/432166

Aggarwal, R., Faccio, M., Guedhami, O., & Kwok, C. C. Y. (2016). Culture and finance: An introduction. *Journal of Corporate Finance, 41*, 466−474. https://doi.org/10.1016/j.jcorpfin.2016.09.011

Aggarwal, R., & Goodell, J. W. (2009). Markets and institutions in financial intermediation: National characteristics as determinants. *Journal of Banking & Finance, 33*(10), 1770−1780. https://doi.org/10.1016/j.jbankfin.2009.03.004

Aggarwal, R., & Goodell, J. W. (2014). Cross-national differences in access to finance: Influence of culture and institutional environments. *Research in International Business and Finance, 31*, 193−211. https://doi.org/10.1016/j.ribaf.2013.09.004

Aibai, A., Huang, X., Luo, Y., & Peng, Y. (2019). Foreign direct investment, institutional quality, and financial development along the belt and road: An empirical investigation. *Emerging Markets Finance and Trade, 55*(14), 3275−3294. https://doi.org/10.1080/1540496X.2018.1559139

Aluko, O. A., & Ajayi, M. A. (2018). Determinants of banking sector development: Evidence from Sub-Saharan African countries. *Borsa Istanbul Rev, 18*(2), 122−139. https://doi.org/10.1016/j.bir.2017.11.002

Ang, J. B. (2019). CULTURE, legal origins, and financial development. *Economic Inquiry, 57*(2), 1016−1037. https://doi.org/10.1111/ecin.12755

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics, 68*(1), 29−51. https://doi.org/10.1016/0304-4076(94)01642-D

Ashraf, B. N., Zheng, C., & Arshad, S. (2016). Effects of national culture on bank risk-taking behavior. *Research in International Business and Finance, 37*, 309−326. https://doi.org/10.1016/j.ribaf.2016.01.015

Ball, R. (2001). Individualism, collectivism, and economic development. *The Annals of the American Academy of Political and Social Science, 573*, 57−84.

Beck, N., & Katz, J. N. (2012). What to do (and not to do) with time-series cross-section data. *American Political Science Review, 89*(3), 634−647. https://doi.org/10.2307/2082979

Bjørnskov, C. (2008). Social trust and fractionalization: A possible reinterpretation. *European Sociological Review, 24*(3), 271−283. https://doi.org/10.1093/esr/jcn004

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115−143. https://doi.org/10.1016/S0304-4076(98)00009-8

Bond, S. R., Hoeffler, A., & Temple, J. (2001). GMM estimation of empirical growth models. Retrieved from https://EconPapers.repec.org/RePEc:cpr:ceprdp:3048.

Breuer, W., Riesener, M., & Salzmann, A. J. (2014). Risk aversion vs. individualism: What drives risk taking in household finance? *The European Journal of Finance, 20*(5), 446−462. https://doi.org/10.1080/1351847X.2012.714792

Chen, Y., Dou, P. Y., Rhee, S. G., Truong, C., & Veeraraghavan, M. (2015). National culture and corporate cash holdings around the world. *Journal of Banking & Finance, 50*, 1−18. https://doi.org/10.1016/j.jbankfin.2014.09.018

Choi, K.-S. (2020). National culture and R&D investments. *The European Journal of Finance, 26*(6), 500−531. https://doi.org/10.1080/1351847X.2019.1697324

Chuck, C. Y. K., & Tadesse, S. (2006). National culture and financial systems. *Journal of International Business Studies, 37*(2), 227−247.

