The Impact of Government Efficiency on Financial Development

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ABSTRACT

This study aims to fulfill a gap in the existing literature by investigating the impact of government efficiency and corruption on financial development of thirty-one OECD countries from 2002 to 2015 inclusively. The panel data analyses were conducted with the use of fixed-effects (within), random-effects and feasible generalized least squares (FGLS) methods. For the robustness, the sample was then split into subsamples based on the political regimes, and each subsample was analysed once more. Findings of this study suggest that improvements in government efficiency lead to further financial development in the case of OECD countries. Also, there is substantial evidence to support the argument that corruption hinders financial development. The obtained results for the subgroups point out the importance of the political system on financial development. Given the importance of financial development on many macroeconomic fundamentals including economic growth, these empirical findings have several essential policy implications which are discussed in the conclusion section.

Keywords: Financial development, government efficiency, OECD countries, panel data analysis.

ÖZ

Bu çalışma, devlet verimliliğinin ve yolsuzluğun 2002-2015 döneminde otuz bir OECD ülkesinin finansal gelişimi üzerindeki etkisini araştırarak mevcut literatürdeki bir boşluğu gidermeyi amaçlamaktadır. Çalışmadaki panel veri analizleri; sabit etkiler, rassal etkiler ve uygulanabilir genelleştirilmiş en küçük kareler (UGKK) yöntemleri kullanılarak gerçekleştirilmiştir. Tüm örneklem için analizlerin yapılmasının ardından, elde edilen bulguların tutarlılığını test etmek amacıyla, örneklem ülkelerin politik sistemlerine göre alt örneklemlere bölünmüş ve analizler bu altörneklemler için tekrarlanmıştır. Çalışmanın bulguları, verimlilikteki iyileşmelerin incelenen OECD ülkelerinde finansal gelişmeyi desteklediğini göstermektedir. Ayrıca, yolsuzluğun finansal gelişmeyi engellediği argümanını destekleyen önemli kanıtlar elde edilmiştir. Alt örneklemler için elde edilen sonuçlar politik sistemin finansal gelişme üzerindeki önemine işaret etmektedir. Finansal gelişmenin, ekonomik büyüme de dahil olmak üzere diğer birçok makroekonomik değişken üzerindeki önemi göz önüne alındığında, elde edilen ampirik bulgular, sonuç bölümünde tartışılan birçok önemli politika önermesine işaret etmektedir.

Anahtar Kelimeler: Finansal gelişme, verimliliği, OECD ülkeleri, panel veri analizi.

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LIST OF ABBREVIATIONS

AMG: Augmented Mean Group

ARDL: Autoregressive Distributed Lag

BMA: Bayesian Model Averaging

BRICS: Brazil, Russia, India, China, and South Africa

CORRUPT: Corruption

CPI: Consumer Price Index

DEA: Data Envelopment Analysis

DOLS: Dynamic Ordinary Least Squares

ECOWAS: Economic Community of West Africa

EMPLOY: Employment

EMU: Economic and Monetary Union

EU: European Union

FD: Financial Development

FDI: Foreign Direct Investment

FGLS: Feasible Generalised Least Squares

FMOLS: Fully Modified Ordinary Least Squares

FOREX: Foreign Exchange

GDP: Gross Domestic Product

GDPC: Real Gross Domestic Product per Capita

GLS: Generalised Least Squares

GMM: Generalised Method of Moments

GNI: Gross National Income

GOVEFF: Government Efficiency

ICRG: International Country Risk Group

IMF: International Monetary Fund

IVBMA: Instrumental Variable Bayesian Model Averaging

MENA: Middle East North Africa

MINT: Mexico, Indonesia, Nigeria, and Turkey

OECD: Organisation for Economic Cooperation and Development

OFDI: Outward Foreign Direct Investment

OLS: Ordinary Least Square

PCSE: Panel Corrected Standard Errors

PLS: Partial Least Squares

PMG: Pooled Mean Group

POP1: Population 1

POP2: Population 2

PRS: Political Risk Services

PSE: Public Sector Efficiency

PSP: Public Sector Performance

PTM: Predictive Technology Model

RGDP: Real Gross Domestic Product

URBAN1: Urbanization 1

URBAN2: Urbanization 2

VAR: Vector Autoregression

VECM: Vector Error Correction Model

WDI: World Development Indicators

WGI: World Governance Indicators

Chapter 1

INTRODUCTION

Financial development involves developments within the financial sectors; where financial sectors are composed of financial institutions, markets, and instruments required to transport saving from savers to borrowers in the form of credit. Therefore, financial development enables those sectors to reduce the costs that are incurred within the financial system. This is achieved when financial institutions, markets, and intermediaries can improve contractual enforcement, ease the effect of information sharing and lower transactional costs. These achievements therefore, imply that the financial sector has improved the way in which they provide key functions, thus resulting in financial development (World Bank, 2018). Vast evidence suggests that financial development improves economic growth and reduces poverty. The use of capital accumulation, both human capital and physical capital and its impact on technological improvements results in financial development promoting economic growth (Levine and Zervos, 1998). The expansion of financial services due to financial development also reduces poverty as the poor are granted broader access to these services, thus increasing the income growth of the poor (Jalilian and Kirkpatrick, 2002).

Financial developments' importance is vast within the existing literature; it includes a broad scope of research investigating the impact of financial development on a wide set of macroeconomic fundamentals. A large extent of the literature is devoted to the

effect of financial development on economic growth perspective; much of the research provides strong evidence of a causal relationship between financial development and economic growth (Patrick, 1966; Levine, 1999; Calderón and Liu, 2003; Menyah, Nazlioglu, and Wolde-Rufael, 2014; Beck, Georgiadis and Straub, 2014; Pradhan, Arvin and Bahmani, 2018; and Benczúr, Karagiannis and Kvedaras, 2018). Other aspects of the literature have noted that financial development has an indirect relation with economic growth; several factors impact this relationship amongst them. For example, Herwartz and Walle (2014) findings indicated that the link between financial development and economic growth is depended on government size and trade openness. Numerous research studies conducted on the financial development-growth nexus have resulted in a vast number of control variables incorporated within the literature, these studies have analyzed and reported said control variables mediating role within the nexus (Deltuvaitė and Sinevičienė, 2014; Samargandi, Fidrmuc and Ghosh, 2015; Durusu-Ciftci, Ispir and Yetkiner, 2017; and Kumar, Stauvermann, Patel and Prasad, 2018). These studies imply that financial development's effect on economic growth depends on other control variables; regardless there is still a strong consensus within the existing literature that financial development positively contributes to economic growth.

Importance of financial development research has not been restricted to economic growth investigations. Financial development also provides crucial implications for resource allocation. The relationship amongst efficient resource allocation and financial development is closely linked to economic growth studies (Levine, 1999; Fisman and Love, 2004; and Fernández and Tamayo, 2017). Ductor and Grechyna (2015) findings suggest financial development’s impact on economic growth is related to financial sector outputs, indicating inter-dependency between financial

development and real sector technologies. Their research implies that improvements within financial sector technologies will provide both greater resource allocation efficiency and enhanced financial development. These studies indicate that improvements in resource allocation, as a result of financial development, increase economic growth prospects.

Financial development importance regarding transactional costs and remittance was also investigated within the financial development research literature (Freund and Spatafora, 2008; Gupta, Pattillo, and Wagh, 2009). The findings of the research investigating the relationship amongst financial development, remittance, and transactional costs suggest that financial development is critical for the promotion of investments channeled through remittance as well as the reduction of transactional costs, thus providing potential economic growth expansion opportunities. Freund and Spatafora (2008) research provided macroeconomic evidence on how remittance interactions in financial development can promote economic growth, as they help combat liquidity constraints and enhance possible foreign direct investment opportunities. These studies also provide evidence that financial development enhances economic growth.

Other researchers have specifically investigated the benefits of development within the financial sector itself. Lu, Guo, Dong, and Wang (2017) analyzed the impact of financial development on the financial sector and found that it was crucial in order to attract a higher money supply to the financial sector, it was also proved vital to control for inflation. Amoah, Aboagye, Bokpin, and Ohene-Asare (2018) discovered a positive correlation between financial development and credit union lending; there are greater loan creation opportunities as a result of increased financial development.

Leibovici (2018) concluded that financial development was of vital importance for the relocation of international shares. These studies highlight the importance of financial development in order to improve financial sector quality and its outputs.

