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Diversity matters in the world of finance: does ethnic and religious diversity hinder financial development in developing countries?

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Abstract

This paper investigates the relationship between ethnic and religious diversity and financial development by using the data for 102 developing countries. It is widely accepted that financial depth, and the more ready availability of finance, has a central role to play in fostering economic growth. We hypothesize that financial development in developing countries, especially those at the early stages of economic development, may be retarded by pre-existing ethnic and religious diversity, which may produce conflict. However, we believe that this risk can be moderated by sound institutional functioning – including good governance and democracy. Financial depth is measured by M2 and private credit (as a percentage of GDP); the Alesina fragmentation index is used for measuring ethnic and religious diversity, varieties of democracy (VDEM) and the quality of governance datasets. Our results are supportive of our hypothesis that ethnic and religious diversity can indeed hamper financial development; these risks, however, are mitigated by well-functioning institutional arrangements.

Keywords

Ethnic diversity; religious diversity; financial development.

JEL classification: Z10; Z13; G0

Diversity matters in the world of finance[1]
Does ethnic and religious diversity hinder financial development in developing countries?

1 Introduction

At the start of the twenty-first century, the world is returning to some of its fundamental, unresolved questions despite – or, perhaps, because of – wide-ranging social transformations, the growth in individual freedoms, the rise of the new knowledge-based economy and the emergence of an information-technology revolution. The United Nations Educational, Scientific, and Cultural Organization's (UNESCO's) *World Culture Report 2000* appeared at a time of growing awareness that the dimensions of globalization are not only economic and technological.[2] The search for ways to influence – or invent – the social and ethical dimensions of globalization lead inevitably to questions of culture. These questions of cultural identity and expression, diversity and pluralism, cultural development and heritage go to the heart of UNESCO's mandate in the field of culture – and ethnic and religious identities and expressions are challenged in a number of ways by the processes of globalization (Woodward, Skrbis & Bean, 2008).

So, what are "diversity" and "financial development"? Diversity is a balance of individuals from particular demographics, backgrounds and cultures. Inclusivity, with which it is often confused, is reflective of how that diversity is embraced throughout an organization. A truly inclusive culture must be established from the top, filtered down and embraced by everyone within the business. "Financial development" can be defined as the delivery of banking services at an affordable cost to the vast sections of the disadvantaged and low-income groups (Dutta & Mukherjee, 2012). Financial development has been a major policy objective for the governments of many developing and emerging countries, and there is great hope that it will bring the excluded population into the formal financial sector so that they can have access to formal financial products and services (Kim, Yu & Hassan, 2020). Many governments are making tremendous efforts to achieve high levels of financial development for the benefit of their citizens, and there are many success stories on financial development around the world – particularly in India (Nimbrayan, Tanwar & Tripathi, 2018), Rwanda (Otioma, Madureira & Martinez, 2019), Kenya (Van Hove & Dubus, 2019) and Peru (Cámara and Tuesta 2014).

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[2] For more details, see: World culture report, 2000: cultural diversity, conflict and pluralism - UNESCO Digital Library.

The available literature widely discusses the importance of financial development and indicates that it is the backbone of any economy. The World Bank estimates that 31 percent of the global adult population does not have a bank account with any formal financial institution, while women are over-represented among the world's unbanked at about 56 percent of this total (World Bank, 2017, pp. 36–39). However, financial development is a basic ingredient for individual welfare – every bit as much as access to income, health or a home. This truism shows that financial development also encompasses many influential socio-economic factors, and a person's right to use formal financial services, as a way of preventing their social exclusion, must be a priority.

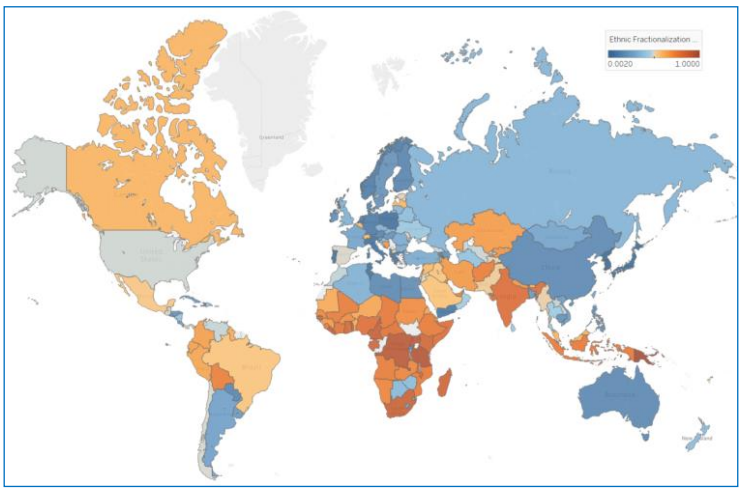
Diversity is most often referred to as the variety of human groups, societies or cultures in a specific region, or in the whole world (Brown, 2004). In this globalized world, diversity, on one side, plays a vital and essential role in economic and financial development but, on the other side, ethnic, cultural and religious polarization resulting in conflicts, discrimination, segregation and bigotry are increasing gradually among all the segments of the world's population and may be one of the sources of social or financial exclusion.

Ethnic and religious identities have multiple and complex links with market knowledge (Altinay, Saunders & Wang, 2014). The processing of information into knowledge is a creative and culturally informed act, as is the use to which that knowledge is put. A truly knowledge-rich world must be a culturally diverse world. A country that is home to diverse ethnic groups may float new ideas involving competition, intercommunity trade, attracting tourism and, generally, a blend of culture from people of different backgrounds. This may be a blessing, if it brings about unity in diversity and provides fruitful outcomes for a diverse society. But sometimes, this diverse society is itself the cause of conflict that we may expect to affect socio-economic circumstances.

The concept of diversity also lends itself to describing and analysing financial-system developments – including the development of their diversity over time. Leading scholars such as Francis Fukuyama and Douglas North suggest that diversity influences society because it is intricately embedded in human exchange – whether political, social or economic (Fukuyama, 2001; North, 1991). Figure 1 presents a map of the world showing regions of ethnic fractionalization, with the range 0–1. The dark-blue areas indicate a country or region (moving towards "0"). Dark-brown areas indicate a heterogeneous country or region (moving towards "1"). Countries' more or less diverse societies may also be presented through the ethno-linguistic fractionalization index (ELF) by Alesina et al. (2003). Diversity can be measured on a macro level using variables like language, ethnicity or religion, but culture can also be measured on a micro level focusing specifically on the dimensions of communication and human interaction in society.

In line with these measurements, Blau (1977) asserts that the greater the degree of heterogeneity, the more pervasive is the social stratification in a society. One would, therefore, expect increasing heterogeneity to increase social stratification. However, social stratifications are embedded in society, and become essential in determining the level of heterogeneity as well as the patterns

Figure 1
Level of ethnic diversity across the world

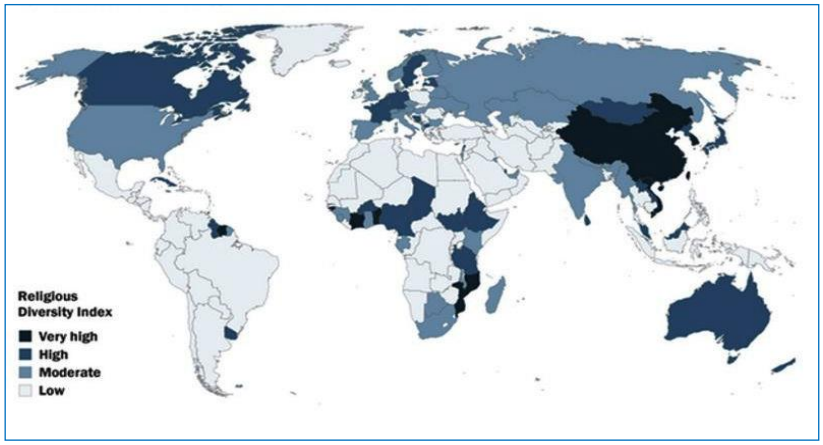


Source: Fearon (2003)

of social interaction and the complexity of the social structure. Numerous studies have sometimes demonstrated a negative relationship between ethnic diversity and growth, the quality of public goods and confidence, and a positive relationship between diversity by country of origin and wealth and productivity. However, these studies, conducted at a relatively aggregated geographical level, do not capture precisely the mechanisms involved.

Figure 2 presents a map of the world with religious fractionalization logged by region. The dark-blue areas indicate a country or region with high religious diversity while white areas indicate those with low religious diversity. (For more information on how the religious-diversity index score is measured, see the indices of Fearon [2003] and Alesina et al. [2003], and the ethno-linguistic fractionalization index [ELF] and ethnic fractionalization index). Today,

Figure 2
Levels of religious diversity across the world

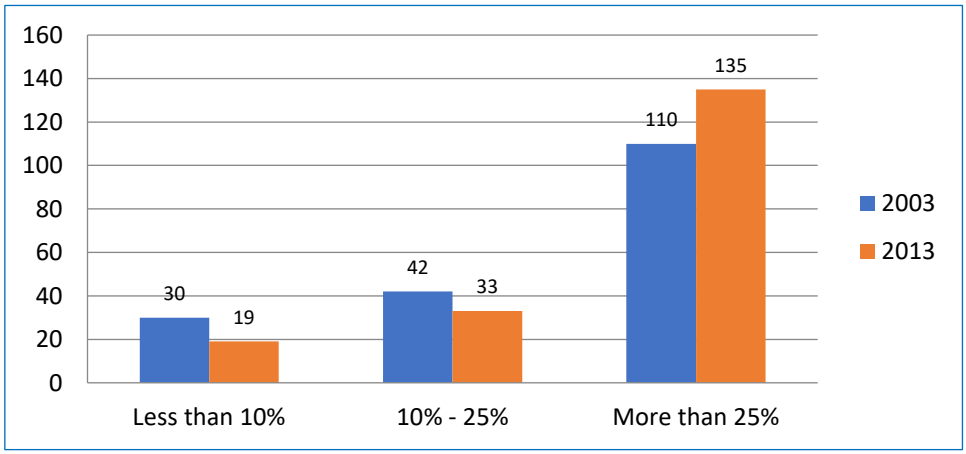


Source: Pew Research Center (2014)

countries are becoming culturally more diverse due to generations of immigration resettlement, distributional inequality, and the distortion of borders and boundaries; however, heterogeneity remains an anxious and unstable matter. Racial and ethnic minority identities are shaped by the dominant cultures in which those minorities find themselves, which control the institutions of power that produce and maintain representations and stereotypes. In this context, diversity has become one of the most important ingredients for the sustainable development of any country, because it impacts on all segments of a society and economy – in both developing and developed countries.

Figure 3 indicates comparative shares of ethnic and religious minority groups across the globe in 2003 and 2013. It shows that in 2013, 135 countries had a share of more than 25 percent minority ethnic and religious groups, 33 countries had 10–25 percent and 19 countries had less than 10 percent – compared with 2003's figures of 110 countries, more than 25 percent; 42 countries, between 10 and 25 percent; and 30 countries, less than 10 percent. It shows that diversity based on ethnicity and religion is increasing rapidly across the world.