Cline, B. N., & Williamson, C. R. (2017). Individualism, democracy, and contract enforcement. *Journal of Corporate Finance, 46*, 284−306. https://doi.org/10.1016/j.jcorpfin.2017.07.010

Das, T. K., & Teng, B.-S. (2004). The risk-based view of trust: A conceptual framework. *Journal of Business and Psychology, 19*(1), 85−116. https://doi.org/10.1023/B:JOBU.0000040274.23551.1b

Díez-Esteban, J. M., Farinha, J. B., & García-Gómez, C. D. (2019). Are religion and culture relevant for corporate risk-taking? International evidence. *Bus Res Q, 22*(1), 36−55. https://doi.org/10.1016/j.brq.2018.06.003

Disli, M., Ng, A., & Askari, H. (2016). Culture, income, and CO2 emission. *Renewable and Sustainable Energy Reviews, 62*, 418−428. https://doi.org/10.1016/j.rser.2016.04.053

Dutta, N., & Mukherjee, D. (2012). Is culture a determinant of financial development? *Applied Economics Letters, 19*(6), 585−590. https://doi.org/10.1080/13504851.2011.589800

Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity* (Vol. 99). New York: Free press.

Gorodnichenko, Y., & Roland, G. (2011). Which dimensions of culture matter for long-run growth? *The American Economic Review, 101*(3), 492−498. https://doi.org/10.1257/aer.101.3.492

Gorodnichenko, Y., & Roland, G. (2015). *Culture, institutions and democratization*. National Bureau of Economic Research Working Paper Series. https://doi.org/10.3386/w21117

Growiec, K., & Growiec, J. (2014). Trusting only whom you know, knowing only whom you trust: The joint impact of social capital and trust on happiness in CEE countries. *Journal of Happiness Studies, 15*(5), 1015−1040. https://doi.org/10.1007/s10902-013-9461-8

Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica, 50*(4), 1029−1054. https://doi.org/10.2307/1912775

Haq, M., Hu, D., Faff, R., & Pathan, S. (2018). New evidence on national culture and bank capital structure. *Pacific-Basin Finance Journal, 50*, 41−64. https://doi.org/10.1016/j.pacfin.2017.09.005

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values* (Vol. 5). Beverly Hills, CA: Sage Publications.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.

Hofstede, G., & Hofstede, J. G. (1991). *Cultures and organizations: Software of the mind*. McGrawHill USA.

Hofstede, G., Hofstede, G. J., & Minkov. (2010). *Cultures and organizations: Software of the mind. Revised and* (expanded 3rd ed.). USA: McGraw-Hill. New York.

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage publications.

Jönsson, K. (2005). Cross-sectional dependency and size distortion in a small-sample homogeneous panel data unit root test*. *Oxford Bulletin of Economics & Statistics, 67*(3), 369−392. https://doi.org/10.1111/j.1468-0084.2005.00124.x

Khan, M. A., Domician, M., Abdulahi, M. E., Sadaf, R., Khan, M. A., Popp, J., et al. (2020a). Do institutional quality, innovation and technologies promote financial market development? *European Journal of International Management*. https://doi.org/10.1504/EJIM.2020.10025994

Khan, M. A., Gu, L., Khan, M. A., & Oláh, J. (2020b). Natural resources and financial development: The role of institutional quality. *Journal of Multinational Financial Management, 56*, 100641. https://doi.org/10.1016/j.mulfin.2020.100641

Khan, M. A., Khan, M. A., Abdulahi, M. E., Liaqat, I., & Shah, S. S. H. (2019a). Institutional quality and financial development: The United States perspective. *Journal of Multinational Financial Management, 49*, 67−80. https://doi.org/10.1016/j.mulfin.2019.01.001

Khan, M. A., Kong, D., Xiang, J., & Zhang, J. (2019b). Impact of institutional quality on financial development: Cross-country evidence based on emerging and growth-leading economies. *Emerging Markets Finance and Trade*, 1−17. https://doi.org/10.1080/1540496X.2019.1588725

Koenker, R., & Bassett, G. (1978). Regression quantiles. *Econometrica, 46*(1), 33−50. https://doi.org/10.2307/1913643

Kyriacou, A. P. (2016). Individualism−collectivism, governance and economic development. *European Journal of Political Economy, 42*, 91−104. https://doi.org/10.1016/j.ejpoleco.2015.11.005

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2008). The economic consequences of legal origins. *Journal of Economic Literature, 46*(2), 285−332. https://doi.org/10.1257/jel.46.2.285

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *The Journal of Finance, 52*(3), 1131−1150. https://doi.org/10.1111/j.1540-6261.1997.tb02727.x

