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Investment Diversification and Optimal Cultural Background

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Abstract: Investment diversification is a prerequisite for dynamic growth performance. It is intuitively accepted that cultural background affects investment behavior and investment decision making, but does cultural change affect investment diversification? This paper assesses whether cultural background shapes growth performance through investment diversification. Empirical analysis was conducted using decade-level data for a sample of 33 OECD countries over the 30-year period from 1981 to 2010. Using fixed effects estimation, different intercepts across countries, and decade time dummies, the analysis shows that societies that are closer to the optimal cultural background achieve better investment diversification behavior. The article thus contributes to the long-standing debate on the cultural roots of growth.

Keywords: culture; cultural change; diversification; investment; panel data

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1. Introduction

The scope of cultural background's effect on economic development and growth is a pertinent issue in economics (Schumpeter, 1934), sociology (Weber, 1930), and psychology (McClelland, 1961). The cultural characteristics of societies are psychosocial stereotypes that have developed over time. These stereotypes are human constructs that existed long before the emergence of today's transactions and institutions. Economic development is affected by traits that have been transmitted from generation to generation through fundamental factors that are rooted in history (Spolaore and Wacziarg, 2013). These traits define the cultural backgrounds of societies.

Given the relationship between cultural background and investment behavior, and given the cultural changes that are embodied in social behavior and economic decisions, we address the following question: Does cultural

change affect investment diversification? Diversification is important for the economy. Diversification of investment and production is essential for economic growth. This statement has been extensively analyzed in the economic literature. The Nobel laureate Simon Kuznets (1971) defined a country's economic growth as a long-term rise in capacity to supply increasingly diverse economic goods to the population. This definition is supported by the views of Grossman and Helpman (1992), who claim that for an economy to grow, it must produce an increasing quantity, quality, and variety of goods and services.

This paper explores the relationship between cultural background and investment behavior by focusing on investment diversification. Empirical evidence is provided through the analysis of three decades of data for a sample of 33 OECD countries. The paper shows how changes in the cultural background of societies between 1980 and 2010 have influenced investment diversification behavior. Societies that are characterized by optimal cultural values—that is, societies that are close to the optimal cultural background—achieve investment diversification behavior, unlike societies that have low scores in their cultural values. Although several studies have examined the impact of cultural background on economic outcomes and investment behavior, no study has linked cultural background to investment diversification behavior. Most empirical studies that have used cross-country data to investigate the effects of cultural background on economic outcomes (Alesina and Giuliano, 2015; Gorodonichencko and Roland, 2010, 2015; Guiso et al., 2006) have considered cultural traits as enduring qualities. In this study, a broad study period was considered. Panel data on cultural background and investment diversification over the past three decades were used.

We contribute to the literature by adopting a broad definition of cultural background while considering specific cultural traits. In addition, by determining differences in the performance of societies with optimal cultural characteristics and the performance of other societies, we also contribute to the literature that explores cultural effects on economic outcomes. This last contribution relates to the implications of this study. Linking the investment diversification behavior to the cultural background of societies can highlight critical issues regarding economies' growth potential, thereby explaining the presence of stagnated growth prototypes.

This article has the following structure: Section 2 reviews the literature discussing the effects of cultural background on investment behavior. Section 3 describes the data and method that were used for the empirical analysis. Section 4 presents the empirical results. Lastly, Section 5 offers a discussion and conclusions.

2. Literature Review

The terms "culture" and "cultural background" reflect the behavior of the individual. This behavior is influenced by others through teaching, imitation, and other forms of social transmission. Culture comprises all beliefs, preferences, skills, values, stereotypes, and norms that characterize the members of a society and differentiate them from members of other societies. The way that an individual behaves, perceives, and reacts depends on the architecture of the human mind and body, which is shaped over millennia by organic evolution. Therefore, culture can be considered an aspect of human biology, as well as an important factor in shaping the way people think and function (Boyd and Richerson, 2005). Hofstede (2001) describes culture as "the collective programming of the mind," whereas Inglehart (1977) refers to it as a "system of attitudes, values and knowledge that is widely shared within a society and is transmitted from generation to generation."