It is evident that the importance of financial development is well documented within the existing literature; the great importance regarding the impact that financial development has on several economic factors has led to the construction of research on the determinants of financial development.

Institutional quality importance for many financial and economic variables has also been mentioned in the literature. Law, quality of governmental regulations and individuals' rights are all incorporated into the broad definition of institutional quality. Studies on the ability to achieve and maintain long-term economic growth have regarded institutions to be of great significance (Butkiewicz and Yanikkaya, 2006; Herrera-Echeverri, Haar, and Estévez-Bretón, 2014; and Khan and Hanif, 2018). Fernández and Tamayo (2017) found that institutional quality enhances financial development by constructing and implementing the macroeconomic and fiscal policies appropriately and that financial development results in further economic growth as it alleviates financial constraints. Studies have also incorporated institutional quality as a moderating factor within the financial development and economic growth relationship. Gazdar and Cherif (2015) concluded that institutional quality was vital for financial development to promote economic growth; their findings indicated only countries with substantial institutional quality were able to promote economic growth with the use of financial development.

Moreover, several other studies displayed that institutional quality is necessary to further financial development. Within the existing literature, it has been suggested that institutional quality has a significant impact on financial development, as institutions are responsible for providing financial services along with maintaining the service quality that is provided. Therefore, improving aspects within institutional quality will result in enhanced financial development (Acemoglu, Johnson, and Robinson, 2005). Acemoglu et al. (2005) found that institutions control the distribution of resources, suggesting that this control impacts the level of financial development expressed. Bermpei, Kalyvas, and Nguyen (2018) proved that improvements in institutional quality provide greater regulatory enforcements regarding banks' stability in regards to developing economies, thus promoting greater financial development.

Institutional quality is not only vital for financial development. Studies have found that institutional quality is of importance in a string of other factors; in fact, institutional quality has implications for macroeconomic variables as well. Eslamloueyan and Jafari (2018) concluded that high institutional quality levels have a positive impact on investment behaviours within East Asia making them less prone to financial crises, with the use of seven institutional quality indicators. Aziz (2018) found that institutional quality has a significantly positive impact on foreign direct investment for sixteen investigated Arabic countries when accounting for several measures of institutional quality.

There is strong evidence to suggest an empirical link between government efficiency and institutional quality. Government efficiency reflects the ability of the government to use their resources efficiently, improve the services they offer and

decrease the costs associated with providing those services. Hauner and Kyobe (2010) investigated the determinants of government efficiency. Within their study they found institutional quality, democratic and geographic to be determinants of government efficiency. The institutional determinants included control of corruption and degree of democracy. Their findings suggested that improvements in both results in increases efficiency and performance of governance. These institutional determinants are related to institutional quality; thus there is evidence to support a link between institutional quality and government efficiency. The existing literature devoted to government efficiency and institutional quality suggests a reciprocal relationship between the two. Alonso and Garcimartin (2013) included a governmental efficiency measure when analyzing the determinants of institutional quality and found it to be a significant positive contributor. Oluwatobi, Efobi, Olurinola, and Alege (2015) accounted for government efficiency while investigating the role of institutional quality on innovation. Their findings suggest that institutional quality and government efficiency go hand in hand, that both factors reinforce one another to contribute to innovation in the case of Africa positively. Finally, Charron and Lapuente (2013) investigated the government efficiency of seventy European countries to investigate why so many nations with similar institutional quality aspects differ in governmental quality.

Government efficiency is crucial for financial development as improved governance is associated with increased development since enriched government efficiency results in enhances productivity and reduced production costs associated with financial development activities. Demirgüç-Kunt, Levine, and Detragiache (2008) findings suggested that the government's role within the financial sector is to align policies with the interest of the public and private sector, as the literature indicates

more developed financial systems enjoy faster economic growth. Cooray (2011) found that government efficiency, measured by legal origin, had a positive impact on both financial sector size and financial sector efficiency. Also, government efficiency is considered a factor in the governments' ability to successfully form and achieve a set of fiscal and monetary objectives. Thus this impacts both financial development and economic growth targets reached.

Our study aims to fulfill the mentioned gap in the existing literature by investigating the impact of crucial institutional aspects, government efficiency and corruption, on the financial development for thirty-one OECD countries. Many research articles have examined the determinants financial development from an institutional quality perspective going into great details to explain the importance of institutional quality on the impact of financial development, but the existing literature has failed to consider the direct impact of government efficiency on financial development. On the grounds that the importance of government efficiency as a determinant of financial development has been ignored in the literature thus far, our study highlights the importance of the impact of government efficiency on financial development. Findings from the conducted study may be of great importance regarding policy implications in order to promote financial development within OECD countries.

To investigate the relationship between government efficiency and financial development, we used government effectiveness, which is a world governance indicator as a proxy for government efficiency. This indicator measures government effectiveness from an institutional quality perspective. It captures the perceptions related to public and civil services, the degree of independence from political

pressure, policy formation and implementation quality and the creditability governments' commitments of such policies (World Governance Indicators, 2018).

The perceived corruption level of the sample countries is included within the analysis to account for another institutional quality factor since corruption is viewed as a by-product of political regimes and regulations, restrictive implemented policies or a lack of governance. Furthermore, the presences of corruptive activities are expected to diminish financial development output.

Empirical models used in our analysis also included the incorporation of several control variables. Following suit in regards the existing literature, control variables such as employment, population and urbanization are added to the models in order to refrain from committing any omitted variable bias. Population is a popular reoccurring variable present in the existing financial development literature regarding the determinants of financial development (Tayssir and Feryel, 2018; Ruiz, 2018; and Durusu-Ciftci et al., 2017). Whilst, both urbanization (Dutta and Sobel, 2018; and Shahbaz, Bhattacharya and Kumar, 2017) and employment (Bayar, 2016) are commonly used in research related to institutional quality's impact on financial development. Given the use of these variables in the financial development literature, we found it plausible to include them within our empirical model as our study is conducted from an institutional quality point of view. Several measures were applied during analysis to ensure robustness in the obtained empirical findings. This involved the use of several panel data estimations in order to see if the findings confirmed one another, plus the adoption of different proxies regarding both the population variable and urbanization variable in order make sure that our results were not sensitive to proxy selection. Lastly to further validate that the findings were, in fact, robust the

whole sample of thirty-one OECD countries was split into four subgroups, namely EU23 countries, fully democratic countries, flawed democratic countries, and former communist countries. Subgroups were formed and analyzed in order to investigate the importance of legal regime, thus accounting for another institutional quality. This approach allows enables us to conclude how a country's political regime impacts its financial development establishment.

The findings of this research suggest that government efficiency directly and significantly promotes financial development. Results from subgroups analysis, formed on the basis of political regime provide a more detail picture of how government efficiency impacts financial development for different types of political regimes. The results of the analysis suggest that government efficiency improvements are most impactful for the financial development of flawed democratic counties. The results obtained are of importance for policymakers in order to develop the policies required in order to improve financial development, which in turn promotes the improvement of various other economic factors. Overall, the results indicate that policies aiming at improving institutional quality are crucial for furthering financial development. Also, our findings suggest that policymakers should form policies with the aim of reducing corruption as it diminishes financial development. Finally, the observations obtained from the analysis also imply that policymakers should also set policies that improve macroeconomic stability in order to promote trust within the financial sector.

Chapter 2

LITERATURE REVIEW

The existing literature concerning financial development is vast. Therefore, the literature included within this study has been divided into four subsections based on recent findings that are of importance for our study. The subsections include; the importance of financial development, the determinants of financial development, government variables related to financial development and government efficiency.

2.1 Importance of Financial Development

The importance of financial development has been greatly evident in the literature. A large extent of the literature is devoted to financial developments' effect on economic growth. Hassan, Sanchez, and Yu (2011) studied the relationship between financial development and economic growth, whilst accounting income level. The study's findings indicate that economic growth of low-income and middle-income countries can be enhanced by financial development, whereas financial development was found to have no significant impact on economic growth of high-income countries. Deltuvaitė and Sinevičienė (2014) investigated the relationship between economic development and financial development for European countries and found a significant positive monotonic link amongst them. Herwartz and Walle (2014) found that the link between financial development and economic growth was dependent on government size and financial openness. It has been suggested that there is inter-dependency between the financial sector and the real sector, which impacts the effect of financial development on economic growth prospect for middle-

income countries (Ductor and Grechyna, 2015). Durusu-Ciftci et al. (2017) investigated the relationship between financial development and economic growth, with the use of two financial development measures. Their findings suggested that both credit market and stock market development, proxies for financial development, play a positive role in long-term economic growth of most of the countries investigated. Thus, there is strong evidence within the existing literature that financial development plays a decisive role in economic growth.