Figure 3
Comparative analysis: ethnic and religious diversity of the world, 2003–13[3]



Source: Compiled by the authors

[3] Figure compiled by the authors by updating and following the methodology of Alesina's fractionalization index, $Frac_j = 1 - \sum_{i=1}^{N} S_{ij}^2$.

2 The relationship between diversity and financial development

In recent years, the financial-services industry has made good progress in shifting mindsets on ethnic diversity and financial development. Leaders in the sector have moved on from regarding a cohesive environment as a box-checking exercise to forming effective business strategies that drive real business outcomes. Michie and Oughton (2013) concluded that diversity in all its forms – from the point of view of gender, generation, ethnicity, sexuality and disability to people with a broader than usual range of skills, experiences and industry backgrounds – is a vital element of the changing talent focus within financial services. A key part of this board-level direction is developing a compelling business case for diversity and inclusiveness that articulates the bottom-line benefits and ensures that management at all levels of an organization understand and promote the objectives and associated policies.

According to the Chartered Financial Analyst (CFA) Institute, diversity comprises the spectrum of human attributes, perspectives, identities and backgrounds while development is a dynamic state of operating in which any individual or group can be and feel respected, valued, safe and fully engaged. According to a recent PricewaterhouseCoopers (PwC) annual global CEO survey, 85 percent of financial-services Chief Executive Officers polled said that promoting financial development and diversity helped to enhance business performance. Likewise, Hunt, Layton and Prince's (2015) study revealed that top-quartile companies outperformed those in the fourth quartile for racial and ethnic development by 36 percent in profitability. They further argued that a successful working culture welcomes a wide range of views and opinions. It encourages diversity of thought. Companies in which people feel confident enough to ask questions and raise new ideas are more likely to try new things, find great solutions, adapt and innovate – and do better business as a result (Horwitz & Horwitz, 2007).

This also appears to be the view of the International Monetary Fund (IMF); in his recent speech,[4] "Boosting Growth through Diversity in Financial Leadership", the Deputy Managing Director of the Fund recently discussed the gender imbalance in finance – and, in particular, the "conscious and unconscious bias" that women face owing to men being inclined to hire "people who are like themselves". Recent IMF research shows that increasing financial development through diversity lifts economic growth. And embracing diversity in financial leadership positions leads to greater financial stability, lower levels of non-performing loans and higher profits (Katalakute, 2019).

[4] See David Lipton, 'Boosting growth through diversity in financial leadership', International Monetary Fund, April 13, 2019. Available at: imf.org/en/News/Articles/2019/04/13/sp041319-boosting-growth-through-diversity-in-financial-leadership; and Toddi Gutner, 'Banks run by women might be less vulnerable in a crisis', Wall Street Journal, February 21, 2016. Available at: https://www.wsj.com/articles/banks-run-by-women-might-be-less-vulnerable-in-a-crisis-1456110317.

An international data project developed by the Pew Research Center (PRC) estimates a further 2.3 billion religiously affiliated people by 2050, compared with just an extra 0.1 billion more religiously unaffiliated ones. Religion is not in decline, therefore – despite the common narrative. Instead, by 2050, the world's top economies will shift from being majority Christian to include those dominated by Hindus, Muslims, Buddhists and the unaffiliated. This means that the world and its main marketplaces are becoming not only more religious but also more religiously diverse. The literature shows that in some firms in the professional environment there can often be a lack of acceptance of individuals of different races, ages, genders, languages, political affiliations, religious beliefs and sexual orientation as well as communication styles[5]. However, firms with high levels of diversity perform exceptionally well financially in comparison with their less-diverse counterparts. Under the framework of behavioural finance, in fact, the effect of diversity on the financial markets has been revealed. Much research has been based on cultural finance, suggesting the impact of cultural effects on a country's financial development (Kwok & Tadesse, 2006), investor behavior (Breuer, Riesener & Salzmann, 2014) and financial-market performance (Chang et al., 2015; Cherif & Gazdar, 2010).

While browsing through the websites of most major banks today, the chances are, therefore, that many people will encounter much focus on the importance of diversity in financial development. It has become standard practice for banks in virtually every region of the world to highlight this relatively new policy, one that aims to ensure that people of all ethnic groups and backgrounds have an equal chance of being both employed and able to progress through their organizations fairly (Woolcock & Narayan, 2000). But although there is clear evidence that the global banking sector is taking such issues more seriously than it once did, how much progress has it realistically made in practice? Diversity within a workplace is surely more than a matter of mere demographics: it is a combination of acceptance, respect and teamwork between employees aimed at creating a vibrant, creative and thriving environment in the workplace.

Based on these linkages, it is surprising that some economists still believe that social indicators are less important than other factors in influencing the financial sector. This diversity-inclusion aspect of finance has, overall, become quite fashionable in a variety of policy areas – but nonetheless, several questions arise. Has financial development been affected by ethnic and religious diversity in developing countries? And what are the channels through which diversity manifests its relationship with financial development? Therefore, the relationship between ethnic and religious diversity and financial development is an issue that remains to be empirically addressed. Consequently, we postulate the following hypothesis:

[5] According to software-based recruitment company ThisWay Global, there are seven big diversity issues: lack of acceptance and respect, accommodation of beliefs, ethnic and cultural differences, gender equality, neuro-diversity and the differently-abled, generation gaps, and language and communication barriers.

H1: Ethnic and religious diversity will be negatively related to financial development (diversity–development relationship).

Ethnic and religious diversity, and its financial implications, is a major challenge for researchers and policymakers in the arena of sustainable development and improved policy implementation. By focusing on the multidimensionality of diversity, the main aim of this study is to explore macro-level relationships between ethnic and religious diversity and other financial factors that are responsible for sustainable financial-sector development. One can find a few studies covering this issue – in the past, from a global perspective – but the present study aims to fill what is, overall, a gap in the literature.

Diversity as an abstract concept is a difficult variable to quantify. As humans, each individual has a unique mind, character and appearance. Each has hereditary traits as well as attributes shaped by their learning and cultural background. It has been noticeable that differences have been increasing, and this might make certain people feel insecure or unsafe. Lack of familiarity breeds corrupted thinking and destructive behaviours. However, the communities in a cohesive society are able to embrace such diversity; any differences detected in others thereby become familiar and seem less peculiar.

Kim, Yu & Hassan (2020) examined the influence of religious and social inequality factors on financial development against a backdrop in which Muslim countries mostly display lower levels of financial development around the globe. To do this, they first calculated the financial-development indices (FIIs) of 152 nations including 48 Organisation of Islamic Cooperation (OIC) countries. They then examined the effects of religious and social inequality factors on financial development using ordinary least squares (OLS). They found that religious factors – such as whether a country was an OIC or non-OIC member, religious diversity and Muslim population levels – have obvious effects on the determination of financial development. In addition, they also verified the fact that social inequality factors – such as gender inequality, education level and social opportunity level – work as determinants of financial development. Moreover, they found evidence that unknown factors from neighbouring countries had effects on financial development by identifying the spatial effects of analysis models.

Churchill and Appau (2020) argued that Latin America is one of the most ethnically diverse regions in the world and is also characterized by high levels of poverty. As a poverty-alleviation tool, microfinance emerged in the region and has significantly evolved over the years. However, the implications of the region's high diversity levels on the performance of microfinance institutions (MFIs) are not known. The authors attempted to fill this gap by providing evidence on the association between MFI performance and indices of ethnic and linguistic fractionalization. The present study suggests that fractionalization promotes MFI financial performance but is detrimental to outreach depth.

Salloum, Jabbour and Mercier-Suissa (2019) examined the relationship between boards of directors' demographic diversity and firms' financial performance. They implied that when the number of Western ethnic-minority

members increased, firms' performances tended to decrease – and this was because these board members were only appointed to enhance the regional and international boards' reputations, personal business agendas and links to the external corporate environment. Bernile, Bhagwat & Yonker (2018) examined the effects of diversity in boards of directors on corporate policies and risk. Using a multidimensional measure, they found that greater board diversity led to lower volatility and better performance. The lower risk levels were largely due to diverse boards adopting more persistent and less risky financial policies. However, consistent with diversity fostering more efficient (real) risk-taking, firms with greater board diversity also invested persistently more in research and development (R&D) and had more efficient innovation processes.

Brekke (2018) argued that financial development is high on the agenda for governments as well as for organizations such as the World Bank. Research has pointed out that Muslims worldwide are less well included in the formal financial system than non-Muslims, but there is no knowledge about the extent to which religious norms (most importantly, the Islamic prohibition on levying interest on money) lead to financial exclusion among Muslims in the West. In this article, he approached the issue of financial exclusion and development through three interrelated questions that were to be answered with data collected in Norway 2015 and 2016. The questions were: (a) To what extent do Muslims see conventional banking as a problem in their own lives? (b) Do level of education, age, national background or level of religiosity predict demand for Islamic banking? (c) Is demand for Islamic banking changing? This article was a first step in what should be a broader research programme to find out whether and how religious norms cause the financial exclusion of Muslims in the West.

Easterly (2001) indicated that ethnic diversity has a more adverse effect on economic policy and growth when a government's institutions are poor. High-quality institutions – reflected in such factors as rule of law, bureaucratic quality, freedom from government expropriation and freedom from government repudiation of contracts – mitigate the adverse economic effects of ethnic fractionalization identified by Easterly & Levine (1997) and others. However, poor institutions have an even more adverse effect on growth and policy when ethnic diversity is high. In countries where the institutions are good enough, ethnic diversity does not lessen growth or worsen economic policies. Good institutions also reduce the risk of wars and genocides that might otherwise result from ethnic fractionalization. However, these forms of violence are not the channel through which ethnic fragmentation and its interaction with institutions affect economic growth. We may, therefore, postulate the following hypothesis:

> H2: The detrimental effect of ethnic and religious fragmentation on financial development can be mitigated by good quality institutions.

Levine et al. (2014) argued that markets are central to modern society, so their failures can have devastating effects. In this respect, they examined a prominent market failure: price bubbles. They proposed that bubbles are affected by ethnic homogeneity in the market and can be thwarted by diversity. They found that in homogeneous markets, overpricing is higher, and traders' errors are more correlated than in diverse markets. Price bubbles arise not only

from individual errors or financial conditions but also from the social context of decision making. Hooghe et al. (2008) argued that while most current research documents a negative relationship between ethnic diversity and generalized trust, it has to be acknowledged that these results often originate from single-country analyses based in North America. They argued that pessimistic conclusions about the negative effects of ethnic diversity on generalized trust cannot be confirmed at the aggregate level across European countries.

To summarize, ethnic and religious diversity forms a direct part of social development (inclusion) and financial development (exclusion) because different types of people have the capacity to grapple with the impact of new technology, new regulation, changing customer expectations and shifts in global economic power. So, now the initiative is developing a new slogan: Diversity Matters in Finance. The financial sector has had a problem with a lack of representation in the past, but that is changing rapidly. There is still uncertainty as to whether increasing ethnic and religious diversity is becoming a part of financial development or contributing to exclusion. This study aims to fill that gap in the literature.