But does cultural background have any systematic influence on economic decision making? This question is at the heart of research into the effects of culture on economic outcomes. In this paper, we focus on investment decisions. An affirmative answer to this question would explain why some countries are unable to achieve a pro-growth prototype (Petrakis et al., 2016) because it is widely accepted that cultural background changes gradually and therefore influences the investment structure.

Certain theorists support the thesis that cultural background affects investment decisions and behavior (Anderson et al., 2011; Beckmann et al., 2008; Griblatt and Keloharjut, 2001; Levinson and Peng, 2007). Anderson et al. (2011) conclude that culture affects investor behavior directly rather than though indirect channels such as legal and regulatory frameworks. Cultural background has also been found to affect investment decisions

in financial markets (Guiso et al., 2007; Hernandez and Cervantes, 2012), economic decision making, judgments of financial value and property ownership (Levinson and Peng, 2007), earnings-management decisions in firms (Cetenak et al., 2017), and the importance of stock markets (Jong and Semenov, 2002).

Be it directly or indirectly, culture influences the outcome of economic procedures. The views of the people and the grid of values influence the organization and operation of institutions, and hence the way available resources within society are channeled. The converse is also true: Though indirectly, the economic outcome and institutions can influence the way individuals think and therefore their cultural background (Petrakis, 2014).

Numerous studies have quantified the effects of cultural background. These studies provide data for many countries (Hofstede, 2001; House et al., 2004; McClelland, 1961). These studies' results show that culture can have specific, significant effects on economic growth (Granato et al., 1996; Marini, 2004; Minkov and Blagoev, 2009; Triandis, 1995).

Beckmann et al. (2008) report that differences in cultural background are useful for understanding country differences that cannot be interpreted solely using economic logic. Drawing on Hofstede's (2001) four cultural dimensions, Beckmann et al. (2008) reported several interesting findings: more individualistic societies tend to have less herding behavior; greater power distance leads to older and less-experienced managers in the upper hierarchy; masculinity takes men to top positions and gives them higher volumes of assets under their personal responsibility; and uncertainty avoidance relates to higher safety margins against tracking error allowed and greater research effort.

Investigating how cultural background affects economic decision making, Levinson and Peng (2007) found dramatic cultural differences and observed the influence of variables such as framing, morality, and group membership. The decision-making process depends greatly on cultural background (Cetenak et al., 2017). Executives' financial decisions vary from society to society because of cultural differences.

Cultural background also affects individuals' cognitive and emotional capacity in terms of investment behavior (Statman, 2008). Inhabitants of low-income countries have high expectations with regard to their current income. They assign greater risk to a possible change in their lives than do individuals in collectivistic countries, where people take more risks because their in-groups provide downside protection and because trusting people are willing to take more risk.

Typical examples of the cultural background's influence on the development of traditional investments are town planning, transport, and the environment (Petrakis, 2014). A society that strongly favors the present over the future would struggle to implement town planning and environmental planning schemes to serve the interests of future generations. In such societies, towns and infrastructure are not planned. If they are, they have a tight development schedule because of a reliance on short-term profit maximization. However, town planning is by nature a serious requirement for economic structures. It dramatically influences the way economies grow. Hence, if investments in traditional infrastructure assets (e.g., ports and airports) are poorly executed and lack foresight, they can easily lose value and prove difficult to replace.

High-trust nations tend to reduce transaction costs, promote economic efficiency, offer incentives for large-scale investment, and, ultimately, boost economic development. Risk-averse societies tend to have lower growth perspectives because investment initiatives are constrained (Petrakis, 2014).

Griblatt and Keloharjut (2001) argue that investors simultaneously prefer nearby, same-language, and same-culture firms. Considerable evidence suggests an inverse link between the magnitude of these effects of investment behavior and investment complexity.