It is not only economic growth that has been investigated in the studies involving financial development. Because of the strong causal link between financial development and economic growth, many researchers have analyzed the effect of financial development on several macroeconomic variables. Denizer, Iyigun, and Owen (2002) found that financial development is vital for reducing macroeconomic volatility. Their study showed that countries with greater financial development expressed fewer fluctuations in their real capita output, investment growth, and consumption. Several studies investigated the relationship between financial development and inflation. Hung (2003) found that financial development reduces inflation in countries that initially experience a low level of inflation. Zaman, Ikram, and Ahmed (2010) analyzed the relationship between inflation and financial development in the case of Pakistan, and the results indicated that there is a unidirectional relationship from inflation to financial development. Ozturk and Karagoz (2012) suggested that inflation negatively impacts Turkey's economic growth through a financial development channel. Another analyzed macroeconomic variable is income inequality. Gimet and Lagoarde-Segot (2011) investigated this relationship and found significant causality from financial sector development to income distribution for forty-nine countries. Park and Shin (2017) found that both

financial development and financial inclusion reduce income inequality. Finally, Younsi and Bechtini (2018) findings confirmed a unidirectional causal link from financial development to income inequality for BRICS countries. The impact of investments has also been investigated within the financial development literature. Xu (2000) found that financial development significantly impacts economic growth through the use of an investment channel. The literature also suggests that financial development promotes foreign direct investment (Ndikumana, 2005; and Desbordes and Wei, 2014).

2.2 Determinants of Financial Development

Due to the substantial evidence suggesting that financial development contributes to economic growth, researchers have investigated many possible determinants of financial development which has resulted in the creation of well-established literature devoted to financial development determinants. Within these studies, the literature has provided evidence that resource allocation is a determinant of financial development. Studies have found a reciprocal relationship between financial development and allocation of resources (Wurgler, 2000; and Fisman and Love, 2004), suggesting that greater financial development will enhance the efficiency of resource allocation. Studies regarding financial development have also indicated that another determinant of financial development is inflation. Ayadi, Arbak, Naceur, and De Groen (2015) found that inflation has a significant negative impact on bank deposits in Mediterranean countries, a measure used in order to view financial development from a banking perspective. Kılınç, Seven and Yetkiner (2017) findings suggested that inflation is a significant determinant of financial development for the 15 European countries they analyzed.

Another macroeconomic variable considered as a determinant within the financial development literature is trade openness. Cherif and Dreger (2016) concluded that openness to foreign trade plays a significant role in financial development for the MENA region. Ashraf (2018) argued that trade openness was vital for financial development as it promotes banking sector development for the thirty-seven emerging countries investigated. Income level is another financial development variable which has been incorporated more recently into the financial development literature. Tayssir and Feryel (2018) included both trade openness and income level in order to determine whether central banks promote financial development, stating that they play a significant role in determining financial development.

The literature on financial development has also included human capital as a contributor to financial development. Kar, Nazlıoğlu, and Ağır (2011) findings indicated that human capital impacts the development of financial systems. Dutta and Sobel (2018) investigated human capital in the role of financial development; their findings indicate that human capital is vital for countries that exhibit low financial development. Ibrahim and Sare (2018) found that interactions between trade openness and human capital were significantly related to the financial development of African economies. Law, Azman-Saini, and Ibrahim (2013) included human capital into their model when investigating the impact of institutional quality on the financial development-growth nexus. Thus there is strong evidence within the existing literature to support the argument that human capital is a determinant of financial development. Lastly, Ayadi et al. (2015) considered financial reforms as a determinant when analyzing how bank efficiency impacts financial development, whilst analyzing several measures of financial development were in order to investigate both qualitative and quantitate effects on economic growth.

Given the importance of financial development, a vast amount of studies have incorporated many independent variables to investigate the determinants of financial development, among those variables several of them have been commonly used in these models. These variables should be included in the financial development models to obtain more robust findings. In the existing literature, population and employment or labor force are some of the most frequently used variables as potential determinants of financial development. Hence, we employed these variables as control variables in our models.

2.2.1 Employment

Based on the literature on financial development, it's assumed that enhancements in financial development result in an increase in job creation opportunities. Pagano and Pica (2012) indicated that financial development increases both employment and labour productivity. Chen and Chen (2016) found that urbanization in China promotes greater labour participation thus reducing unemployment and furthering financial development. Within their research the found that financial deepening has a positive and significant impact on the labour force participation. Bayar (2016) also concluded that financial development reduces unemployment for thirteen emerging economies; further suggesting employment is a positive contributor of financial development, as the higher the employed population within a country the higher the need for financial services. In turn, as more financial services are used, financial development increases. Schäfer and Steiner (2014) findings confirmed a non-linear effect of financial development on firm employment for transitional countries.

Employment and unemployment measures have mainly been included within the financial inclusion literature. Soumaré, Tchana Tchana and Kengne (2016)

incorporated employment status when investigating the determinants of financial inclusion for ECOWAS countries and found that full-time employed most frequently used financial services; e.g., borrowing, savings and active accounts than any other form of employment status. Nandru, Byram, and Rentala (2016) also included employment status when analyzing financial inclusion from a banking service perspective. Their findings confirmed the findings of Soumaré et al. (2016), suggesting that employment status positively impacts bank account ownership which is considered a measure of financial inclusion. Wang and Guan (2017) concluded that declines in the social factor unemployment would result in improvements in financial inclusion for European countries. Thus, there is strong evidence to suggest that employment should be considered as a control variable when investigating financial development determinants. Thus, it's considered plausible to incorporate employment as a measure within our model as it is evident within the existing literature that employment is commonly used as a control variable.

2.2.2 Population

A population measure is frequently incorporated as a control variable within financial development studies. Raza, Shahzadi, and Akram (2014) indicated that population growth was an antecedent of financial development for both developing and developed countries when exploring the determinants of financial development. Tayssir and Feryel (2018) included a population variable when investigating to see if the central bank promotes financial development. Thus, providing support for the use of population when analyzing the determinants of financial development.

Population has also been incorporated within the existing literature devoted to financial development-economic growth nexus. Ruiz (2018) incorporated a population variable when investigating the nexus between financial development and

economic growth. The study suggested that economic growth of developing and industrial economies dependent on the financial development threshold. Durusu-Ciftci et al. (2017) also include population growth rate when studying the financial development-growth nexus, where population growth is a significant contributor to financial development. Finally, Law and Singh (2014) included both population and human capital when analyzing if too much financial development harms economic growth confirming that both population and human capital are contributors to financial development. Their study found that financial development was beneficial up to a threshold level. Thus there is substantial evidence to suggest that population should be considered as a control variable when investigating financial development determinants.

2.2.3 Urbanization

Urbanization has also been accounted for as a control variable within the financial development literature. Sarma and Pais (2011) incorporated urbanization as a socioeconomic factor when analyzing the impact of financial inclusion on financial development, and concluded that urbanization promotes financial inclusion which indirectly induces financial development. Dutta and Sobel (2018) found urbanization to be of significance when analyzing the impact of human capital on financial development. Mishi, Vacu, and Chipote (2014) concluded that urbanization enhanced financial inclusion which increases financial development in the case of South Africa. Kumar (2013) findings indicate that urbanization assists financial development in increasing long-term growth and development for Fiji. Shahbaz et al. (2017) concluded that urbanization is a positive significant demographic impact on financial development since urbanization has resulted in greater foreign direct investments in both China and India. Jauch and Watzka (2016) included an

urbanization measure when investigating the relationship amongst financial development and income inequality for a panel of one hundred and thirty-eight developed and developing countries to explain income inequalities.

2.3 Government Related Variables and Financial Development

Government related variables such as size and expenditure have also been incorporated in such models widely (Bahadir and Valev, 2015 and Samargandi et al., 2015). Frequently institutional quality has been incorporated into the research regarding contributors to financial development. Many research papers provide evidence for the importance of institutional quality as a determinant of financial development (Gazdar and Cherif, 2015; Acemoglu et al., 2005 and Fazio, Silva, Tabak, and Cajueiro, 2018). Naceur, Cherif and Kandil (2014) suggest that institutional quality is an important determinant of financial development for MENA countries. Law et al. (2013, 2018) discussed the moderating effect of institutional quality on financial development-economic growth nexus and claimed that without quality institutions increased financial development is not necessarily beneficial. Muye and Muye (2017) claimed that globalisation affects financial development through institutional channels and better institutions are vital to benefit the financial system from globalization.