In our analysis, we examine the impact of pre-existing ethnic and religious diversity on financial development by using the proxy of financial depth – i.e. M2 and private credit – by using fixed effect (for robustness) and Generalized Method of Moments (GMM) methodology. First, we update the data by creating the indices of ethnic and religious diversity; we do so by following the formula of Alesina's fractionalization index. Indices have been created for 102 developing countries with five yearly intervals. Second, we examine the direct relationship between ethnic and religious diversity and financial development. And finally, we use interaction terms of ethnic and religious diversity with institutions and democracy because we believe that the effect may be moderated by good institutions and democracy. And finally, we observe that the effect of diversity is strongly dependent upon institutions and the presence of democracy. The idea behind our identification strategy is to adopt the system GMM technique because there are endogeneity problems with fixed effect. To circumvent these problems, we use the system GMM because it is better suited to covering the endogeneity problem with minimum standard error. However, the standard GMM estimator has been found to have poor finite-sample properties (bias) in cases in which the series are highly persistent (Blundell and Bond, 1998). In these circumstances, the lagged levels of the series are only weakly correlated with subsequent first differences – thus leading to weak instruments for the first-differenced equations. Arellano and Bover (1995) and Blundell and Bond (1998) demonstrated that the system GMM approach – by adding additional moment restrictions – permits lagged first differences to be used as instruments in the levels equations, and this corrects for any bias that might emerge using the standard GMM estimator. The system GMM watches out for a proliferation of instruments that may overfit endogenous variables and makes sure that the model passes both the test for instrument validity (Sargan/Hansen) and the test for second-order serial correlation (see Arellano and Bond, 1991).

3 Methodology

Diversity and financial development are extremely important in business, perhaps now more than ever (Brekke, 2018). Apart from anything else, it is essential that business "keeps up" – making sure that the industry as a whole remains appealing to the next generation of professionals (Brealey et al., 2012). Typically, the larger, regulated firms have led the charge on diversity in financial services – and have done so for many years, working towards development goals. This process has changed their approach to hiring and has forced them to revisit their values, which is having a positive impact on their work culture (Kwok & Tadesse, 2006).

Moreover, there is no doubt that the financial-development programmes and policies adopted in some countries have been successful. Yet, two major concerns often arise in this regard. First, that financial development may spread the risks of the financial system to the poor and vulnerable customers in society and increase the number of high-end (or high-income) consumers benefiting from financial institutions. Second, whether financial development should be targeted at those who have never been included in the formal financial sector or at encouraging those who have been relatively distant to use financial products more and more frequently.

The policy literature contains many idealistic interpretations on how to achieve financial development while the academic literature is mostly focused on the relationship between financial development and poverty levels and income inequality, as well as the effect of financial development on the economy (Brown & McGranahan, 2016; Cámara & Tuesta, 2014; Kim, Yu & Hassan, 2020).

Theories can explain the existence of different ideas on what financial-development objectives should be and how to achieve financial development. Theories can also explain the current observations in financial-development practice and the abnormal deviations that exist in practice so that a coherent and comprehensive system of principles for financial development can be arrived at. Therefore, a sound financial-development theory, or a set of them, will provide a system of ideas to explain financial-development objectives, processes and outcomes.

In order to analyse the direct effect of ethnic and religious diversity on financial development, we have adopted the standard specification and followed the model proposed by Ajide (2020), Shihadeh (2018) and Ghosh (2017):

$$FD = f\ (ED, RD, GDPPC, CPI, POP, TOT, INST, DEMO)$$

Where:

FD denotes financial development, which is used as a proxy of financial depth – i.e. M2 and private credit;

ED stands for ethnic diversity;

RD is defined as religious diversity;

GDPPC is income (Gross Domestic Product) per capita;

CPI shows as consumer price index;

PP and TOT are population size and term of trade;

INST and DEMO represent institutions and a variety of democracy variables, respectively.

This study divided financial depth into two important sub-parts: M2 as a percentage of GDP (DEPTH), and credit allocated to the private sector by banks as a percentage of GDP (PRIVATE). Ethnic and religious diversity is measured through the ethnic fractionalization index, which has been widely used as a proxy for empirical exercises. This study constructed an index of ethnic and religious diversity by followed the ethnic fractionalization index of Alesina et al. (2003).

Diversity is basically time-invariant data; within it, very nominal change occurs over a long period. This study avoided using annual figures (because of less variation in diversity data) and created an index by following data per five years of interval from 1990 to 2015 (1990, 1995, 2000, 2005, 2010 and 2015). This time span was chosen as it maximizes the availability of data – mainly that retrieved from the Cline Center for Democracy (CCD) database, University of Illinois, Chicago, USA,[6] at clinecenter.illinois.edu/projects/research-themes/Religious-Ethnic-Identity. The CCD data complement those of the Religious and Ethnic Groups Project (CREG), started to create a set of time-varying measures that gauge the nature and depth of country-specific socio-cultural cleavages. The study focused on 165 of the largest nations in the world (all countries with a population above 500,000 in 2004) during the post-World War II era in order to create country-specific projections on the relative sizes of the different groups during the postwar era. The CCD is working on the CREG project, which documents the changing varieties of social identity around the world and identifies the causes of conflict between religious and ethnic groups.

Data on dependent variables were obtained from the database of World Development Indicators (WDI), which is a compilation of relevant, high-quality and internationally comparable statistics about global development. This database contains 1,400 time series indicators for 217 economies, with data for many indicators going back more than 50 years that are free to access at databank.worldbank.org/source/world-development-indicators.

The following variables were used in the empirical analysis:

Dependent variables

Money and quasi money (M2) as a percentage of GDP

Money and quasi money (M2) comprise the sum of currency outside banks; demand deposits other than those of the central government; and the time, savings, and foreign-currency deposits of domestic sectors other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the IMF's International Financial Statistics (IFS). M2 money supply is widely used for the analysis of many empirical studies

[6] For more information about data source, see Appendix 1 in the appendices.

as a good proxy for financial depth (Hasan & Murshed, 2017). Financial development is usually measured by many factors, including the depth and size of the financial system. Improved quality and depth in the financial sector leads to growth in the available funds and channels the savings to the most highly productive opportunities. Therefore, demonstrating the relationship between depth and the economy can motivate the creation of policies that improve financial development and promote economic prospects. The World Bank classified the ratio of deposits to GDP as one of the good indicators of financial depth, and the unit is measured in 2010 constant US dollars.

Credit to private sector as a percentage of GDP (PRIVATE)

Credit to the private sector (as a percentage of GDP) refers to financial resources provided to the private sector by financial corporations – such as through loans, purchases of nonequity securities, trade credits and other accounts receivable – that establish a claim for repayment. These corporations include monetary authorities and deposit money banks, as well as others such as finance and leasing companies, money lenders, insurance corporations, pension funds and foreign-exchange companies. Credit allocated to the private sector as a percentage of GDP will be the second measure of financial depth in this study.

The main independent variables

The ethnic and religious fractionalization index

There are numerous measurements of diversity index, which are mostly used in the context of natural science and the social sciences. In natural science, measurement of diversity is a well-known concept under the topic of biodiversity. The notion of biodiversity became much more widely accepted after it was mathematically proved by Fisher in 1942. Fisher developed the relationship between number of species and number of the random individuals – i.e. evenness and dominant groups, and observing the probability from the heterogeneous population (Fisher, Corbet & Williams, 1943). The index was further developed by Simpson (1942) and Shannon (1943) for empirical analysis. In the social sciences, Alesina et al. (2003) constructed the fractionalization index and Montalvo and Reynal-Querol (2005) presented the polarization index. However, Alesina's fractionalization index has widely been used in empirical analysis. Theoretical literature also shows that population diversity plays a vital role in economic development. To this end, the fractionalization index may provide a good prediction about measurement to identify whether a country is homogeneous or heterogeneous in the context of diversity.

Based on the annual percentage of ethnic groups in each country, the index of ethnic fractionalization (FRACT) calculates the degree of ethnic fractionalization (EF) using the most universally applied formula in the empirical literature, as measured by:

$$\mathrm{FRACT_j} = 1 - \sum_{i=1}^{N} Z_{ij}^2$$

Where Z_{ij} is the share of group i in the total population, (i=1……N) in the country j. Theoretically, the ethnic fractionalization index reflects the likelihood that two people chosen at random within a given country will be from different ethnic groups. The measure ranges from 0, when there is no ethnic fractionalization and all individuals are members of the same ethnic group, to 1, when everyone belongs to his/her own ethnic group (Dražanová, L. 2020; Alesina et al., 2003; Montalvo, & Reynal-Querol 2005).

Ethnic and religious diversity is directly related to the development of local and foreign companies. Diversity brings new ideas and changes human behaviour in terms of thinking, better decision making and more foreign and domestic investment. Ultimately, it creates diversity of ideas, enhances invention and innovation, and boosts financial depth and economic prosperity.

Control variables

GDP per capita (GDPPC, constant US dollars)

Gross Domestic Product per capita is defined as the sum of the gross value added by all resident producers in an economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data on GDP per capita have been collected from the WDI and have been measured in 2010 constant US dollars. The literature shows that a country with a higher level of per capita income will have a more developed and organized financial sector.

Inflation, consumer prices (CPI, annual percentage)

Inflation is mostly known via the CPI (consumer price index) as this reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. Data on inflation (CPI) are taken from the World Bank's WDI database in order to adjust for the influence of inflation on the M2/GDP ratio.

Net barter terms of trade (TOT)

Net barter terms of trade (TOT) is calculated as the percentage ratio of the export unit value indexes to the import unit value indexes, measured relative to the base year 2000. An increase in the terms of trade means that the rate of return on producing the traded and non-traded commodity increases, which ultimately pushes the financial sector upwards. Data on terms of trade (TOT) have been collected from the World Bank's WDI database.

Total population (POP)

Data on total population (POP), which have been collected from the WDI, represent the total population size (as a result of immigration, or a greater number of births than deaths). Increasing population size means increasing demand for banks, social infrastructure, goods and services, and natural resources – all of which are positive associated with the financial development of any country.

Institutional quality (INST)

Data on institutional quality (INST) have been collected from the database of the International Country Risk Guide (ICRG), which is updated monthly for 140 countries and provides financial, political and economic risk information and forecasts. In particular, the ICRG dataset contains, from 1983 onwards, information on 12 different dimensions of institutional quality variables – namely internal conflict, external conflict, government stability, control of corruption, socio-economic conditions, investment profile, law and order, military in politics, bureaucratic quality, ethnic tensions, religious tensions and democratic accountability – with higher scores indicating lower levels of risk and, hence, higher quality and stability of the institutional environment.

The literature used various proxies for institutional quality in the empirical findings. This study used the same technique as Hasan & Murshed (2017); Baltagi, Demetriades & Law (2009); and Law & Habibullah (2009) to construct an index of institutional quality based on five of the most relevant good-governance indicators – namely, government stability, bureaucratic quality, corruption, law and order and investment profile. By encompassing these indicators, this study creates a new index based on the idea that all five of them might jointly reflect the overall governance quality that might favour financial development as in Law & Habibullah (2009).

Institutional quality fosters the development of the financial sector in developed and developing economies (Le, Kim & Lee, 2016). Institutional factors play a crucial role in financial and economic development, establishing stabilized reforms that can address uncertainty. Weak institutions tend to distort the ability of financial intermediaries to channel resources for financing productive activities efficiently. When a government is ineffective, the performance of the banking sector becomes much worse relative to that of its counterparts (Barry and Tacneng 2014). Levine (1998) confirms the fact that institutions play an essential role in the performance of financial markets, which means that unstable governments cannot credibly commit to policies that can encourage and foster entrepreneurial and innovation activities and the functioning of financial markets. Moreover, institutional instability tends to result in an unstable macroeconomic policy, thereby hampering financial development.