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy, 106*(6), 1113−1155. https://doi.org/10.1086/250042

Licht, A. N., Goldschmidt, C., & Schwartz, S. H. (2005). Culture, law, and corporate governance. *International Review of Law and Economics, 25*(2), 229−255. https://doi.org/10.1016/j.irle.2005.06.005

Licht, A. N., Goldschmidt, C., & Schwartz, S. H. (2007). Culture rules: The foundations of the rule of law and other norms of governance. *Journal of Comparative Economics, 35*(4), 659−688. https://doi.org/10.1016/j.jce.2007.09.001

Li, K., Griffin, D., Yue, H., & Zhao, L. (2013). How does culture influence corporate risk-taking? *Journal of Corporate Finance, 23*, 1−22. https://doi.org/10.1016/j.jcorpfin.2013.07.008

Liu, H., Islam, M. A., Khan, M. A., Hossain, M. I., & Pervaiz, K. (2020). Does financial deepening attract foreign direct investment? Fresh evidence from panel threshold analysis. *Research in International Business and Finance, 53*, 101198. https://doi.org/10.1016/j.ribaf.2020.101198

Meier-Pesti, K., & Penz, E. (2008). Sex or gender? Expanding the sex-based view by introducing masculinity and femininity as predictors of financial risk taking. *Journal of Economic Psychology, 29*(2), 180−196. https://doi.org/10.1016/j.joep.2007.05.002

Mihet, R. (2013). Effects of culture on firm risk-taking: A cross-country and cross-industry analysis. *Journal of Cultural Economics, 37*(1), 109−151. https://doi.org/10.1007/s10824-012-9186-2

North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge university press.

Powell, M., & Ansic, D. (1997). Gender differences in risk behaviour in financial decision-making: An experimental analysis. *Journal of Economic Psychology, 18*(6), 605−628. https://doi.org/10.1016/S0167-4870(97)00026-3

Roberts, M. R., & Whited, T. M. (2013). Chapter 7 - endogeneity in empirical corporate Finance1. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the economics of finance* (Vol. 2, pp. 493−572). Elsevier.

Roland, G. (2004). Understanding institutional change: Fast-moving and slow-moving institutions. *Studies in Comparative International Development, 38*(4), 109−131. https://doi.org/10.1007/BF02686330

Singh, V., Li, B., & Roca, E. (2017). How pervasive is the effect of culture on stock market linkages? Evidence across regions and economic cycles. *Applied Economics, 49*(42), 4209−4230. https://doi.org/10.1080/00036846.2017.1279268

Stulz, R. M., & Williamson, R. (2003). Culture, openness, and finance. *Journal of Financial Economics, 70*(3), 313−349. https://doi.org/10.1016/S0304-405X(03)00173-9

Svirydzenka, K. (2016). *Introducing a new broad-based index of financial development*. International Monetary Fund.

Taras, V., Rowney, J., & Steel, P. (2009). Half a century of measuring culture: Review of approaches, challenges, and limitations based on the analysis of 121 instruments for quantifying culture. *Journal of International Management, 15*(4), 357−373. https://doi.org/10.1016/j.intman.2008.08.005

Wang, N., Zhu, H., Guo, Y., & Peng, C. (2018). The heterogeneous effect of democracy, political globalization, and urbanization on PM2.5 concentrations in G20 countries: Evidence from panel quantile regression. *Journal of Cleaner Production, 194*, 54−68. https://doi.org/10.1016/j.jclepro.2018.05.092

Zaidi, S. A. H., Wei, Z., Gedikli, A., Zafar, M. W., Hou, F., & Iftikhar, Y. (2019). The impact of globalization, natural resources abundance, and human capital on financial development: Evidence from thirty-one OECD countries. *Resources Policy, 64*, 101476. https://doi.org/10.1016/j.resourpol.2019.101476

Zheng, X., El Ghoul, S., Guedhami, O., & Kwok, C. C. Y. (2012). National culture and corporate debt maturity. *Journal of Banking & Finance, 36*(2), 468−488. https://doi.org/10.1016/j.jbankfin.2011.08.004