Jong and Semenov (2002) examined how factors that determine differences in stock market activity in different societies correlate with the standards and values of each society. These standards and values reflect cultural dimensions. Jong and Semenov concluded that societies with low uncertainty avoidance are particularly important for stock markets. Such societies tolerate uncertainty and reward competition (high score of masculinity).

Anderson et al. (2011) argue that intercultural attitudes help explain home bias and diversification in foreign equities. They report that investment schemes that originate in countries with high uncertainty avoidance have greater home bias and less diversification in foreign holdings. In addition, portfolios from countries with high levels

of masculinity and long-term orientation have lower home bias levels, while portfolios from countries with high masculinity levels are more diversified abroad. They conclude that cultural background affects the behavior of investors directly—not only indirectly through channels such as the legal and regulatory framework.

Zhan (2012) examined the impact of national culture on herding behavior in international financial markets. Zhan also examined the relationships between culture and investment behavior and between culture and overall market volatility. Zhan observed that societies with lower levels of individualism are more likely to have a higher number of synchronized stock price movements. In addition, correlation between stock price movements increases stock market volatility, while highly individualistic behaviors reduce the number of synchronized stock price movements (i.e., lower stock market volatility) (Guiso et al., 2007).

Although there are no similar empirical studies, this study examined whether the effect of cultural background on decision making and investment behavior determines investment diversification. A diversified economy receives income from several directly unrelated sources (Shayah, 2015). If a country's income depends on the production of just one product, fluctuations in the price of that product can lead to fluctuations in the standard of living. Imbs and Wacziarg (2003) identified a pattern of sector diversification throughout development. Countries first diversify, spreading economic activity across sectors. However, late in the development process, countries start specializing again. So, sectoral diversification first increases, but beyond a certain level of per capita income, the sector distribution of economic activity starts to shrink.

Furthermore, economic growth and structural change depend on the types of products that are traded (Hausmann and Klinger, 2006; Hwang, 2006). Thus, export diversification allows an economy to progress toward the production and exportation of sophisticated products that may contribute to sustainable economic development, the achievement of macroeconomic objectives, satisfactory balance of payments, stable export revenues, and high rates of employment and redistribution of income. Romer (1990) therefore identifies diversification as an input factor that improves the efficiency of other factors of production. Similarly, Acemoglu and Zilibotti (1997) claim that diversification may increase income by increasing the potential to spread investment risks over a wider portfolio.

Osakwe (2007) reports a more specific effect of product diversification, linking diversification to risk. Osakwe found that policymakers in developing countries seek to diversify their production and export structures to reduce vulnerability to external shocks. This finding is consistent with those of Ramey and Ramey (1995), who report that more diversified economies are less volatile in terms of outputs and that lower output volatility is associated with greater economic growth. A diversification strategy is often employed by owner-managers to reduce employment- and reputation-related risks. Such strategies can decrease the financial risk of firms by allowing firms to diversify into unrelated activities (Amihud and Lev, 1981). Furthermore, intra-industry product diversification leads to a trade-off between the potential risks of exceeding the reasonable capacity to offer diverse products and the possible demand externalities that are generated by offering a broad range of products (Kang et al., 2010). Ballivian and Sickles (1994) analyzed the relationship between risk-avoidance behavior and economic jointness in multioutput technology, noting that diversification in production can have several explanations, including jointness, cost complementarities, and risk avoidance.

Systematic risk can be affected by diversification. Bettis and Mahajan (1985) and Montgomery and Singh (1984) have linked diversification strategies to the level of systematic risk in terms of the systematic risk beta (taken as a proxy for market risk). They conclude that diversification increases corporate returns and reduces systematic risk. Lubatkin and Chatterjee (1994) present two opposite effects of systematic risk that nullify one another. While diversification reduces systematic risk, it also increases leverage, which tends to increase systematic risk. Lubatkin and Chatterjee (1994) also argue that firms can significantly minimize risk by diversifying into similar businesses rather than identical or very different businesses.