Varieties of democracy

Data on various determinants of democracy have been collected from the unique database of the Varieties of Democracy (V-Dem) institute for 173 countries, which can be freely accessed at www.v-dem.net/en/. V-Dem provides a multidimensional and disaggregated dataset that reflects the complexity of the concept of democracy as a system of rule that goes beyond the simple holding of elections. The V-Dem project distinguishes between five high-level principles of democracy – electoral, liberal, participatory, deliberative and egalitarian – and collects data to measure these principles. All these democracy indices are ranged between 0 and 1. Larger values denote a better quality of democracy. The V-Dem democracy indices are extremely dynamic and capture fine-grained changes in politics and the quality of different components of democracy from year to year.

- The electoral component of democracy represents the core value of making rulers responsive to people through competition for the approval of a broad electorate during periodic elections. It is an important part of the V-Dem conceptual scheme; democratic regimes necessarily have electoral democracy.
- The liberal component of democracy embodies the intrinsic value of protecting individual and minority rights against a potential "tyranny of the majority". This is achieved through constitutionally protected civil liberties, a strong rule of law and effective checks and balances that limit the use of executive power.
- The deliberative component includes the core value that political decisions in pursuit of the public good should be informed by respectful and reasonable dialogue at all levels rather than by solidary attachments, emotional appeals, parochial interests or compulsion.
- The egalitarian component includes the idea that material and immaterial inequalities prevent the actual exercise of formal rights and liberties; a more equal distribution of resources, education and health facilities among different groups should, then, improve political equality.
- The participatory component embodies the values of direct rule and active participation by citizens in all political processes; it emphasizes non-electoral forms of political participation, such as through civil-society organizations and mechanisms of direct democracy.

Democracy plays a direct and important role in stimulating financial development (Boudriga & Ghardallou, 2012). In particular, the effects of democracy on financial development are enhanced by higher levels of economic institutions. Otherwise, development may be hampered if these institutions are below some threshold values. Furthermore, both parliamentary forms of government and greater political polarization increase the effects of democracy on financial development. Benefits from democracy can only be achieved via strong economic institutions, encouraging the independence of the bureaucracy from political power and dividing power between central government and other political units.

Description of statistical methods and data source

Earlier literature on financial depth reveals that cross-section analysis or panel data is more suitable for empirical findings. This study is presented results from both cross-section and panel data regressions. This study used dataset from 1990 to 2015 (by following data per five years of interval i.e., 1990, 1995, 2000, 2005, 2010 and 2015) and avoiding using annual figures because diversity is basically time-invariant data (less variation in diversity data) within it, very nominal change occurs over a long period. This time span was chosen as it maximizes the availability of data.

This study uses unbalanced panel datasets to explore the relationship between ethnic and religious diversity and financial depth for the 102 developing countries across the world. When using panel data analysis and neglecting the country and/or time-specific effects that may exist among cross-sections and time-series units, the model specification can become heterogeneous. This can cause the parameter estimates to be unreliable and meaningless (Hsiao, 1986). Fixed-effects and random-effects models are more effective for handling panel data in order to account for possible heterogeneity among countries (Gujarati & Porter, 2003; Wooldridge, 2010). However, in this case, a fixed-effects model would be ideal because it can control for unobserved countries and time-fixed effects.[7] Fixed-effect models organize for or partial out the belongings of time-invariant variables with time-invariant effects. One shortcoming of the fixed or random model is that it cannot handle the effect of endogeneity. Hence, to control this effect, this research utilized the Generalized Method of Moments (GMM) model with added lagged variables as the instrument for empirical analysis. The GMM technique is regarded as an effective analytical method because it overcomes the problems of normality or skewness, endogeneity and serial correlation facing during ordinary least squares (OLS) and fixed/random effect techniques (Judson & Owen, 1999). The stability of the models was tested through post-estimation tests.[8]

[7] The study used the Hausman test, for the selection of models, whether fixed effect or random effect. The results of the Hausman test for all four empirical chapters suggested that a fixed-effects static-panel estimator would be a superior estimator of all models.

[8] For all models, this study performed post-estimation model tests in order to check whether any violation of assumptions, auocorrelationship or heterosedasticity had occurred. In this regards, White's robust standard errors correction has applied in all the models. White's robust standard errors allow for possible cross-section heteroscedasticity and contemporaneous correlation among cross-sections for reliable significance interpretations, and only affect the standard errors and not the estimators.

4 Results

This section shows the empirical analysis of the relationship between ethnic and religious diversity and financial development. Tables 1 and 2 represent the nexus between ethnic and religious diversity and financial development, whereas Tables 3–4 and 5–6 represent outcomes of interaction terms of ethnic and religious diversity with institutions and a number of democracy variables, respectively.

Our results reveal a robust relationship between ethnic and religious diversity and financial depth (M2 and private credit as a percentage of GDP). Table 2 shows GMM model estimations (for robustness, see fixed effect in Table 1) for financial depth (columns 2–7 for log of M2, and columns 9–14 for private credit). The study explores the varieties of democracy variables and institutional quality in order to test the association between dependent and independent variables. Results reveal that ethnic and religious diversity both have a significant negative impact on financial depth. Table 2 indicates that for a 1-unit increase in ethnic diversity, M2 money supply is deteriorated by 2.58, 2.72, 2.92, 2.72 and 2.66 (see columns 2–6 at various regressions for elecdem, liberdem, delibdem, egalitdem, participdem) and 1.87 percent points (see column 7, for institutions regression). However, religious diversity shows negative but insignificant impact on M2 money supply, as a 1-unit increase in religious diversity causes M2 money supply to decline by 0.60, 0.68, 0.81, 0.69 and 0.53 (see columns 2–6) and 1.17 percent points (see column 7), respectively.

In the case of private credit (columns 8–14), a 1-unit increase in ethnic diversity sees private credit decline by 5.31, 5.41, 5.63, 5.50 and 5.80 (see column 9-13 at various regressions for elecdem, liberdem, delibdem, egalitdem, participdem) and 6.66 percent points (see column 14, for institutions regression). However, religious diversity shows negative but insignificant impact on private credit, as a 1-unit increase in religious diversity causes private credit to worsen by 3.93, 3.94, 3.93, 3.90 and 3.82 (see columns 9–13) and 3.67 percent points (significant at 5 percent level of significance, see column 14) respectively. This means that an increase in ethnic and religious diversity retards financial depth. Results also indicate that GDPPC has a significant positive impact on financial depth, as vindicated by the literature (Table 2, columns 8–14). Financial depth is a crucial part of financial development, which is directly linked with economic development. In this regard, ethnic and religious diversity played a vital role in financial depth because it directly or indirectly affected the financial market or investor decisions.

There are several reasons for the negative impact of ethnic and religious diversity on financial depth in developing countries. First, ethnic diversity creates more conflict in society – which results in low incomes, low levels of schooling and insufficient infrastructure (Alesina & Rodrik, 1994; Alesina & Spolaore, 1997; Alesina & Tabellini, 1989; Easterly & Levine, 1997; La Porta et al., 1999; Sutherland, 1997). This situation only serves to deter managers from addressing issues around diversity as they fear that productivity and morale will suffer as a result, and conflicts and tensions between employees could lead to staff refusing to work with each other (Esman, 2019).

Table 1
Fixed-effect model

	LogM2							LogPrivate						
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DEPTH (lag)	0.746***	0.313***	0.311***	0.309***	0.313***	0.315***	0.757***	0.259***	0.283***	0.282***	0.280***	0.281***	0.283***	0.329***
	(0.029)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.033)	(0.077)	(0.075)	(0.075)	(0.075)	(0.075)	(0.075)	(0.089)
ED	-0.138**	-1.573**	-1.705**	-1.839**	-1.733**	-1.656**	-0.182**	-7.242***	-6.802***	-6.830***	-6.861***	-6.826***	-6.862***	-6.268***
	(0.082)	(1.107)	(1.105)	(1.118)	(1.104)	(1.108)	(0.084)	(2.274)	(2.193)	(2.190)	(2.182)	(2.191)	(2.189)	(3.282)
RD	-0.059	-0.443	-0.458	-0.518	-0.479	-0.455	-0.079	-3.018	-3.245	-3.260	-3.321	-3.256	-3.225	-3.760*
	(0.093)	(0.566)	(0.564)	(0.566)	(0.563)	(0.565)	(0.096)	(1.022)	(0.986)	(0.986)	(0.986)	(0.987)	(0.986)	(1.203)
Per capita GDP	0.051**	0.226	0.222	0.208	0.205	0.222	0.006	1.014***	1.118***	1.113***	1.111***	1.111***	1.115***	0.557*
	(0.030)	(0.166)	(0.166)	(0.167)	(0.166)	(0.166)	(0.033)	(0.297)	(0.290)	(0.290)	(0.289)	(0.290)	(0.290)	(0.327)
Inflation	-0.002***	2.88E	-1.56E	-9.29E	-0.000	1.57E	-0.002***	-0.000	-0.008	-0.008	-0.007	-0.007	-0.008	-0.000
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.000)
Population size	0.007	-0.276	-0.291	-0.298	-0.312	-0.322	0.023	0.349	0.070	0.072	0.045	0.059	0.057	-0.238
	(0.012)	(0.303)	(0.302)	(0.303)	(0.302)	(0.304)	(0.014)	(0.483)	(0.473)	(0.472)	(0.472)	(0.474)	(0.474)	(0.549)
Terms of trade	-0.001	-0.001***	-0.001**	-0.001**	-0.001*	-0.001**	-0.001***	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Elecdem		-0.418**							-0.156					
		(0.212)							(0.321)					
Liberdem			-0.507**							-0.208				
			(0.235)							(0.353)				
Delibdem				-0.415**							-0.351			
				(0.223)							(0.346)			
Egalitdem					-0.806*							-0.258		
					(0.341)							(0.501)		`
Participdem						-0.674**							-0.309	
						(0.341)							(0.520)	
Institutions							0.009							0.033**
							(0.006)							(0.018)
R2	0.902	0.940	0.941	0.940	0.941	0.940	0.919	0.916	0.921	0.921	0.921	0.921	0.921	0.921
Observations	261	253	253	253	253	253	206	192	184	184	184	184	184	146
No. of countries	69	67	67	67	67	67	53	66	64	64	64	64	64	50
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes	Yes

Columns 2–6 and 9–13 represent the outcomes based on varieties of democracy variables; columns 7 and 14 represent the outcomes based on institutions.