Institutional quality has been proxied by several variables in the literature. For example, Wang, Cheng, and Wang (2014) used the strength of legal rights index (SRL) as an indicator of institutional quality and found that institutional quality is required to improve OFDI as a result of greater financial development.

Commonly used measures accounting for institutional quality are reflected with the inclusion of governance indicators. Throughout the existing literature on financial development, the impact of governance has been incorporated in some shape or form. Most commonly the literature accounts for governance with the inclusion of government size (Cooray, 2011 and Naceur et al., 2014), government expenditure (Beck et al., 2014; Bahadir and Valev, 2015; and Benczúr et al., 2018) or governmental debt (Aceves and Amato, 2017).

Research related to institutional quality often includes many different forms of measure. A vast number of researchers have accounted for institutional quality aspects with the use of proxies such as; bureaucracy quality, law and order, corruption, democratic accountability, and investment profile. For example, Nee and Opper (2009) results indicate that bureaucracy quality plays a pivotal role in determining financial market development and that legal origin indirectly impact financial development through the performance of state bureaucracy.

Aspects of institutional quality have been applied to financial development studies. Huang (2010) included a political index and legal origin in order to investigate institutional quality's impact on financial development for non-transitional economics and found that they play a significant role in contributing to financial development. Ang and Fredriksson (2018) solely investigated the impact of state capacity and law origin on financial development and observed that they could explain stock market development as well as financial integration. Roe and Siegel (2011) used a political index and various rights indices in order to measure political instability's impact on financial development and how it results in income inequality.

2.3.1 Government Efficiency

Government efficiency is a widely used variable in empirical research. Hauner and Kyobe (2010) studied the determinants of government efficiency for one hundred and fourteen countries. Their observations suggest that governmental expenditure, population density, corruption, and democracy are responsible for the formation of government efficiency and that improvement in institutional quality results in greater government efficiency. It also suggests that increasing government expenditure and the larger the youthful population causes the efficiency of the government to decline.

Although government efficiency's direct impact on financial development is yet to be discussed, it has been used as an indicator of several financial variables. Hallerberg, Strauch and Von Hagen (2007) found that institutions ability to strengthen fiscal discipline was dependent on the type of government. Heylen, Hoebeeck, and Buyse (2013) findings suggest that efficient governments are more successful in fiscal consolidation and can reduce expenditures to a greater degree than less efficient governments. Bergman, Hutchison, and Jensen (2016) found that government efficiency along with fiscal rule strength was vital for the sustainability of public financing for the European Union.

2.3.2 Corruption

The literature has examined the relationship of the corruption with many economic and financial variables. Corruptive activities are claimed to be a by-product of lack of sound governance and the implication of too restrictive regulations. Cieślik and Goczek (2018) suggest that corruption results in considerable costs for the economy and thus hinders growth by causing a diversion in international investments. d'Agostino, Dunne, and Pieroni (2016) found that combating corruption would increase aggregate economic performance. Huang (2016) investigated the impact of

corruption on economic growth for Asian-Pacific countries; results concluded that anti-corruption policies are necessary to promote economic growth.

Several papers accounted for corruption when conducting studies on financial development as well. Muye and Muye (2017) included corruption when studying how institutional quality and globalisation impacts financial development. Their results indicate that institutional quality impacts the long-run behavior of the financial sector. Both Kılınç et al. (2017) and Bahadir and Valev (2015) accounted for corruption when investigating financial development convergence, both drawing to the same conclusion that corruption impacts financial development.

Several researchers have incorporated a democratic indicator when carrying out studies related to corruption. Saha, Gounder, and Su (2009) found that democracy and economic freedoms significantly impact corruption control for a hundred countries. Jetter, Agudelo, and Hassan (2015) examined the impact of democracy on corruption and its' relation to income for a hundred and fifty five countries and proved that democratisation worsens corruption for poorer economies but reduces corruption for richer ones. Jetter and Parmeter (2018) included democracy in order to investigate from a global perspective the drivers of corruption. Due to the incorporation of democracy within the existing literature, we consider a democratic aspect when forming our subgroups in order to account for this institutional quality aspect.

2.4 Democracy

Recent research has turned its focus to the role that democracy plays on institutional quality. As a result, there is evidence to suggest that democracy impacts aspects of

financial development through an institutional quality perspective. Yang (2011) study determined that democracy fosters financial development, as results indicated a significant positive relationship between democracy and bank development. Tayssir and Feryel (2018) included a democracy index in order to investigate central bank's ability to promote financial development and argued that independence and transparency, as a result of the democratic level, is vital for improvements in financial development for developed countries. Other studies included democracy while analyzing the determinants of financial development (Naceur et al., 2014; Gazdar and Cherif, 2015; Raza et al., 2014; and Muye and Muye, 2017).

We find it plausible to include the control variable, democracy, found within the institutional quality literature within our empirical model since our study analysis financial development from an institutional perspective. The literature has thus far failed to represent how the efficiency of government itself may affect the financial development level reached. Thus this study aims to fulfill a gap within the existing financial development literature.

Chapter 3

DATA AND METHODOLOGY

3.1 Variables and Data

In order to investigate the relationship between financial development and government efficiency along with the importance of corruption, we used annual panel data for 31 OECD countries for years 2002 to 2015 inclusively. Our sample size consisted of 14 years due to the limited time span of data available for the government efficiency variable used. An extensive sample dataset was formed in order to observe the possible effects of government efficiency on the financial development of a vast number of countries. In turn, this was done in hopes that our findings would conclude with results that could be generalised for a global picture of the importance of government efficiency in maintaining or improving financial development levels within countries.

Since the aim of our study is to draw conclusions about the implication of government efficiency on financial development, financial development is established as our dependent variable which was sourced from the International Monetary Fund (IMF). Government efficiency and corruption are regarded as the primary independent variables in our models which were obtained from Worldwide Governance Indicators (WGI) and International Country Risk Guide respectively. Several control variables considered to be essential to measure financial development were added to the models following the previous literature to refrain from

committing omitted variable bias. These control variables included a macroeconomic factor, employment, along with social factors such as population and urbanization. The control variables included within our models we obtained from the Worldwide Development Indicators. Detailed information about the variable selection and data sources is discussed below.

3.2 Dependent Variable

Financial development is an essential factor for countries, especially developing, that seek to enhance their economic growth (Beck et al., 2014; and Benczúr et al., 2018). Greater financial development reduces the costs incurred by the financial sector and provides easier access to financial markets and instruments. Financial development has been known to be a prominent factor in economic development due to its ability to gather additional capital from savers and reallocated in the hands of those that will use it the most efficiently. The variable use to reflect financial development within our model is a proxy, financial development index which can be found amongst Financial Development Indicators courtesy of IMF (2018). The index is computed by considering the measures of debt, access, and efficiency of both financial markets and financial institutions. Within the empirical models, this variable is denoted as FD.

3.3 Main Independent Variables

3.3.1 Government Efficiency

A country's government efficiency impacts their competitiveness and the potential economic growth they could achieve, as an efficient government supports innovation which is crucial in order to maintain a competitive position (Innovation OECD, 2007). An inefficient government would bear higher costs and therefore stunt potential growth prospects. We consider the possibility that a more restricted, or less

efficient, governance may diminish the potential of greater financial development due to factors such as; tighter regulation, higher costs encounter when retrieving resources or lack of sufficient resources and the presence of possible corruptive actions that benefit the individuals rather than the country (Innovation OECD, 2007).

We used the government effectiveness measure provided by Worldwide Governance Indicators found the World Bank (2018) database as our government efficiency variable. This measure accounts for the perception of the quality of both civil and public services, along with the government's commitment to their policies and the implementation of said policies. The measure of government effectiveness ranges from values -2.5 to 2.5, where the higher the value indicates greater government effectiveness. The government efficiency variable is denoted as GOVEFF within models used for empirical analysis.