Therefore, the cultural characteristics of societies affect the way in which its members allocate available resources to specific investments. Thus, a portfolio of investment choices emerges in each society with particular characteristics, forming a pro-growth or stagnated growth prototype (Petrakis et al., 2016).

3. Method and Data Description

Our dataset consisted of an unbalanced panel of decade-level data for the OECD countries over the period 1980 to 2010. The final sample and study period were determined by data availability. Data on investment by asset were gathered from the OECD database. Cultural variables were gathered from Bützer et al.'s (2013) dataset. We used an unbalanced panel of 33 countries[1] and data from three decades for the analysis.

To examine the effects of culture on investment diversification behavior, we first employed the following baseline estimation equation:

$$Diversification_{it} = a_i + \beta\ CulturalIndex_{it} + \ \gamma\ Z_{it} + \lambda_t + u_{it}, \quad (1)$$

where i denotes the country and t the decade ($t_{max} = 3$). For each country, the dependent variable, $Diversification_{it}$, denotes the sum of the differences (with respect to a benchmark of countries) in terms of investment in six asset types. For each country, $CulturalIndex_{it}$ denotes the sum of differences (with respect to a benchmark of countries) in terms of six cultural variables. Z_{it} is a vector of macroeconomic control variables. α_i is a set of country-specific fixed effects that capture the influence of unobserved country-specific heterogeneity. Finally, time dummies, λ_t, for each decade in the sample control for decade-specific effects.

Equation (1) was analyzed using panel data estimation. Fixed effects estimation was used. Fixed effects estimation allows for individual heterogeneity using different intercepts across countries. Estimation can be performed using ordinary least squares. We employed cluster-robust estimation for standard errors to control for serial correlation and heteroskedasticity. We included decade time dummies to incorporate time-specific effects that were common to all countries in our sample.

Following previous studies of the impact of culture on the macroeconomy (Bjornskov and Meon, 2015; Bützer et al., 2013) and studies of the relationship between institutions and diversification (Boschma and Capone, 2015; Hare, 2008), we included institutional variables as controls to isolate their effect on diversification. Restricted by data availability, we included the level of government expenditure (gov), the quality of government as a measure of institutional quality (qog), and confidence in national institutions (conf). The control variables were sourced from Bützer et al.'s (2013) dataset.

As a benchmark for investment diversification, we used investment by asset from the OECD database. These data reflect investment in each asset type as a percentage of gross fixed capital formation. We included the following asset types in our analysis: dwellings (excluding land), other buildings and structures (roads, bridges, airfields, dams, etc.), transport equipment (ships, trains, aircraft, etc.), other machinery and equipment (Information and Communication Technology (ICT) equipment, office machinery and hardware, weapons systems, etc.), cultivated assets (managed forests, livestock raised for milk production, etc.), and intellectual property products (intangible fixed assets such as R&D, mineral exploration, software and databases, and literary and artistic originals).

We then calculated an investment diversification index based on the data described above. This index was calculated as the difference between each country and a benchmark (i.e., the five countries with the highest GDP growth rate over the last three decades). We assumed that countries that had achieved the highest GDP growth rates over the last three decades would have also achieved good investment diversification performance and should therefore be regarded as a benchmark for other economies in terms of economic performance. To determine which countries were used for this investment diversification benchmark, we checked which countries had the highest GDP growth rates in each year over the last three decades. We summed the classification for each country each year. The countries with the lowest sum were classified in the top positions over the study period. We then took the average investment per asset type for the countries in the top five positions. These averages provided our benchmark. The sum of differences between each country's investment in each asset type and the benchmark countries' investment

[1] The countries used in the dataset are the following: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, USA.

in each asset type yielded the investment diversification index. The smaller the price of the index, the smaller the difference of a country from the benchmark countries, and the better the diversification performance of that country.