*** = significant variable at 1% level of significance, ** = significant at 5% and * = significant at 10%

Table 2
GMM model estimations

	LogM2							LogPrivate						
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DEPTH (lag)	0.620***	0.655***	0.661***	0.678***	0.653***	0.637***	0.587***	0.744***	0.675***	0.675***	0.656***	0.680***	0.685***	0.721***
	(0.124)	(0.231)	(0.232)	(0.241)	(0.231)	(0.228)	(0.152)	(0.162)	(0.142)	(0.143)	(0.139)	(0.144)	(0.141)	(0.149)
ED	-2.955**	-2.589**	-2.721**	-2.922**	-2.722**	-2.666**	-1.878**	-5.935***	-5.315***	-5.413***	-5.632***	-5.506***	-5.803***	-6.665***
	(1.459)	(1.242)	(1.231)	(1.262)	(1.219)	(1.236)	(1.659)	(1.500)	(1.395)	(1.337)	(1.307)	(1.347)	(1.359)	(2.781)
RD	-1.165	-0.604	-0.685	-0.818	-0.690	-0.532	-1.179	-3.726	-3.939	-3.943	-3.937	-3.902	-3.824	-3.697**
	(0.800)	(0.770)	(0.781)	(0.854)	(0.789)	(0.769)	(0.825)	(0.734)	(0.698)	(0.688)	(0.662)	(0.685)	(0.694)	(0.772)
Per capita GDP	0.105	0.735	0.709	0.629	0.720	0.754	0.299	0.793***	1.007***	1.033***	1.030***	0.989***	0.975***	0.665**
	(0.239)	(0.741)	(0.752)	(0.770)	(0.742)	(0.736)	(0.735)	(0.258)	(0.256)	(0.261)	(0.257)	(0.254)	(0.264)	(0.313)
Inflation	-0.002***	-0.002	-0.002	-0.000	-0.001	-0.002	-0.002	0.000**	-0.011	-0.011	-0.011	-0.010	-0.010	0.000***
	(0.000)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.000)	(0.000)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.000)
Population size	-0.202	0.108	0.084	0.061	0.073	0.071	-0.235	0.439	-0.024	-0.013	0.009	0.008	0.031	0.677
	(0.332)	(0.511)	(0.507)	(0.527)	(0.503)	(0.509)	(0.591)	(0.447)	(0.359)	(0.366)	(0.356)	(0.360)	(0.367)	(0.421)
Terms of trade	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Elecdem		-0.402							-0.493					
		(0.306)							(0.365)					
Liberdem			-0.535							-0.585				
			(0.348)							(0.429)				
Delibdem				-0.418							-0.550			
				(0.345)							(0.431)			
Egalitdem					-0.828*							-0.577		
					(0.491)							(0.560)		
Participdem						-0.642							-0.755	
						(0.469)							(0.562)	
Institutions							0.033**							0.026**
							(0.017)							(0.015)
Observations	184	171	171	171	171	171	142	126	120	120	120	120	120	96
No. of countries	68	64	64	64	64	64	52	51	49	49	49	49	49	39
Time FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE
AR(1)	NA	0.068	0.055	0.055	0.053	0.054	0.014	0.015	0.009	0.032	0.008	0.008	0.008	0.051
AR(2)	0.797	0.174	0.078	0.086	0.081	0.075	0.742	0.041	0.051	0.452	0.055	0.051	0.046	0.403

Columns 2–6 and 9–13 represent the outcomes based on varieties of democracy variables; columns 7 and 14 represent the outcomes based on institutions.

*** = significant variable at 1% level of significance, ** = significant at 5% and * = significant at 10%

Second, in developing countries, ethnically polarized societies under competitive rent-seeking conditions have difficulty agreeing on public goods like infrastructure, education, and sound policies. Furthermore, this brings about two fundamental setbacks that are endemic disorders for financial development – i.e. rent-seeking activities and incongruity on public policies (Easterly & Levine, 1997). Third, ethnic and religious competition tends to degrade the institutional foundations of an economy: in cases when ethnic and personal attachments are the leading principle rather than the rule of law, then ultimately public institutional capacity will most likely deteriorate (Nafziger & Auvinen, 2003). This means that ethnic diversity in developing countries leads to the creation of weak public institutions, since elites in those countries have no time or willingness to contribute to the growth of the national economy (Keen, 2000; Väyrynen, 2003).

Our results are similar to those of Delhey and Newton (2005) and Dincer and Wang (2011) in that they show that in going from complete ethnic homogeneity to complete ethnic heterogeneity, financial development is sharply reduced. The prevalence of weak institutions and the presence of extensive unproductive and profit-seeking activities are the result of the higher socio-economic costs of a well-functioning state in which economic progress and democratic institutions have deteriorated (Keen, 2000; Rodrik, 2008; Väyrynen, 2003). Basically, inter-religious trust attenuates the negative relationship between religious diversity and financial development. Ethnic and religious diversity causes more financial deficits that require alternative, or complementary, solutions from others than the existing market and government sectors do (Ayob, 2018). Highly religious societies that have clear religious investment rules and explicit identification of both institutional investors and stocks as either majority-religious or minority-religious see the latter (minority-religious investors and stocks) become relatively neglected in the markets. As a result, they have higher returns but lower liquidity, and face higher liquidity risk compared with majority-religious investors and stocks (see Al-Awadhi [2017] for how this applies to Islamic societies).

Other control variables such as GDPPC have a positive significant impact on financial depth (private credit) and an insignificant effect for population size and terms of trade (TOT) (Table 2), as increasing the GDP per capita increased the financial development within countries (King & Levine, 1993). More recently, some researchers have suggested that there is a positive relationship between financial depth and per capita income (Haini, H., 2019; Rousseau & Wachtel 2011; Égert & Mihaljek, 2007).

Table 2 also shows that all the variables under the category variety of democracy (V-Dem) have a negative or insignificant impact on financial depth both for M2 and private credit (columns 2–6 and 9–13). Variety of democracy has been assessed under five dimensions – i.e. the electoral, liberal, participatory, deliberative and egalitarian principles of democracy. Whereas institutions play a vital and positive role in financial depth – as shown in columns 7 and 14, both for M2 and for private credit regression – most of a country's financial system is under political control. In this regard, democracy directly impacts on the financial system of any country, despite the fact that finance literature emphasizes the critical role of political

institutions in promoting financial development. But insignificant results show us that we did not attribute much importance to the cohesiveness of society and to accepting the beauty of diversity. Democracy induces more participation of citizens in the political decision-making process than other systems, as well as more constraints on choices made by political leaders. This results in the implementation of laws fostering access for a broader part of the population to financial systems, as well as more openness in domestic financial markets (Haber and Perotti, 2008).

Tables 3 and 4 indicate the impact of the interaction term of ethnic diversity with various democracy variables and institutions on financial depth, both for M2 and for private credit (as a percentage of GDP). As per GMM findings (Table 4), ethnic diversity has a significant negative relationship with financial depth at columns 1–5 and 7–11 (both for M2 and private credit) whereas columns 6 and 12 show negative and insignificant effects for institutions regression. However, Table 4 shows some interesting results regarding the interaction term of ethnic diversity with various democracy variables and institutions. Although ethnic diversity and various democracy variables and institutions have a negative relationship with financial depth, both for M2 and private credit, nonetheless the interaction term of ethnic diversity with various democracy variables and institutions has positive and significant impact on financial depth (significant for M2). In most of the developing countries considered, differences in culture, social norms, levels of trust, lack of social networks, prejudice, miscommunication, and racism created a significant obstacle to financial development. It is also evident that most of these countries are politically weak due to corruption and dictatorship politics – and that even if some of them do have democratic governments, they are not strong enough to take potentially difficult decisions. Our results give a clear-cut indication that if ethnic diversity works well with democracy and institutions, diversity can become a blessing and countries can obtain fruitful outcomes through building cohesive societies.

The empirical analysis reflects the fact that increasing ethnic diversity creates an environment of prejudice and distrust for investors – which has a negative impact on private credit and, in turn, lowers economic development (Mauro, 1995). In most of the countries concerned, one group enforced an overvalued exchange rate and currency controls in order to gain rents from selling foreign currency on the black market while we must assume that another ministry was imposing low interest rates on saving in order to facilitate cheap loans for its ethnic supporters. The overvalued exchange rate incentivized the smuggling of money out of the country by the one group for fear of devaluation and lowered the level of savings that the other group could take out as loans. The low domestic interest rate gave additional incentive to keep money in other countries (Easterly & Levine, 1997). The higher ethnic diversity in especially low-income countries helps to explain those nations' widespread poor public-policy decisions, which have a negative effect on investment and a positive one on government spending. The latter could be due to higher expenses needed to mitigate social conflicts, since diversity is often regarded as increasing civil conflicts.

The impact of ethnic and religious diversity is not static; therefore, it is important to take into account different fault lines that can run through societies

and how these impact on different aspects of those societies. Religious diversity in developing countries directly impacts on their financial development. Any misconduct in the arena of religion can have a huge effect on the financial market of that country. In most of the cases concerned, the situation can be worsened by boycotts of specific products and sometimes specific countries, prejudice towards other groups and limitations placed on the banking system due to a dislike of interest-oriented systems.

Tables 5 and 6 explore the impact of the interaction of religious diversity with diverse democracy variables and institutions on financial depth, both for M2 and for private credit. Table 6 indicates the GMM results – i.e. that religious diversity has a negative and significant impact on financial development (columns 2–7 and 8–13). However, the interaction term of religious diversity with democracy variables and institutions shows positive and insignificant impacts on M2 and negative and insignificant ones for private credit. This provides robust evidence that religious diversity should be managed in order to improve financial development. This is because although conflicts between different groups and governmental attempts to suppress minorities in the name of the majority are mitigated in liberal democracies by the rule of law, in autocratic nations problems associated with diversity can lead to an over-reaction of political institutions that worsens the struggle.

Table 3
Fixed-effects model with interaction term of ED

	LogM2						LogPrivate					
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DEPTH (lag)	0.301***	0.307***	0.290***	0.307***	0.316***	0.765***	0.308***	0.307***	0.305***	0.306***	0.307***	0.354***
	(0.069)	(0.069)	(0.069)	(0.069)	(0.069)	(0.032)	(0.079)	(0.078)	(0.079)	(0.079)	(0.078)	(0.092)
ED	-3.398***	-2.951***	-3.383***	-3.421***	-3.202***	-1.415***	-6.390***	-6.078**	-6.105**	-6.064**	-6.567***	-1.152**
	(1.134)	(1.089)	(1.097)	(1.137)	(1.144)	(0.497)	(2.390)	(2.334)	(2.335)	(2.401)	(2.391)	(3.332)
Per capita GDP	0.008	0.018	0.014	-0.012	0.005**	0.003	0.903***	0.928***	0.924***	0.929***	0.882***	0.519**
	(0.155)	(0.154)	(0.151)	(0.155)	(0.158)	(0.032)	(0.278)	(0.277)	(0.275)	(0.281)	(0.280)	(0.286)
Inflation	-0.000	-0.000	-0.000	-0.000	-0.000	-0.002***	-0.010	-0.010	-0.010	-0.010	-0.010	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.000)
Population size	-0.452	-0.437	-0.409	-0.491	-0.527	0.029**	0.285	0.323	0.310	0.320	0.226	-0.266
	(0.296)	(0.297)	(0.292)	(0.298)	(0.305)	(0.013)	(0.503)	(0.502)	(0.500)	(0.508)	(0.514)	(0.575)
Terms of trade	-0.001	-0.001	-0.001	-0.001**	-0.001	-0.001	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Elecdem	-1.736***						-0.317					
	(0.431)						(0.628)					
Liberdem		-1.697***						-0.149				
		(0.440)						(0.613)				
Delibdem			-1.893***						-0.251			
			(0.446)						(0.667)			
Egalitdem				-2.608***						-0.152		
				(0.648)						(0.931)		
Participdem					-2.554***						-0.820	
					(0.722)						(1.047)	
Institutions						-0.013						0.061**
						(0.011)						(0.028)
ED*Elecdem	3.050***						0.562					
	(0.872)						(1.235)					
ED*Liberdem		2.921***						0.095				
		(0.917)						(1.276)				
ED*Dilibdem			3.539***						0.138			
			(0.929)						(1.358)			
ED*Egalitdem				4.417***						0.071		
				(1.354)						(1.926)		
ED*Participdem					4.229***						1.226	
					(1.428)						(2.003)	
ED*Inst						0.054**						-0.063
						(0.021)						(0.049)
R2	0.946	0.945	0.945	0.946	0.944	0.925	0.915	0.914	0.915	0.914	0.915	0.918
Observations	257	257	257	257	257	210	188	188	188	188	188	150

No. of countries	68	68	68	68	68	54	65	65	65	65	65	51
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Columns 1–5 and 7–11 represent the outcomes based on varieties of democracy variables; columns 6 and 12 represent the outcomes based on institutions.