3.3.2 Corruption

Corruption is a social variable which previous literature incorporated it into their model when analyzing the determinants of government efficiency (Hauner and Kyobe 2010). Following previous literature, we include corruption within our models. Corruption within a country could have devastating effects on that country's financial development. For this variable, we used the International Country Risk Guide (ICRG, 2018) which ranked the countries based on the public's perception of the corruption level. Lower rankings were regarded as more corrupted, vice versa for the higher rankings. The corruption variable is denoted as CORRUPT within the empirical models.

3.4 Control Variables

3.4.1 Employment

Employment is regarded as a macroeconomic variable that would contribute to financial development as employment impacts economic growth and the level of funds available within financial systems (Schäfer and Steiner, 2014). We measure the impact of employment on financial development with the use of employment percentage of the population, the higher the employment rate, the greater financial development. We took the variable from the Worldwide Development Indicators (WDI) within the World Bank database (2018). The variable reflecting employment within the models is denoted as EMPLOY.

3.4.2 Population

When referring to the vast literature on financial development, population is a reoccurring social variable implemented in many models. Most of the studies found a positive link between the paring (Raza et al., 2014; and Durusu-Ciftci et al., 2017). To observe the population's contribution to financial development, we used two different population measures in different models for the robustness. The models under model A were constructed with the variable population density, which reflects the average number of people per square kilometer of land area. This variable is denoted as POP2 within the model estimations. The variable representative in models under model B was total population figure, which is denoted as POP1. Data for both of these social control variables was obtained through Worldwide Development Indicators within the World Bank (2018) database.

3.4.3 Urbanization

Countries of greater urbanization may express greater financial development than those that are of lower levels of urbanization. This is based on the fact that urbanized areas appear more developed and that country development would result in greater financial development (Dutta and Sobel, 2018; Shahbaz et al. 2017). Thus, urbanization proxies are incorporated into the models to refrain from committing omitted variable bias. Two different urbanization measures were used in our models. The first measure was the percentage of the total urban population within a country which is expressed as URBAN1 within empirical models. The second variable was a reflection of the total urban population in numeric form, denoted as URBAN2. Both variables were gathered with the help of Worldwide Development Indicators found on the World Bank database (2018).

Information regarding variables used within the models for analysis can be seen in Table 1 reported in appendix B. The table lists the definitions of each variable, as well as stating the source used to obtain the variables.

3.5 Methodology

Since our study is conducted with a sample of thirty-one OECD countries, it requires the use of panel data. This means that times series data is investigated from a cross-sectional point of view as it accounts for time series variables for a vast number of countries from 2002 to 2015. The use of panel data models allows us to analyze an individual variable impact on other variables as well as across time spans. It also accounts for individual heterogeneity and provides more accurate predictions of individual outcomes by pooling the data (Baltagi, 2008). The data used for this study is considered to be a short panel as the time span is less than twenty five years and the number of cross sections is small (Cameron, 2007). We tested for and found the presence of panel effect, meaning pooled estimations were not applicable.

Our investigation was carried out with the use of three methods; fixed-effects (within) regression, random-effects GLS regression and feasible generalised least squares regression (FGLS). Both fixed-effects and random-effects are considered to be individual specific effect models where it's assumed that unobservable heterogeneity across individuals exists, for our study the individuals are countries. We applied both fixed-effects (within) regressions and random-effects regression to see whether our results are robust following previous empirical research within the financial development literature (Raza et al., 2014; Bayar, 2016). Also, the findings of random-effects regressions confirmed the findings of fixed-effects (within) regressions thus we found it plausible to record both since there was no significant difference between them. FGLS regression is also applied to confirm that our results are not affected by autocorrelation or heteroscedasticity problem.

3.5.1 Empirical Methodology

Fixed-effects model

The primary estimation model in this study is fixed-effects. The fixed-effects model accounts for heterogeneity within the data by presenting each individual with its own intercept. Therefore, each individual within the model exhibits the same slope parameter but expresses different values for their intercept. The term "fixed-effects" is applied to express that although the intercepts across individuals may vary, they are time-invariant so do not vary over time. Fixed-effects (within) regression allows us to overcome the problems associated with using a dummy variable in fixed-effects regression, enabling us to identify the impact of time-invariant variables. This procedure is also used when individual-specific effects are correlated with the individuals. Fixed-effects models allow the inclusion of a unit specific component.

A general fixed-effects model is as follows:

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it} \quad i = 1 \dots N, t = 1 \dots T \tag{1}$$

Where y_{it} represents the vector of the dependent variable, x_{it} is the matrix of independent variables; ε_{it} is the random disturbance and α_i is the intercept representing individual the effect of cross-section units. It is different for cross sections but constant over time. Whilst β is the invariant coefficient of explanatory variables, fixed-effects model time-invariant and coefficient fall out are not identifiable. Thus time effects remain unobserved. The subscriptions i and t represent cross-section and time respectively.

Random-effects model

Random-effects models also account for the heterogeneity aspect by assuming that the individual-specific effect, denoted as α_i within the model, are disrupted independently with regards to individuals. Therefore, there is a mean intercept value generated for this model, so the intercept within this model is invariant. The general model of this model is as follows:

$$y_{it} = \alpha + \beta x_{it} + u_{it} + \varepsilon_{it} \quad i = 1 \dots N, t = 1 \dots T \tag{2}$$

Where α represents mean value for all cross-sectional intercepts and u_{it} represented deviations from the individual intercepts from the mean value, these are assumed to be uncorrelated with one another and not autocorrelated across cross-sections. Where ε_{it} is the random disturbance term regarding each cross section and each time period. Random-effects models allow for time-invariant factors to be included within the regression. GLS models are applied for estimations with heteroskedastic and/or autocorrelated residuals.

FGLS estimator is asymptotically efficient and thus is applied in this paper. We conducted feasible generalized least squares estimations in order to ensure our estimations were robust even in the presence of heteroscedasticity and autocorrelation. The finding of FGLS estimations were in accordance with those provided by both fixed-effects (within) and random-effects regressions.

The empirical analysis for our investigation involved the use of two types of models A and B, in which both consisted of seven individual estimations. Throughout estimations one to seven, different variables were added to the estimated base models. The difference between models A and B is the population variable used. Model A incorporated population density (POP2), whereas model B incorporated the total population variable (POP1).

3.5.2 Models

Model A includes the following estimation:

I. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + u_{it}$$

II. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + u_{it}$$

III. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP2_{it} + u_{it}$$

IV. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP2_{it} + \beta_4 LURBAN1_{it} + u_{it}$$

V. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP2_{it} + \beta_4 LURBAN1_{it} + \beta_5 LCORRUPT_{it} + u_{it}$$

VI. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP2_{it} + + \beta_4 LURBAN2_{it} + u_{it}$$

VII. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP2_{it} + + \beta_4 LCORRUPT_{it} + \beta_5 LURBAN_{it} + u_{it}$$

Model B includes the following estimation:

I. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + u_{it}$$

II. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + u_{it}$$

III. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP1_{it} + u_{it}$$

IV. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP1_{it} + \beta_4 LURBAN1_{it} + u_{it}$$

V. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP1_{it} + \beta_4 LURBAN1_{it} + \beta_5 LCORRUPT_{it} + u_{it}$$

VI. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP1_{it} + + \beta_4 LURBAN2_{it} + u_{it}$$

VII. $$FD = \beta_0 + \beta_1 LGOVEFF_{it} + \beta_2 LEMPLOY_{it} + \beta_3 LPOP1_{it} + + \beta_4 LCORRUPT_{it} + \beta_5 LURBAN_{it} + u_{it}$$

Chapter 4

EMPIRICAL FINDINGS

This section includes the results obtained from the analysis carried out within the investigation. It will begin with the general findings for the whole sample of thirty-one countries, providing robust estimation due to the use of multiple panel data estimations and the incorporation of two proxies for population and urbanization control variables to refrain from sensitivity from the proxy selection. Following on, observations regarding the four subgroups; EU23 countries, fully democratic countries, flawed democratic countries and former communist countries, is recorded. Analyzing the subgroups allows us to determine how political regimes may impact financial development for a country, thus taking one more step to ensure the robustness of the findings further.