We also developed an index for cultural values. The cultural dataset was gathered from Bützer et al. (2013). This dataset contained decade-level data for cultural variables. The cultural variables in Bützer et al.'s (2013) dataset were created using survey data from the World Values Survey (WVS) and the European Values Study (EVS). These data were aggregated to decade-level data, thereby providing observations over three decades (1980s, 1990s, and 2000s) for each country. The variables were interpersonal trust, control of life, work ethic, obedience, competition affinity, honesty, and propensity to save (for detailed definitions, see Bützer et al., 2013). We used the maximum value for each of the six cultural variables (obedience and competition affinity were measured on a reversed scale) as a benchmark. As we did for the investment diversification index, we used the sum of differences between each country's score for each cultural variable and the benchmark score to define the cultural index. The smaller the score of the index, the smaller the difference between the country score and the benchmark score, and the better the cultural background of that country.

We classified our dataset based on each country's cultural index score. We grouped countries depending on whether their cultural index scores lay above or below the median of the cultural index for each decade. We studied the correlations between the diversification index and the cultural index for countries whose median cultural index values were above or below the median. We then studied the effects of cultural background on investment diversification based on the following two equations, which follow the same estimation approach as in Equation (1):

$$Div\ Index\ above_{it} = a_i + \beta\ Cult\ Index\ above\ _{it} + \ \gamma\ Z_{it} + \lambda_t + u_{it}, \tag{2}$$

$$Div\ Index\ below_{jt} = a_i + \beta\ Cult\ Index\ below\ _{jt} + \ \gamma\ Z_{jt} + \lambda_t + u_{jt}, \tag{3}$$

where i denotes the countries above the median for Equation (2), j the countries below the median for Equation (3), and t the decade ($t_{max} = 3$). $DivIndexabove_{it}$ and $DivIndexbelow_{it}$ reflect the diversification index for countries whose scores lay above and below the median of the cultural index, respectively. Similarly, $CultIndexabove_{it}$ and $CultIndexbelow_{it}$ reflect the cultural index for countries whose scores lay above and below the median of the cultural index, respectively. As in Equation (1), Z_{it} is a vector of macroeconomic control variables, α_i is a set of country-specific fixed effects that capture the influence of unobserved country-specific heterogeneity, and λ_t are time dummies that control for decade-specific effects. Table 1 provides the descriptive statistics of the variables in the analysis.

		Mean	SD	Min.	Max.	Obs.
Investment	Diversification	20.148	12.424	0.000	70.250	99
	Diversification index above median †	23.178	9.664	9.830	52.720	40
	Diversification index below median †	21.098	7.439	5.960	36.950	38
	Dwellings	22.092	7.868	8.316	57.883	82
	Other building	30.899	8.568	16.720	65.276	83
	Transports	8.768	2.847	4.533	21.385	80
	Other machinery	10.419	3.190	1.924	19.825	51
	Cultivated assets	0.566	0.893	−0.150	5.196	65
	Intellectual	12.362	5.872	1.481	27.712	79
Culture	Cultural index	13.941	12.067	−0.044	49.895	91
	Cultural index above median †	19.379	10.603	10.310	49.900	40
	Cultural index below median †	5.555	2.908	−0.040	11.150	38
	Trust	3.490	1.405	0.884	7.016	86
	Control	6.928	0.595	5.080	8.012	84
	Work ethic	−0.069	1.023	−2.188	1.932	86
	Obedience	−0.240	1.019	−2.344	1.581	86
	Competition	−0.079	0.907	−1.966	2.742	67
	Honesty	−0.021	1.213	−5.441	1.770	86
	Propensity to save	0.329	0.113	0.094	0.634	86
Control variables	gov	2.947	0.206	2.431	3.290	53
	qog	0.831	0.153	0.476	1.000	91
	conf	0.187	1.056	−1.895	4.495	67

Note: gov—the level of government expenditures; debt—government debt; inf—inflation; qog—institutional quality; conf—confidence in national institutions; Obs. —number of observations; † "median" refers to the median of the cultural index.

Table 1 Summary statistics.