*** = significant variable at 1% level of significance, ** = significant at 5% and * = significant at 10%

Table 4
GMM model estimations with interaction term of ED

	LogM2						LogPrivate					
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DEPTH (lag)	0.507**	0.591***	0.548**	0.483***	0.498**	0.398**	0.629***	0.637***	0.656***	0.664***	0.601***	0.670***
	(0.260)	(0.226)	(0.264)	(0.253)	(0.250)	(0.174)	(0.154)	(0.154)	(0.162)	(0.163)	(0.145)	(0.163)
ED	-2.944**	-2.134**	-2.549**	-3.004**	-2.769**	-0.770**	-5.253**	-5.103**	-4.878**	-4.810**	-5.948**	-3.160**
	(1.635)	(1.649)	(1.697)	(1.573)	(1.650)	(2.039)	(2.529)	(2.514)	(2.665)	(2.625)	(2.346)	(2.541)
Per capita GDP	0.021	0.019	0.008	0.056	0.042	0.167	0.333	0.366	0.419	0.351	0.338	0.064
	(0.182)	(0.367)	(0.187)	(0.175)	(0.183)	(0.194)	(0.254)	(0.263)	(0.258)	(0.270)	(0.247)	(0.279)
Inflation	0.000	0.000	0.000	0.000	0.000	-0.001	-0.011	-0.012	-0.013	-0.013	-0.010	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.000)
Population size	-0.045	0.003	0.055	-0.083	-0.114	-0.402	0.016	0.050	0.104	0.065	-0.003	0.579
	(0.413)	(0.499)	(0.404)	(0.405)	(0.420)	(0.360)	(0.402)	(0.411)	(0.407)	(0.409)	(0.407)	(0.498)
Terms of trade	-0.000	9.23E	-0.000	-0.000	-0.000	-2.16E	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Elecdem	-1.540**						-0.291					
	(0.479)						(0.473)					
Liberdem		-1.479**						-0.170				
		(0.547)						(0.397)				
Delibdem			-1.317**						0.141			
			(0.544)						(0.347)			
Egalitdem				-2.475***						0.055		
				(0.548)						(0.574)		
Participdem					-2.369**						-0.710	
					(0.927)						(0.818)	
Institutions						0.022*						0.024
						(0.022)						(0.028)
ED*Elecdem	2.537***						-0.435					
	(1.069)						(1.132)					
ED*Liberdem		2.247***						-1.029				
		(1.273)						(1.083)				
ED*Dilibdem			2.097**						-1.875			
			(1.251)						(0.872)			
ED*Egalitdem				4.236***						-1.756		
				(1.438)						(1.621)		
ED*Participdem					3.766**						0.015	
					(1.904)						(1.834)	
ED*Inst						0.004**						-0.006
						(0.043)						(0.041)
Observations	182	181	182	182	182	112	122	122	122	122	122	98
No. of countries	67	67	67	67	67	46	50	50	50	50	50	42

Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1)	0.130	0.111	0.051	0.140	0.134	0.014	0.009	0.010	0.017	0.008	0.006	0.149
AR(2)	0.180	0.159	0.086	0.230	0.185	0.084	0.052	0.052	0.062	0.040	0.044	0.445

Columns 1–5 and 7–11 represent the outcomes based on varieties of democracy variables; columns 6 and 12 represent the outcomes based on institutions.

*** = significant variable at 1% level of significance, ** = significant at 5% and * = significant at 10%

Table 5
Fixed-effect model with interaction term of RD

	LogM2						LogPrivate					
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DEPTH (lag)	0.344***	0.343***	0.753***	0.342***	0.345***	0.445***	0.311**	0.310***	0.309***	0.310***	0.308***	0.344***
	(0.069)	(0.068)	(0.030)	(0.068)	(0.069)	(0.070)	(0.076)	(0.076)	(0.076)	(0.076)	(0.076)	(0.088)
RD	-1.157	-1.364**	-0.082	-1.240	-1.118	-1.996**	-2.866	-3.049*	-3.026*	-3.330*	-2.812*	-4.609**
	(0.849)	(0.751)	(0.178)	(0.845)	(0.846)	(1.004)	(1.328)	(1.243)	(1.274)	(1.361)	(1.348)	(1.830)
Per capita GDP	0.181	0.183	0.060**	0.157	0.186	0.061	0.917***	0.918***	0.901***	0.921***	0.909***	0.451
	(0.159)	(0.157)	(0.029)	(0.159)	(0.159)	(0.153)	(0.287)	(0.287)	(0.286)	(0.287)	(0.287)	(0.313)
Inflation	-0.000	-0.000	-0.002*	-0.000	-0.000	-0.002***	-0.012	-0.012	-0.012	-0.012	-0.012	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.000)
Population size	-0.344	-0.382	0.005	-0.408	-0.421	-0.487*	-0.185	-0.163	-0.209	-0.168	-0.184	-0.554
	(0.288)	(0.285)	(0.010)	(0.287)	(0.289)	(0.275)	(0.463)	(0.465)	(0.463)	(0.464)	(0.466)	(0.504)
Terms of trade	-0.001	-0.001	-0.002**	-0.001	-0.001	-0.001*	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Elecdem	-0.901**						0.013					
	(0.352)						(0.528)					
Liberdem		-1.160*						0.100				
		(0.362)						(0.535)				
Delibdem			-0.141						-0.016			
			(0.180)						(0.533)			
Egalitdem				-1.437*						0.355		
				(0.520)						(0.776)		
Participdem					-1.363*						0.092	
					(0.570)						(0.842)	
Institutions						0.033*						0.057**
						(0.013)						(0.026)
RD*Elecdem	1.681**						-0.539					
	(0.956)						(1.435)					
RD*Liberdem		2.538***						-1.041				
		(1.033)						(1.617)				
RD*Dilibdem			0.278						-0.876			
			(0.452)						(1.574)			
RD*Egalitdem				2.476***						-1.762		
				(1.338)						(2.082)		
RD*Participdem					2.459***						-0.741	
					(1.485)						(2.263)	
RD*Inst						-0.053						-0.077
						(0.036)						(0.061)
R2	0.942	0.943	0.898	0.942	0.942	0.956	0.915	0.916	0.916	0.916	0.915	0.922
Observations	269	269	269	269	269	218	196	196	196	196	168	156

No. of countries	71	71	71	71	71	56	68	68	68	68	68	53
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Columns 1–5 and 7–11 represent the outcomes based on varieties of democracy variables; columns 6 and 12 represent the outcomes based on institutions.

*** = significant variable at 1% level of significance, ** = significant at 5% and * = significant at 10%

Table 6
GMM model estimations with interaction term of RD

	LogM2						LogPrivate					
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DEPTH (lag)	1.736***	4.304***	4.310***	4.342***	4.340***	6.026***	0.588**	0.553**	0.526**	0.565**	0.579***	0.332**
	(0.841)	(0.649)	(0.678)	(0.651)	(0.647)	(0.762)	(0.270)	(0.268)	(0.271)	(0.275)	(0.266)	(0.240)
RD	-6.250*	-4.949**	-5.081	-4.810	-5.718	-6.530	-4.063	-3.509	-3.371	-3.881	-3.295	-3.914*
	(7.668)	(4.884)	(4.937)	(4.354)	(4.803)	(9.063)	(1.180)	(1.173)	(1.071)	(1.228)	(1.364)	(1.160)
Per capita GDP	2.751**	2.912***	2.919***	2.889***	2.842***	2.824***	0.801***	0.810***	0.802***	0.776***	0.766***	0.934***
	(1.278)	(0.601)	(0.612)	(0.598)	(0.592)	(0.822)	(0.261)	(0.268)	(0.261)	(0.267)	(0.272)	(0.287)
Inflation	-0.020	-0.008	-0.008**	-0.009**	-0.008***	-0.009***	-0.006	-0.005	-0.005	-0.005	-0.005	-0.001*
	(0.034)	(0.003)	(0.002)	(0.003)	(0.003)	(0.001)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.000)
Population size	-3.854**	-0.015	0.055	0.037	-0.118	0.200	-0.216	-0.165	-0.174	-0.173	-0.193	0.063
	(1.862)	(0.932)	(0.931)	(0.917)	(0.943)	(1.342)	(0.351)	(0.349)	(0.350)	(0.352)	(0.340)	(0.372)
Terms of trade	0.022	0.003	0.002	0.003	0.003	0.007**	-0.001	-0.000	-0.000	-0.000	-0.000	-0.001
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Elecdem	-18.83						0.267					
	(13.81)						(0.488)					
Liberdem		-4.248**						0.145				
		(1.849)						(0.491)				
Delibdem			-3.987**						0.211			
			(1.556)						(0.453)			
Egalitdem				-5.475**						0.402		
				(2.401)						(0.669)		
Participdem					-6.197***						0.297	
					(2.221)						(0.928)	
Institutions						0.062						0.025
						(0.084)						(0.018)
RD*Elecdem	41.39						-2.124**					
	(23.14)						(1.201)					
RD*Liberdem		11.50**						-1.702				
		(5.100)						(1.469)				
RD*Dilibdem			10.85**						-1.563			
			(4.453)						(1.120)			
RD*Egalitdem				12.51**						-2.787		

				(6.428)						(1.933)		
RD*Particpdem					15.05**						-1.635	
					(5.875)						(2.458)	
RD*Inst						0.180						-0.069
						(0.193)						(0.031)
Observations	158	198	198	198	198	162	128	128	128	128	128	103
No. of countries	64	70	70	70	70	56	53	53	53	53	53	42
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1)	0.182	0.096	0.036	0.027	0.032	0.965	0.204	0.215	0.248	0.224	0.190	0.645
AR(2)	0.203	0.419	0.444	0.476	0.398	0.049	0.059	0.088	0.096	0.087	0.082	0.194

Columns 1–5 and 7–11 represent the outcomes based on varieties of democracy variables; columns 6 and 12 represent the outcomes based on institutions.