4.1 Whole Sample

Figure 1 displayed in appendix A plots the financial development for thirty-one OECD countries in graphic form. The graphs indicate that financial development levels vary over time, and differ from country to country in relevance to the different circumstance faced by the countries individually. Countries such as Norway and Turkey have experienced a steady incline in financial development during the periods analyzed. Majority of the countries observed (Australia, Austria, Belgium, Canada, Czech Republic, Estonia, Finland, France, Germany, Israel, Italy, Japan, Korea, Mexico, Norway, Portugal, Spain, Sweden, Switzerland and the USA) have an increase in their financial development levels within the last two remaining years

studied. Except for Iceland, which maintained a constant financial development level in the last two years of observation, countries such as; Denmark, Greece, Hungary, Ireland, Latvia, Luxembourg, New Zealand, Turkey, and Great Britain expressed a slight decline in financial development during 2014 and 2015.

The graphs are also representative of times of financial hardship faced by the observed countries and this is reflected in a downward slope. One example of this is the global financial crisis; all sample countries expressed a downturn in financial development during a period within the years of 2007-2009. The analyzed European countries; Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, Mexico, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and Great Britain all experienced a considerable decline at some point during the periods of 2007-09 as a result of the global financial crisis. A similar picture can be painted for the remaining countries. For example, they experienced a dramatic capital inflow decline during the global financial crisis periods, which resulted in their sharp decrease in their financial development level. The United States faced the most significant decline in financial development as it was hit hardest by the devastating effects that followed the once the financial crisis crossed borders and reached a global level.

In regards to the subgroups studied, there is a slight distinctive pattern when looking at former communist countries we see they exert a similar shape. This means that these countries appear to have similar characteristics concerning financial development. However, the other subgroups do not display any apparent trends that would allow us to form conclusion.

Figure 2 located within appendix A, graphically represents the government efficiency within the sample countries for the observed period. None of these graphs display a continuous trend for any country; therefore government efficiency for all the sample countries has fluctuated during the periods of observation. Countries such as Australia, Austria, Belgium, Canada, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, and the United States were considered to have relatively high government efficiency at the beginning of the investigation, which diminished to substantially lower levels towards the end of 2015.

Based on the graph we can see that Latvia is the only country to have almost continuously improve its' government efficiency during the period of observation. The Czech Republic, Germany, Norway, Portugal, and Switzerland display an interesting set of results as their graphs show that by the end of the observational period, they had returned to their initial government efficiency level as recorded at the beginning.

When looking at the subgroups, we notice that the political system applied has no impact on the government efficiency expressed by that country. Therefore, there must be other factors that contribute to the efficiency of the government, meaning the efficiency is more dependent on the country and its given circumstances rather than the governmental practices.

Following the graphical study of financial development and government efficiency individually at a country level, Table 2 found in appendix B displays the descriptive statistics for the variables used within our analysis. This table reports the mean,

standard deviation along with the minimum and maximum values for the variables used throughout the study.

Table 3 displays the correlation matrix, accounting for the correlation amongst the inclusive variables within the model. We discover that there is a positive correlation of 0.559 between the dependent and independent variable of our study, thus proving an existing interconnected relationship amongst them. When looking at the coefficients for correlation between financial development and all other variables used to conduct the study we notice that they are all, regardless of the magnitude, positively correlated with our dependent variable. When considering the independent variable correlation with all control variables they are negatively correlated, except urban1 and corrupt variables. They also infer that there is no multicollinearity issue amongst our independent variables.

Table 4 displays the findings for the Breusch and Pagan Lagrangian multiplier test. This test decides whether the study requires random-effects regression or a simple OLS regression. The null hypothesis for this test states that the variances across entities are zero, thus meaning there is no panel effect present. With our finding it is evident that we fail to reject the null hypothesis as there are significant differences across countries, therefore our study requires us to use panel regression.

4.1.1 Whole Sample Empirical Results

The whole sample included observations for thirty-one OECD countries; Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States for an

observational period of 2002 to 2015. The analysis was carried out with the use of two models A and B and the application of fixed-effects regression, random-effects regression (GLS) and Feasible Generalised Least Squares (FGLS). Findings are recorded in the tables listed in appendix C.

The government efficiency coefficient for all models and all estimation measures used is positively significant within a confidence interval range of 1 and 5 percent. Therefore, findings suggest that government efficiency contributes to financial development for OECD countries. Improvements within government efficiency will result in further financial development for the sample countries. The validity of the findings is strong since results of fixed-effects regression, random-effects regression and GLS confirm one another. Results reported suggesting that government efficiency significantly positively contributes to the financial development of OECD countries, implying that improvements within government efficiency would result in greater financial development.

Table 5 reports the findings with the use of fixed-effects (within) regression estimation, for the seven models under model A. The government efficiency coefficient for model I within table 5 is recorded as 0.05623, statistically significant at a confidence interval of 1 percent, meaning 1 percent increase in government efficiency will result in an increase in financial development by 0.05623 percent. The remaining six models incorporated within table 5 provide similar findings. Models II, V, and VII find the government efficiency to be significant within a significance level of 99 percent, ranging in measure between 0.05623 to 0.05977 percent. Whereas models III, IV and VI conclude that the impact of government efficiency on financial development for OECD countries is significant at an alpha level of 5

percent. The general conclusion regarding Table 5 findings is that with the use of fixed-effects (within) regression, government efficiency is significantly positively related to financial development.

The impact of corruption on financial development is also reported in Table 5 under models V and VII. Findings reported suggesting that corruption negatively impacts financial development since the corruption coefficient is statistically significant. Model V in Table 5 indicates that a 1 percent increase in corruption will cause financial development to decrease by 0.12245 percent, which is significant at alpha 1 percent. The corruption coefficient for model VII is of a slightly larger magnitude, implying that a 1 percent increase in corruption will result in a decrease in the financial development of 0.12289 percent, statistically significant at alpha 5 percent. Control variables employment, population, and urbanization were added to the models in order to refrain omitting variable bias.

The employment variable proved to be significant at alpha 5 percent within all models II, III, IV, V, VI, and VII, suggesting that an increase in employment would result in an increase in financial development. The magnitude of the employment coefficient increases with the inclusion of other control variables. The strength of employment's impact on financial development is strongest when corruption in incorporated into the model (models V and VII). Table 5 models II, III, IV, and V suggest that the variable is positively significant at alpha 1 percent with similar magnitudes of impact, implying that an increase in population density causes an increase in financial development. Model II indicates that an increase of 1 percent in population results in 0.30145 percent increase in financial development, model III suggests that an increase of 1 percent in population results in 0.36895 percent

increase in financial development. Model IV implies if population density increases by 1 percent, financial development will increase by 0.29581 percent and finally model V suggest a 1 percent increase in population density will result in 0.31470 percent increase in financial development.

Total urban population percentage (URBAN1) is incorporated into models IV and V as a control variable. Fixed-effects (within) regression coefficient suggest that urbanization has a significant positive impact on financial development. The coefficient for model IV indicates that a 1 percent increase in total urban population percentage will result in a 0.37772 percent increase in financial development, statistically significant at alpha 10 percent. Model V suggests that if the total urban population percentage increases by 1 percent, financial development will increase by 0.46271 percent, where the coefficient is significant within a 90 percent confidence interval. Another proxy for urbanization, total urban population figure (URBAN2), was included in models VI and VII in order to make sure the findings were not proxy sensitive. Findings for both the percentage and figure form confirm one another. Model VI and VII coefficients are same significance of that reported in model IV and V respectively. The only slight difference is that the coefficient for total urban population figure is of ever so slightly larger magnitude in comparison to the coefficient for total urban population percentage variable. Overall, Table 5 provides strong evidence to suggest that the use of control variables within the investigation are applicable since the majority of the coefficients are statistically significant. There is also strong supporting evidence that government efficiency contributes to financial development, and as expected corruption diminishes attainable financial development of OECD countries.

Table 6 reports the findings for the seven models under model A with the use of random-effects regression estimation. Again as seen in Table 5 government efficiency coefficient is statistically positively significant at alpha 1 percent within all seven estimations, once again implying improvements in government efficiency enhance financial development. In Table 6 however, the magnitude assigned to the government efficiency coefficient is higher than that reported under fixed-effects regression (Table 5), suggesting that government efficiency has a more substantial impact on financial development with the use of random-effects regression (GLS). Corruption coefficient is negatively significant in model V at alpha 10 percent, suggesting that an increase in corruption causes a decline in financial development by 0.07082 percent. This is line with our expectation and is consistent with the findings presented in Table 5.