4. Empirical Results

The five countries with the highest GDP growth rates over the last three decades were Korea, Ireland, Israel, Australia, and Poland (Table A1 in the Appendix A classifies the countries for each year and shows the average score for the entire period of 1981 to 2010). These countries were taken as the benchmark countries in our analysis. The diversification index was built by calculating each country's difference from this benchmark and summing these differences for each asset type.

The best scores for the cultural index were attained by the Czech Republic in competition affinity in the second decade, Denmark in trust in the third decade, Japan in obedience in the third decade, Korea in propensity to save in third decade, Mexico in control of life in the third decade, Norway in work ethic in the third decade, and Sweden in honesty in the first decade (Table A2 in the Appendix A shows the best scores for each cultural variable). These scores were taken as the benchmark scores in our analysis to represent an optimal cultural background. For each country and for each decade, the cultural index was built by calculating each country's difference from this benchmark and summing these differences.

The correlation between the diversification index and cultural index was 0.006. After dividing the sample into above- and below-median countries in terms of the cultural index scores for each decade, we obtained the correlations in Table 2.

The correlations improved for countries that were classified below the median of the cultural index in decades 2 (correlation 0.429) and 3 (correlation 0.276). The countries with below-median scores had smaller differences from the benchmark scores.

Table 3 shows the results of the fixed effects estimation of Equations (1)–(3). Fixed effects estimation allows for individual heterogeneity using different intercepts across countries. It also enables estimation using ordinary least squares.

	Decade 1		Decade 2		Decade 3	
	Diversification (countries above median in cultural index)	Diversification (countries below median in cultural index)	Diversification (countries above median in cultural index)	Diversification (countries below median in cultural index)	Diversification (countries above median in cultural index)	Diversification (countries below median in cultural index)
Above median † cultural index	0.140		0.121		0.118	
Below median † cultural index		−0.070		0.429		0.276

Note: † "median" refers to the median of the cultural index.

Table 2 Correlations between cultural index and diversification index.

		Cultural index	Cult. index above†	Cult. index below†	gov	qog	conf	Obs.	R^2	F
(1)	Diversification	−0.117 (0.132)						88	0.062	2.95 *
(2)	Div. index above †		−0.046 (0.101)					40	0.003	0.48
(3)	Div. index below †			0.858 ** (0.409)				38	0.205	5.21 **
(4)	Div. index below †			2.582 *** (0.242)	−31.205 * (11.250)	110.55 ** (20.531)	6.929 ** (2.091)	21	0.210	25.70 **

Notes: standard errors in parentheses; * and ** denote significance at the 10% and 5% significance levels, respectively; all estimations were carried out using the fixed effects method allowing for both country- and decade-specific effects with robust standard errors; gov—the level of government expenditures; qog—institutional quality; conf—confidence in national institutions; Obs. —number of observations; † "above" and "below" refer to above and below the median of the cultural index, respectively.

Table 3 Dependent variable: Diversification index.

The results do not imply a significant relationship between the cultural index and the diversification index (regression 1 in Table 3). After grouping the countries according to whether their cultural index scores lay above or below the median, we observed that for above-median countries, there was no significant relationship between culture and investment diversification (regression 2 in Table 3). However, regression 3 in Table 3 indicates a positively significant relationship between culture and investment diversification for countries whose cultural index scores lay below the median. Countries that were closer to the benchmark of the seven cultural variables seemed to achieve better investment diversification.

Next, we drew on the literature to explore the sensitivity of our results regarding the relationship between culture and investment diversification and to control for any potential indirect effect—through the society's macroeconomic and institutional environment—of culture on investment diversification. To do so, we included additional control variables and employed alternative specifications of Equation (3). The results in Table 3 show that the positive effect of cultural background on investment diversification remained stable and even strengthened when we used control variables in our analysis. Regression 4 in Table 3 shows the baseline specification including control variables. The positive effect of culture on investment diversification was intensified. In regression 4, we observed the greatest impact of cultural background on investment diversification.