*** = significant variable at 1% level of significance, ** = significant at 5% and * = significant at 10%

5 Conclusions and policy implications

This study has explored the relationship between ethnic and religious diversity and financial development using a dataset of 102 developing countries across the world. Financial development is a basic and important determinant of a country's economic and political stability. The results elucidate the significantly negative relationship between ethnic diversity and financial development. Developing countries face a more deep-seated situation because discrimination in society can create prejudice that could lead to lower outcomes (Becker, 1962). The literature also shows that increasing diversity in developing countries creates miscommunication (Peterson & Seligman, 2004) and misunderstandings in behaviour, work attitudes and communication styles, disturbing the international financial market (Usunier, Lee & Lee, 2005). A diverse society can also be a cause of confusion; lack of teamwork, confidence and environmental care; and protection problems (Videras & Bordoni, 2006) – as well as low morale, which can also badly hurt a country's reputational status worldwide.

Our results recommend that beyond economic and institutional factors, ethnic and religious diversity may be a factor of interest when evaluating financial development as an economic-development tool. The social and environmental dimensions of sustainable development cannot be treated separately – and in order for them to prevail, equity among ethnic groups needs to be focused. The notion of social cohesion and harmony is very important in drawing out the positive consequences of ethnic fractionalization. The roles of institutions and civic participation are very important in mitigating the effects of diverse ethnic groups on financial development if sustainable development is to be achieved. The above discussion concludes that multi-ethnic societies should design their policies and strengthen their institutions for sustainable economic development, which requires the profound involvement of all social groups in the political process.

This study suggests that even great diversity is present its adverse effects on financial development can be mitigated by well-functioning and good quality institutions. Developing countries need to create secure and peaceful societies through strong institutional quality in order to obtain fruitful results from a diverse population. Accordingly, attention must be paid to shaping the economic life of a country in a variety of ways – such as promoting more cohesiveness in its society. Developing countries will have to implement economic reforms if they are to foster the productive development of poorer households, civil activism, and social cohesion, and create new competitive advantages (Fukuyama, 2001; Woolcock & Narayan, 2000).

It should be remembered that diversity is a multidimensional concept – demographic, socio-economic, political, geographical, cultural and dynamic in nature – and it is impossible to conclude that these variables, included in this study, are the only predictors of diversity as well as of financial development. However, there are several other financial variables that may affect financial development – such as political stability, infrastructural quality and government policies – which are not covered by the present study. This study does not, for

example, check the impact of the Gini index regarding the distribution of income in response to financial development – either within a country or across countries. It simply explores the macro-level / aggregated-level analysis relationship of ethnic and religious diversity with financial development. Therefore, it is more appropriate when generalizing about sub-national units such as cities, provinces and towns – and when comparing places to places.

References

Ajide, B. K. (2020). Fragmentation and financial development in Sub-Saharan Africa Countries: the case of diversity debit versus diversity dividend theses. *Economic Change and Restructuring*, 53(3), 379–428.

Al-Awadhi, A. M. (2017). Essays on religious beliefs and stock market outcomes. Doctoral Dissertations, RMIT University, Melbourne.

Alesina, A. & Rodrik, D. (1994). Distributive politics and economic growth. The *Quarterly Journal of Economics*, 109(2), 465–90.

Alesina, A. & Spolaore, E. (1997). On the number and size of nations. *The Quarterly Journal of Economics*, 112(4), 1027–56.

Alesina, A. & Tabellini, G. (1989). External debt, capital flight and political risk. *Journal of International Economics*, 27(3–4), 199–220.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S. & Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, 8(2), 155–94.

Altinay, L., Saunders, M.N. & Wang, C.L. (2014). The influence of culture on trust judgments in customer relationship development by ethnic minority small businesses. *Journal of Small Business Management*, 52(1), 59–78.

Ananiev, J., Atanasov, P., Gerovska-Mitev, M. & Shukarov, M. (2011). Beyond Transition Towards Inclusive Societies. Regional Human Development Report. Bratislava: UNDP Regional Bureau for Europe and the Commonwealth of Independent States.

Arellano, M. & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277–97.

Arellano, M. & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29–51.

Ayob, A.H. (2018). Diversity, trust and social entrepreneurship. *Journal of Social Entrepreneurship*, 9(1), 1–12.

Baltagi, B.H., Demetriades, P.O. & Law, S.H. (2009). Financial development and openness: Evidence from panel data. *Journal of Development Economics*, 89(2), 285–96.

Barry, T.A. & Tacneng, R. (2014). The impact of governance and institutional quality on MFI outreach and financial performance in Sub-Saharan Africa. *World Development*, 58, 1–20.

Becker, G.S. (1962). Irrational behavior and economic theory. *Journal of Political Economy*, 70(1), 1–13.

Bernile, G., Bhagwat, V. & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, 127(3), 588–612.

Blau, P.M. (1977). *Inequality and heterogeneity: A primitive theory of social structure* (Vol. 7). New York: Free Press.

Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143.

Bolgorian, M. (2011). Corruption and stock market development: A quantitative approach. *Physica A: Statistical Mechanics and its Applications*, 390(23–24), 4514–21.

Boudriga, A. & Ghardallou, W. (2012). Democracy and financial development: Does the institutional quality matter. Unpublished manuscript.

Bove, V. & Elia, L. (2017). Migration, diversity, and economic growth. *World Development*, 89, 227–39.

Brealey, R.A., Myers, S.C., Allen, F. & Mohanty, P. (2012). *Principles of corporate finance*. New York: Tata McGraw-Hill Education.

Brekke, T. (2018). Halal money: financial inclusion and demand for Islamic banking in Norway. *Research & Politics*, 5(1), DOI: 2053168018757624.

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), 446–62.

Brown, D.E. (2004). Human universals, human nature & human culture. *Daedalus*, 133(4), 47–54.

Brown, D. & McGranahan, G. (2016). The urban informal economy, local inclusion and achieving a global green transformation. *Habitat International*, 53, 97–105.

Cámara, N. & Tuesta, D. (2014). Measuring financial inclusion: A muldimensional index. BBVA Research Paper 14/26. Madrid: BBVA.

Carbó, S., Gardner, E. & Molyneux, P. (2005). *Financial exclusion*. Berlin: Springer.

Chang, Y.-C., Hong, H. G., Tiedens, L., Wang, N. & Zhao, B. (2015). Does diversity lead to diverse opinions? Evidence from languages and stock markets. Working Paper 168, 13–16. Stanford, CA: Rock Center for Corporate Governance at Stanford University.

Chen, M., Vanek, J. & Heintz, J. (2006). Informality, gender and poverty: A global picture. *Economic and Political Weekly*, 2131-39.

Cherif, M. & Gazdar, K. (2010). Macroeconomic and institutional determinants of stock market development in MENA region: new results from a panel data analysis. *International Journal of Banking and Finance*, 7(1), 8.

Churchill, S.A. & Appau, S. (2020). Microfinance in Latin America and the Caribbean: the curse and blessing of ethnic diversity. *Applied Economics*, 52(16), 1816–30.

Delhey, J. & Newton, K. (2005). Predicting cross-national levels of social trust: global pattern or Nordic exceptionalism? *European Sociological Review*, 21(4), 311–27.

Dincer, O.C. & Wang, F. (2011). Ethnic diversity and economic growth in China. *Journal of Economic Policy Reform*, 14(1), 1–10.

Dražanová, L. (2020). Introducing the Historical Index of Ethnic Fractionalization (HIEF) dataset: accounting for longitudinal changes in ethnic diversity. *Journal of Open Humanities Data*, 6(1), 6.

Duanmu, J.-L. & Guney, Y. (2013). Heterogeneous effect of ethnic networks on international trade of Thailand: The role of family ties and ethnic diversity. *International Business Review*, 22(1), 126–39.

Dutta, N. & Mukherjee, D. (2012). Is culture a determinant of financial development? *Applied Economics Letters*, 19(6), 585–90.

Easterly, W. (2001). Can institutions resolve ethnic conflict?. *Economic Development and Cultural Change*, 49(4), 687–706.

Easterly, W. & Levine, R. (1997). Africa's growth tragedy: policies and ethnic divisions. *The Quarterly Journal of Economics*, 112(4), 1203-50.

Easterly, W., Ritzen, J. & Woolcock, M. (2006). Social cohesion, institutions, and growth. *Economics & Politics*, 18(2), 103–20.

Égert, B. & Mihaljek, D. (2007). Determinants of house prices in central and eastern Europe. *Comparative Economic Studies*, 49(3), 367–88.

Esman, M.J. (2019). *Ethnic conflict in the Western World*. Ithaca, NY: Cornell University Press.

Fearon, J.D. (2003). Ethnic and cultural diversity by country. *Journal of Economic Growth*, 8(2), 195–222.

Fisher, R.A., Corbet, A.S. & Williams, C.B. (1943). The relation between the number of species and the number of individuals in a random sample of an animal population. *The Journal of Animal Ecology*, 42–58.

Fukuyama, F. (2001). Social capital, civil society and development. *Third world Quarterly*, 22(1), 7–20.

Ghosh, S. (2017). Banking and credit extension: does religious diversity matter? *International Journal of Social Economics*, 44(12), 2287–2301.

Gujarati, D.N. & Porter, D.C. (eds) (2003). *Basic econometrics*. Singapore: McGrew Hill Book Co.

Haber, S. & Perotti, E. (2008). The political economy of financial systems. Tinbergen Institute Discussion Paper No. 08-045/2. Amsterdam & Rotterdam: Tinbergen Institute.

Haini, H. (2020). Examining the relationship between finance, institutions and economic growth: Evidence from the ASEAN economies. *Economic Change and Restructuring*, 53(4), 519–42.

Hasan, M.R. & Murshed, S.M. (2017). Does civil war hamper financial development? *Defence and Peace Economics*, 28(2), 188–207.

Hooghe, M., Reeskens, T., Stolle, D. & Trappers, A. (2008). Ethnic Diversity and Generalized Trust in Europe. A Cross-National Comparative Study. *Comparative Political Studies*, 42(2), 198–223.

Horwitz, S.K. & Horwitz, I.B. (2007). The effects of team diversity on team outcomes: A meta-analytic review of team demography. *Journal of Management*, 33(6), 987–1015.

Hsiao, C. (1986). *Analysis of Panel Data, Econometric Society Monograph No. 11*. Cambridge: Cambridge University Press.

Hunt, V., Layton, D. & Prince, S. (2015). Diversity matters. *McKinsey & Company*, 1(1), 15–29.

Judson, R.A. & Owen, A.L. (1999). Estimating dynamic panel data models: a guide for macroeconomists. *Economics Letters*, 65(1), 9–15.

Katalakute, G.B. (2019). Diversified Leadership: A Boost to Innovation. Sumedha *Journal of Management*, 8(3), 203–6.

Keen, D. (2000). Incentives and disincentives for violence. In Berdal, Mats and Malone, David M. (eds), *Greed and Grievance: Economic Agendas in Civil Wars*. Boulder, CO: Lynne Reinner Publishers.

Kim, D.-W., Yu, J.-S. & Hassan, M.K. (2020). The influence of religion and social inequality on financial inclusion. *The Singapore Economic Review*, 65(01), 193–216.

King, R.G. & Levine, R. (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3), 513–42.

Kwok, C.C. & Tadesse, S. (2006). National culture and financial systems. *Journal of International Business Studies*, 37(2), 227–47.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. (1999). The quality of government. *The Journal of Law, Economics, and Organization*, 15(1), 222–79.

Law, S.H. & Habibullah, M.S. (2009). The determinants of financial development: Institutions, openness and financial liberalisation. *South African Journal of Economics*, 77(1), 45–58.