The findings of Table 6 also presence conflicting interpretations regarding the control variable employment, as the coefficient is only statistically significant in models VI and V. Within those models employment is significant at alpha 10 percent suggesting that an increase in employment will result in an increase in financial development. Random-effects regression implies that population density does not have any impact on financial development, bar the exception of model II where the coefficient is significant at alpha 10 percent. Table 6 findings for total urban population are in line with that of the findings produced with the use of fixed-effects regressions, in the sense that the coefficients are significant for all estimations at alpha level 1 percent, although the magnitude of the coefficients under random-effects regression are of a larger size suggesting that urbanization impacts financial development more greatly.

Table 7 displays the finding of the FGLS estimation. Here government efficiency coefficients are statistically significant at alpha 1 percent for all seven model estimation. As with the previous estimations, fixed-effects (within) and random-effects regressions, the results indicate that government efficiency positively impacts financial development for OECD countries. Table 7 FGLS outputs suggest that the impact of government efficiency on financial development is much more impactful than previously recorded with the use of fixed-effects (within) and random-effects estimation, as the coefficients are of a larger magnitude. The employment variable also appears to express a significant positive relation to financial development since all coefficients are statistically significant at alpha 1 percent. The corruption coefficient is found to be insignificant in both models V and VII, implying that perceived corruption has no impact on financial development, contradicting to previous findings.

The FGLS estimation implies the impact of employment on financial development is vastly greater than the assumed impact found using the other two estimation techniques, as the coefficients are of a larger magnitude and. All coefficients are positively significant at alpha 1 percent; thus an increase in employment causes financial development to increase. The coefficient for population density is found to be positively significant in models II, III, IV, V and VII; it is of a smaller magnitude in comparison to findings displayed in Tables 5 and 6. Model V indicates with the inclusion of all variables used in our investigation, for every 1 percent increase in population density financial development is expected to increase 0.02984 percent. For control variables total urban population percentage and total urban population figure, confirm the findings of random-effects regression estimations. Again the coefficients are positively significant at alpha 1 percent, and they are also of a similar

magnitude implying that the total urban population percentage variable has a greater impact on financial development than total urban population figure.

Table 8 presents the results for seven estimations for model B with the use of fixed-effects (within) regression estimation. The government efficiency coefficient for model B is of the same magnitude as that in model A with the use of fixed-effects (within) regression. All of the coefficients are positively significant, the only difference with Table 8 in comparison to Table 5 is that some of the estimates are significant at alpha 5 percent, whereas in Table 5 all coefficients were significant at alpha 1 percent. Therefore, the general conclusion is the same regarding the estimated coefficients; an increase in government efficiency is predicted to increase financial development. Likewise, the corruption coefficients within this estimation confirm previous findings reported in Table 5, model A fixed-effects (within) regression. Thus, we can conclude that an increase in corruption diminishes financial development. The same interpretation applies to the employment variable also; models A and B both suggest that employment is a positive contributor to financial development. As predicted, total population coefficients for model B are of a similar magnitude of population density coefficients reported in model A, and it has a significant positive impact on financial development as since in models II, III, IV and V.

Table 9 shows the results for the model B random-effects regression estimation. Here the government efficiency coefficients are of a similar magnitude as recorded in Table 6 and all are significant at alpha 1 percent. Therefore, confirming that government efficiency is significantly positively related to financial development, further supporting the evidence that government efficiency is a contributor to

financial development. Table 9 findings imply that corruption does not have any impact on financial development since the coefficients are insignificant within both estimated models. The employment variable is proven to have a significant positive impact on financial development in models IV, V, VI, and VII at the significance of 90 percent, suggesting that an increase in employment will result in an increase in financial development. In Table 9 total population variable coefficients are all significant unlike population density for random-effects regression reported in Table 6. Here models II, III, IV, and V it is suggested that total population has a significant positive effect on financial development, with a significance of 90 percent. However, models VI and VII contradict this with the presence of significant negative coefficients. The urbanization coefficients of Table 9 confirm the findings reported in Table 6, suggesting that urbanization is a positive contributor to financial development, as all are significant at alpha 1 percent. Although random-effects regression for model B implies that the impact of total urban population figure is of the same magnitude as total urban population percentage variable, going against the findings in Table 6 where total urban population figures had a smaller impact on financial development in comparison to total urban population percentage.

Finally, Table 10 displays the findings of FGLS for the seven model B estimations. In accordance with Table 7, FGLS results for model A, the results indicate that the impact of government efficiency is of a larger magnitude than suggested by both fixed-effects (within) and random-effects regression. All of the government efficiency coefficients are significant at alpha 1 percent, suggesting a positive impact on financial development. As expressed in Table 7 for FGLS model A, corruption is perceived to have no impact on financial development as the coefficients are insignificant. The employment variable displays the same relationship with financial

development as reported by Table 7. Both models A and B with the use of FGLS suggest that employment as a significant positive impact on financial development. In table 10 models II, III, IV, and V report a significant positive relationship amongst the total population and financial development since the coefficients are significant at alpha 1 percent. This reiterates the findings present of FGLS in Table 7, with the exception that total population is negatively significant for models VI and VII. Under FGLS both urbanization measures are found to be positively significant at alpha 1 percent, further confirming that urbanization has a positive impact on financial development.

Overall, we can conclude based on the six tables that government efficiency plays a role in positively contributing to financial development as coefficients for all models were significant. With the greatest impact of government efficiency being recorded from FGLS regression estimation, model B. Corruption was found to have a significant negative relationship with financial development, as expected, in both model A and B for fixed-effects regression. Other corruption coefficients in the remaining models appeared to be of insignificance. Generally, the employment level impacts the level of financial development, since the majority of findings were significant. Population density tended to have a significant positive impact on financial development in models that used total urban population percentage, and an insignificant relationship in models that used total urban population figure. Total population, on the other hand, tended to have a significant positive relationship with models using total urban population percentage and a significant negative relationship with models that used total urban population figure. Both urbanization measures; total urban population in percentage form and numeric form, had a significant positive relationship with financial development within all models. There

is strong evidence to support the theory that government efficiency positively contributes to financial development since all coefficients in robust estimations were significant.

4.2 Subgroups

As mentioned previously, the sample of thirty-one OECD countries was split into four subgroups; EU23 countries, fully democratic countries, flawed democratic countries and former communist countries. These subgroups were then analyzed in accordance with the analysis used to investigate the whole sample. The tables in appendix C record the findings for the four subgroups. We decided to categorise the following as such in order to investigate how potentially the type of applied political system, may implicate the level of financial development reached.

The first subgroup contains all twenty-three European countries that are present in the whole sample. This was chosen as a subgroup as it is of the common belief that European countries practice similar laws and regulations. Our interest here is to see whether or not the twenty-three European countries government efficiency results in a larger financial development when compared with the whole sample of thirty-one countries. We expect that there will be a greater effect when considering the European countries in isolation. This expectation is built on the premises of the strict regulations placed on countries in order to contain membership status from the European Union.

The next subgroup we considered in our study was fully democratic countries. The economist intelligence unit (EIU) formed a democracy index in 2006 and split countries into four regimes types; fully democratic, the flawed democratic, hybrid

regime and authoritarian regime. We chose fully democratic as a category as these nations are believed to have high governmental efficiency in the sense that their government adequately and that the media is entirely independent and free from any governmental control. Our expectation here is that the corruption impact on financial development should be of the smallest magnitude, as an adequate government leaves little or no room for corruptive actives. Secondly, we presume that the government efficiency coefficient will be of a similar magnitude of that in EU23 subgroup, due to similar regimes practiced in both.

Following on our third subgroup consists of the flawed democratic countries. We have chosen this set as there are countries that are perceived at first glance to behave like that of the fully democratic, but when taking a closer look, you will notice that there are flaws within the democratic aspect of their government. The media of a flawed democratic country can be controlled by its governance, for example. Therefore, we are expecting to see a larger corruption coefficient for this subgroup when compared with the fully democratic subgroup and an overall lower government efficiency impact when compared to the European and fully democratic subgroups.

Our last subgroup consists of countries that were formerly communistic. Communistic states are often governance by one single party, and therefore have been referred to as dictatorships in the past. Under this practice, the single governor or administrative unit believes that "socialism" is what is best for the whole country since the working class makes up the vast majority within that country. We expect that many people within countries such as these are unhappy with their government as it accommodates the working class only. So, we presume that this subgroup will exhibit the lowest government efficiency impact on financial development, and have

the highest corruption contribution factor out of all the four groups. Table 11 below lists the countries included in both the whole sample and subgroups.