5. Discussion and Conclusions

Countries have varying levels of investment diversification because of different cultural backgrounds. A society's grid of values either encourages or discourages investment diversification behavior. The analysis showed that cultural background change that took place over the last three decades led to changes in the investment behavior of societies—specifically, changes in the investment diversification of economies.

We used an unbalanced panel of decade-level data for 33 OECD countries over the period 1981 to 2010 to explore the relationship between cultural change and investment diversification. Using fixed effects estimation, different intercepts across countries, and decade time dummies, we showed that societies that are closer to the optimal cultural background achieve better investment diversification. This positive effect of cultural background on investment diversification remains stable across different control variables and alternative specifications.

Our findings are important for policymakers, who need to understand the investment diversification of their economies. By understanding the effects of cultural background on investment diversification, policymakers will be better equipped to confront issues regarding economic performance because diversification of investment is essential for economic growth. Governments should establish processes to improve cultural values and reduce cultural barriers. For example, appropriate investment in human capital through education is necessary.

One limitation of the empirical analysis is the assumption that countries that had a strong GDP growth rate also had strong investment diversification. This assumption reflected an attempt to calculate a diversification index for the study period. A further limitation is that the exact factors that led to cultural background change cannot be derived, nor can the factors that explain how or in which direction the cultural background changed in the last three decades.

Future research should focus on the effects of cultural change on investment diversification over an extended period. For example, future studies should use annual data. Improved data collection methods in the coming years would help researchers enhance research into cultural background changes and strengthen the validity of cultural data (Guiso et al., 2006).