Le, T.H., Kim, J. & Lee, M. (2016). Institutional quality, trade openness, and financial sector development in Asia: An empirical investigation. *Emerging Markets Finance and Trade,* 52(5), 1047–59.

Levine, R. (1998). The legal environment, banks, and long-run economic growth. *Journal of Money, Credit and Banking*, 596–613.

Levine, S.S., Apfelbaum, E.P., Bernard, M., Bartelt, V.L., Zajac, E.J. & Stark, D. (2014). Ethnic diversity deflates price bubbles. *Proceedings of the National Academy of Sciences,* 111(52), 18524–29.

Mathieson, J., Popay, J., Enoch, E., Escorel, S., Hernandez, M., Johnston, H. & Rispel, L. (2008). Social Exclusion Meaning, measurement and experience and links to health inequalities. A review of literature. WHO Social Exclusion Knowledge Network Background Paper, 1, 91.

Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics*, 110(3), 681–712.

Michie, J. & Oughton, C. (2013). Measuring diversity in financial services markets: A diversity index. Discussion Paper Series 113. London: SOAS Centre for Financial and Management Studies.

Montalvo, J.G. & Reynal-Querol, M. (2005). Ethnic polarization, potential conflict, and civil wars. *American Economic Review*, 95(3), 796–816.

Nafziger, E. & Auvinen, J. (2003). Economic Development, Inequality and War: Humanitarian Emergencies in Developing Countries. Berlin: Springer.

Nimbrayan, P.K., Tanwar, N. & Tripathi, R.K. (2018). Pradhan mantri jan dhan yojana (PMJDY): The biggest financial inclusion initiative in the world. *Economic Affairs*, 63(2), 583–90.

North, D.C. (1991). Institutions. Journal of Economic Perspectives, 5(1), 97–112.

Otioma, C., Madureira, A.M. & Martinez, J. (2019). Spatial analysis of urban digital divide in Kigali, Rwanda. *GeoJournal*, 84(3), 719–41.

Peterson, C. & Seligman, M.E. (2004). *Character strengths and virtues: A handbook and classification* (Vol. 1). New York: Oxford University Press.

Roberson, Q.M. & Park, H.J. (2007). Examining the link between diversity and firm performance: The effects of diversity reputation and leader racial diversity. *Group & Organization Management*, 32(5), 548–68.

Rodrik, D. (2008). *One economics, many recipes: globalization, institutions, and economic growth*. Princeton, NJ: Princeton University Press.

Rousseau, P.L. & Wachtel, P. (2011). What is happening to the impact of financial deepening on economic growth? *Economic Inquiry*, 49(1), 276–88.

Salloum, C., Jabbour, G. & Mercier-Suissa, C. (2019). Democracy across gender diversity and ethnicity of Middle Eastern SMEs: how does performance differ? Journal of Small Business Management, 57(1), 255–67.

Shihadeh, F. (2020). Online payment services and individuals' behaviour: new evidence from the MENAP. *International Journal of Electronic Banking*, 2(4), 275–82.

Shihadeh, F.H. (2018). How individual's characteristics influence financial inclusion: evidence from MENAP. *International Journal of Islamic and Middle Eastern Finance and Management*, 11(4), 553–74.

Shihadeh, F.H. (2019). Individual's behavior and access to finance: evidence from Palestine. *The Singapore Economic Review*, 1–21.

Sutherland, A. (1997). Fiscal crises and aggregate demand: can high public debt reverse the effects of fiscal policy? *Journal of Public Economics*, 65(2), 147–62.

UNESCO (2000) *World culture report, 2000: cultural diversity, conflict and pluralism*, Paris: UNESCO. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000121058

Usunier, J.C., Lee, J.A. & Lee, J. (2005). *Marketing across cultures*. Harlow: Pearson Education.

Van Hove, L. & Dubus, A. (2019). M-PESA and financial inclusion in Kenya: Of paying comes saving? *Sustainability*, 11(3), 568.

Väyrynen, R. (2003). Regionalism: old and new. International Studies Review, 5(1), 25–51.

Videras, J. & Bordoni, C.J. (2006). Ethnic heterogeneity and the enforcement of environmental regulation. *Review of Social Economy*, 64(4), 539–62.

Weller, C.E. & Zulfiqar, G. (2013). Financial market diversity and macroeconomic stability. Working Paper 332. Amherst, MA: Political Economy Research Institute, University of Massachusetts at Amherst.

Woodward, I., Skrbis, Z. & Bean, C. (2008). Attitudes towards globalization and cosmopolitanism: cultural diversity, personal consumption and the national economy. *The British Journal of Sociology*, 59(2), 207–26.

Woolcock, M. & Narayan, D. (2000). Social capital: Implications for development theory, research, and policy. T*he world bank research observer*, 15(2), 225–49.

Wooldridge, J.M. (2010). *Econometric analysis of cross section and panel data*. Cambridge, MA: MIT Press.

World Bank (2017). The Global Findex Database. Available online at http://www.worldbank.org/globalfindex.

Appendices

Appendix 1 Construction of the fractionalization index

1. Approach: This paper used ethnic fractionalization index, developed by the Alesina et al. (2003) for diversity calculation (on the basis of ethnic and religious) using the following formula.

$$FRAC_j = 1 - \sum_{i=1}^{N} S_{ij}^2$$

Whereas S_{ij} is the share of group i, (i=1……N) in the country j. The range of the fractionalization index is between 0-1. Zero "0" means near to homogenous country and "1" shows heterogeneous country.

2. Data. The data of diversity (ethnic and religious) has been taken from database of Cline Center for Democracy, University of Illinois, USA. The dataset contains annual data from 1990 to 2015 for 102-developing countries. Data at the Cline Centre based on various projects that document the changing varieties of social identity around the world (composition of religious and ethnic groups, CREG). In addition, they also identified the causes of conflict between religious and ethnic groups. The Composition of Religious and Ethnic Groups Project (CREG) was started to create a set of time-varying measures that gauge the nature and depth of country-specific socio-cultural cleavages. It focused on the largest countries in the world (all countries with a population above 500,000 (in 2014) during the post-WWII era to create country-specific projections on the relative sizes of the different groups during the postwar era.

3. Final index. The data at CREG project shows various types of groups each and every country at annually basis on the ethnic and religious identity. We have found the number of ethnic and religious groups of each country out of total populations. So, it easy to apply the Alesina's fractionalization index formula to calculate the diversity for ethnic and religious basis. We constructed the index values for the year 1990, 1995, 2000, 2005, 2010 and 2015 because diversity is not change over time. We have also compiled the index for 102-developing countries (out of 195 totals) due to limitation of data. The result of index can be used for relative ranking of countries on basis of ethnic and religious identity in current scenarios.

Appendix 2 Description of variables and expected signs

Variables Category	Symb.	Description		Data Source
Dependant Variables				
Log of M2 (% of GDP)	M2	M2: Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings and foreign currency deposits of residents other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the International Monetary Fund's International Financial Statistics.		WDI
Log of credit allocated to private sector (% of GDP)	Private	Credit allocated to private sector as a percentage of GDP is measured in terms of credit allocated to private sector by banks as a percentage of GDP.		WDI
Indpendant Variables	Symb.	Description	Expected Sign	Data Source
Fractionalization of ethnic groups	FRACED	% of population with ethnic groups (out of total population) and used formulation of Alesina et al. (2003) for its calculations.	+/-	Cline Centre of Democracy
Fractionalization of religious groups	FRACRD	% of population with religious groups (out of total population) and used formulation of Alesina et al. (2003) for its calculations.	+/-	Cline Centre of Democracy
Consumer price Index	CPI	Inflation, consumer prices (annual %)	+/-	WDI
Log GDP Per Capita	GDPPC	GDP per capita, PPP (constant 2017 international $)	+/-	WDI
Terms of Trade	TOT	Net barter terms of trade index (2000 = 100)	+/-	WDI
Log population size	Pop	Population, total	+/-	WDI
Institutions	Inst	Five of the most relevant governance indicators: (i) government stability, (ii) bureaucratic quality, (iii) corruption, (iv) law and order and (v) investment profile	+/-	ICRG
Varieties of Democracy	VDEM	Electoral democracy (Elecdem), Liberal democracy (Liberdem), Deliberative democracy (Delibdem), Egalitarian democracy (Egalitdem), Participatory democracy (Participdem)	+/-	Varieties of Democracy Dataset v11

Note: WDI means world development indictors, database archives. The electoral principle of democracy (Elecdem) seeks to embody the core value of making rulers responsive to citizens, achieved through electoral competition for the electorate's approval under circumstances when suffrage is extensive; political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country. The liberal principle of democracy (Liberdem) emphasizes the importance of protecting individual and minority rights against the tyranny of the state and the tyranny of the majority. This is achieved by constitutionally protected civil liberties, strong rule of law, an independent judiciary, and effective checks and balances that, together, limit the exercise of executive power. The participatory principle of democracy (Participdem) emphasizes active participation by citizens in all political processes, electoral and non-electoral. It is motivated by uneasiness about a bedrock practice of electoral democracy: delegating authority to representatives. Thus, direct rule by citizens is preferred, wherever practicable. The deliberative principle of democracy (Delibdem) focuses on the process by which decisions are reached in a polity. A deliberative process is one in which public reasoning focused on the common good motivates political decisions—as contrasted with emotional appeals, solidary attachments, parochial interests, or coercion. The egalitarian principle of democracy (Egalitdem) holds that material and immaterial inequalities inhibit the exercise of formal rights and liberties and diminish the ability of citizens from all social groups to participate.

Appendix 3 List of countries

Following 102-developing countries included in empirical exercises.

Albania	Cameroon	Fiji	Kiribati	Morocco
Algeria	Cape Verde	Gabon	Kyrgyz Republic	Namibia
Angola	China	Georgia	Lao PDR	Nicaragua
Argentina	Colombia	Ghana	Lebanon	Nigeria
Armenia	Congo, Rep.	Grenada	Lesotho	Pakistan
Azerbaijan	Costa Rica	Guatemala	Libya	Panama
Bangladesh	Cote d'Ivoire	Guyana	Macedonia, FYR	Papua New Guinea
Belarus	Croatia	Honduras	Malaysia	Paraguay
Belize	Cuba	India	Maldives	Peru
Bhutan	Djibouti	Indonesia	Marshall Islands	Philippines
Bolivia	Dominica	Iran, Islamic Rep.	Mauritania	Romania
Bosnia and Herzegovina	Dominican Republic	Iraq	Mauritius	Russian Federation
Botswana	Ecuador	Jamaica	Mexico	Samoa
Brazil	Egypt, Arab Rep.	Jordan	Micronesia, Fed. Sts.	Sao Tome and Principe
Bulgaria	El Salvador	Kazakhstan	Moldova	Serbia and Montenegro
Cambodia	Equatorial Guinea	Kenya	Mongolia	Solomon Islands
Suriname	Taiwan, China	Timor-Leste	Turkey	South Africa
Swaziland	Tajikistan	Tonga	Turkmenistan	Sri Lanka
Syrian Arab Republic	Thailand	Tunisia	Ukraine	St. Lucia
Venezuela, RB	Yemen, Rep.	Vanuatu	Uzbekistan	Sudan
Vietnam	Zambia			