Appendix A

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Mean 1981–2010
Korea	2	1	1	1	1	1	1	1	3	1	1	3	1	1	3	2	8	33	1	3	3	1	13	11	10	10	9	6	4	1	4.6
Chile	3	29	28	7	23	4	5	3	1	13	3	1	2	9	4	4	3	11	32	7	9	11	5	2	6	4	11	3	6	3	8.4
Ireland	14	12	25	16	24	28	13	21	5	3	15	4	13	5	2	1	2	1	2	2	2	3	7	3	5	6	16	32	19	19	10.7
Israel	4	14	11	23	7	7	4	18	25	4	5	2	7	2	1	6	19	15	18	4	32	33	23	8	8	7	7	5	3	5	10.9
Luxembourg	20	16	13	8	3	2	12	2	2	7	2	13	5	18	29	28	7	3	3	5	16	10	22	12	14	11	3	29	24	4	11.4
Poland	29	28	2	28	11	9	21	20	16	28	28	11	4	8	6	5	4	5	10	14	27	21	9	6	12	5	5	2	1	10	12.8
Australia	8	20	24	4	5	18	8	14	9	19	23	9	6	11	14	11	15	8	13	30	14	7	12	17	16	24	12	8	2	17	13.3
USA	13	26	3	2	8	8	15	15	18	18	19	6	10	15	16	13	11	12	8	19	28	16	15	20	13	25	29	23	10	15	15.0
Finland	17	4	6	15	13	17	14	8	7	25	27	28	24	16	8	15	6	4	11	6	13	18	18	19	21	17	10	19	32	12	15.0
Spain	24	15	15	25	18	10	6	7	8	11	12	20	28	26	10	23	20	10	7	10	5	13	11	22	11	15	15	14	14	31	15.2
Iceland	6	9	27	12	14	3	2	28	29	21	20	29	15	19	31	10	18	2	14	12	6	26	16	1	3	12	2	12	30	32	15.4
New Zealand	11	5	23	3	28	25	19	25	24	22	26	19	3	3	7	14	25	30	12	20	15	4	4	13	23	23	14	25	5	20	16.3
Canada	10	27	10	6	6	22	10	12	23	26	25	18	11	13	17	25	17	19	5	9	23	12	19	23	15	26	28	15	12	11	16.5
Mexico	1	21	29	13	22	29	24	23	13	8	6	7	14	12	32	7	5	7	24	8	33	29	21	16	18	13	23	13	20	6	16.6
Norway	15	19	5	5	4	6	23	29	26	17	11	5	8	10	9	9	9	25	25	29	18	22	24	18	22	29	24	20	7	30	16.8
Sweden	5	13	12	10	19	14	16	22	22	23	22	26	30	14	12	27	26	13	9	11	24	15	17	15	20	14	19	27	23	2	17.4
Netherlands	25	24	14	17	16	13	22	11	10	10	13	14	16	21	19	17	16	9	6	15	17	31	29	30	25	21	17	10	15	27	17.7
Portugal	9	8	19	29	26	11	3	6	4	2	8	8	23	29	23	18	14	6	15	23	20	24	33	31	32	32	26	21	13	24	18.0
UK	27	10	4	22	9	12	7	5	21	24	24	24	12	17	21	22	24	23	20	25	12	14	10	28	19	27	25	28	18	23	18.6
Japan	7	3	7	9	2	16	9	4	6	6	9	21	18	31	15	19	32	32	31	32	31	30	20	29	28	33	30	31	25	8	19.1
Slovak Rep.	32	32	32	32	32	32	32	32	32	32	32	32	33	4	5	3	13	17	30	33	8	5	3	5	2	2	1	1	26	7	19.4
Austria	22	11	8	27	20	21	25	24	15	9	7	10	17	24	18	24	29	20	16	28	26	19	27	25	26	22	18	11	16	22	19.6
Hungary	12	6	20	20	29	26	11	27	27	27	29	27	21	22	20	33	22	14	21	16	7	6	6	9	7	20	33	16	29	29	19.7
Greece	28	23	26	24	17	27	29	13	17	29	10	23	29	28	26	21	12	18	22	21	4	8	2	7	33	9	22	24	17	33	20.1
Denmark	26	2	9	11	10	5	28	26	28	20	17	12	19	6	13	20	23	26	23	24	29	25	28	26	24	18	32	26	22	25	20.1
Estonia	31	31	31	31	31	31	31	31	31	31	31	31	32	32	25	8	1	16	33	1	1	2	1	4	1	1	4	33	33	16	20.5
Belgium	23	17	22	21	25	24	20	10	19	14	14	16	26	20	22	26	21	27	17	27	30	17	26	21	27	28	20	18	9	14	20.7
Switzerland	16	25	21	18	12	23	26	19	11	12	21	25	20	30	30	32	28	24	27	18	25	28	31	27	17	16	13	9	8	13	20.8
France	18	7	17	26	27	20	18	9	12	15	18	15	22	25	27	29	27	21	19	22	19	23	25	24	29	30	27	22	11	21	20.8
Slovenia	33	33	33	33	33	33	33	33	33	33	33	33	9	7	11	16	10	22	4	17	11	9	14	14	9	8	6	4	31	28	20.9
Germany	21	22	16	19	21	19	27	17	14	5	4	17	27	23	28	31	30	28	26	31	21	32	32	33	31	19	21	17	28	9	22.3
Czech Rep.	30	30	30	30	30	30	30	30	30	30	30	30	31	33	33	12	33	31	29	13	10	20	8	10	4	3	8	7	21	18	22.8
Italy	19	18	18	14	15	15	17	16	20	16	16	22	25	27	24	30	31	29	28	26	22	27	30	32	30	31	31	30	27	26	23.7

Note: Chile and Luxembourg were excluded from the top five countries because of a lack of data for certain asset types.

Table A1 Classification of the countries in GDP growth rate (1981–2010).

Country	Decade	Competition Affinity	Obedience	Control of Life	Trust	Work Ethic	Propensity to Save	Honesty
Czech Rep.	1991–2000	−1.97						
Germany	2001–2010				70.16			
Japan	2001–2010		−2.34					
Korea	2001–2010						0.63	
Mexico	2001–2010			8.01				
Norway	2001–2010					1.93		
Sweden	1981–1990							1.77

Table A2 Best scores in each cultural variable.

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