4.2.1 23 European Countries

Observations from the fixed-effects regression estimation model A for the analysis of European countries are recorded in Table 12. The table suggests that government efficiency as no significant impact on the financial development of European countries as coefficients in all seven models are regarded as insignificant. This is not in alignment with the findings regarding the whole sample under fixed-effects regression. The corruption variable, however, is proved to be negatively significant, which is following the previous finding of the whole sample. In both models V and VII the coefficients are found to be significant at alpha 1 percent, and the magnitude is of around 0.159, stating that a 1 percent increase in corruption results in 0.159 percent decline in financial development for European countries. Table 12 also implies that employment has a significant positive impact on financial development since the coefficient is significant in models II, III, IV, V and VI suggesting that an increase in employment will cause an increase in financial development for European countries.

The population density does not appear to have a significant impact on financial development, as coefficients are found to be insignificant within all model estimations. Both measures of urbanization have proven to have a greater impact on European financial development, regarding model A with the use of fixed-effects regression. Coefficients for estimations under model A are positive and significant at alpha 10 percent, suggesting a 1 percent increase in urbanization will cause financial development of Europe to increase by 0.475 percent on average.

Government efficiency findings for model A displayed in Table 13 are in line with results provided by analyzing the whole sample. Here, random-effects regression indicates that government efficiency has a significant positive impact on financial development. According to findings presented in Table 8 corruption does not affect financial development of European countries as coefficients are statistically insignificant. As found with fixed-effects in Table 12 employment also expresses a significant positive relationship toward financial development, implying that improving employment within Europe would increase its financial development. It is apparent that population density has no effect on European financial development as coefficients from all estimations remain insignificant. Aligned with model A findings under fixed-effects regression, both urbanization measures display a significant positive relationship with financial development. Within Table 13 the magnitude of impact resulting from total urban population percentage is reasonably larger than the impact expressed by total urban population figure. Nevertheless, both sets of coefficients reflect urbanization as a positive contributing factor to financial development.

Table 14 records the findings for model A FGLS observation. With the use of FGLS regression government efficiency is implied to have a larger impact on financial development than what is expressed by random-effects regression. Coefficients for all seven estimations are significant at alpha 1 percent and display a positive association with financial development. For example, model VI in Table 14 indicates a 1 percent increase in government efficiency will result in 0.26736 percent in European financial development. Oddly, FGLS suggests that corruption within Europe positively impacts their financial development as coefficients are positive and significant. There are no other previous findings to support the possibility of a

positive impact as random-effects found corruption coefficients to be insignificant thus implying no impact and fixed-effects found corruption as a significant negative coefficient as also reported by the whole sample analysis.

Just like the other two estimations (fixed-effects and random-effects regression), employment appears to have a significant positive impact on financial development since all estimated coefficients are significant at alpha 1. This further suggests that increasing employment within Europe would result in further financial development, the use of FGLS implies that the impact of employment on financial development in greater than the impact reported by the other two estimation techniques. Population density is found to have a positive and significant coefficient in models II, III, IV and V suggesting an increase in population density enhances financial development in Europe. As found before, both urbanization measures have significant positive coefficients, displaying urbanization as a positive contributor to European financial development.

Table 15 represents the findings for model B with the use of fixed-effects regression estimation. Just like fixed-effects for model A in Table 12, government efficiency appears to have no impact on the financial development for Europe as coefficients from all estimations are insignificant. Also, the corruption coefficient for model B is in line with the findings provided by model A. The corruption coefficient is significantly negative, at alpha 1 percent suggesting that an increase in corruption will result in a decline in financial development. The magnitude of the impact reported for model B is very close to the magnitude recorded in A, thus reconfirming that corruption expresses a diminishing impact on European financial development. It is the same case for the employment variable; both models A (Table 12) and B

(Table 15) for fixed-effects regression suggest employment exerts a significant positive impact on financial development for European countries.

Table 15 also shows that the population variable, the total population has no impact on the financial development level as coefficients are insignificant. Although the population measure used in model B is different from that used in A, the findings both suggest that there is no significant impact on financial development caused by population. The urbanization variable provides conflicting interpretation, however. Whilst total urban population percentage variables in models A and B confirm a significant positive impact on financial development, total urban population figure coefficients of model B oppose indications drawn from model A. Model A suggested an increase in urbanization would result in an increase in financial development, model B finds total urban population figure to be insignificant in model estimation VI and negatively significant in estimation VII. Thus it is not possible to draw a consistent conclusion regarding the impact of the total urban population figure on European financial development.

Table 16 displays the observations obtained for model B with the use of random-effects regression estimations. Here government efficiency appears to have a significant positive impact on financial development as all coefficients are significant. The results closely resemble the findings for model A (Table 13), further strengthening the argument that government efficiency contributes to European financial development. Again in line with the findings of model A, the corruption coefficient is found to be insignificant, suggesting that corruption has no impact on financial development in the case of Europe. Table 16 reports the impact of total population incorporated in model B, as opposed to population density included in

model A reported in Table 13. Table 16 implies that total population significantly positively contributes to financial development as found by estimation model II, III, IV, and V, implying an increase in total population increases financial development. This goes against findings found for model A where population density coefficient is insignificant. Both urbanization findings reported in Table 16 are in accordance with that displayed in Table 13. Thus, the impact of urbanization is significantly positive for both models A and B under the use of random-effects regression estimation.

Results for FGLS estimations of model B are displayed in Table 17. It suggests that government efficiency is a significant positive contributor to financial development for Europe since all estimated coefficients are significant at alpha 1 percent, as suggested by model A in Table 14. Once again FGLS estimations imply that the impact of government efficiency on financial development is greater than the results provided by the random-effects regression estimations. As previously stated in model A corruption when included in model B under FGLS estimation, appears to have a significant positive impact on financial development in Europe. Employment coefficients are in alignment with the coefficients represented in model B, strengthening the argument that employment significantly positively impacts European financial development outcomes. Just like FGLS for model A, model B found the population variable to be significant and positive in models II to V, reaffirming that an increase in the population of Europe would cause its' financial development also to increase. Once more, urbanization appears to have a significant positive impact on the European financial development level as all coefficients for both measures of urbanization used were significant at alpha 1 percent.

Overall, we can conclude that government efficiency positively impact financial development for Europe as the majority of the estimations found the government efficiency coefficient to be positively statistically significant. The coefficient is of a similar magnitude of that for the whole sample; thus government efficiency's impact on financial development for European countries is of the same strength for the whole sample of thirty-one OECD countries. The interpretation of corruptions' effect on financial development is not clear for this subgroup as all three different estimation techniques provided different conclusions. It is evident that employment is a significant positive contributor for European financial development as all estimations found significant positive coefficient for employment. It is implied that population density has next to no impact on finical development as the majority of the estimations found the coefficient to be insignificant, whereas total population used in model B has a significant positive impact on financial development. Overall, the conclusion regarding the impact of populations on financial development is mixed. In the case of urbanization, there is strong evidence to suggest a significant positive impact of urbanization on financial development for European countries. It's implied that urbanization, specifically total urban population in percentage, has the greatest impact on financial development for Europe when compared to all other variables analyzed.

4.2.2 Fully Democratic Countries

The following six tables below display the analysis findings for the fully democratic subgroup. Table 18 reports the results for model A with the use of fixed-effects (within) regression estimations. It indicates that government efficiency has a significant positive impact on full democratic countries as all estimate coefficients for the seven estimated models are statistically significant at alpha 5 percent. The

magnitude of the impact of government efficiency is larger for fully democratic countries than it is for both the EU23 subgroup and the entire sample of thirty-one OECD countries. The corruption variable is presented as insignificant, thus suggesting that corruption in fully democratic countries has no impact on their financial development.

Employment variable is found to be positively significant at alpha 1 percent for all model estimations, and this suggests that an increase in employment for fully democratic countries would result in an increase in their financial development. Table 18 also reports positive significant coefficients regarding the population density variable in models V, VI, and VII. This is in accordance with prior fixed-effects (within) regression estimations as recorded for the whole sample and EU23 subgroup. Unlike previous observations obtained by fixed-effects (within) regression, urbanization coefficients for both measures appear to be negatively significant. Table 18 suggest that an increase in urbanization would in fact diminished financial development.

Table 19 represents the findings for model A with the use of random-effects regression estimation. The government efficiency coefficient is found positive and significant in models I, II, III, VI, and VII. This implies improvements in government efficiency would result in greater financial development for fully democratic countries. As in table 18, the corruption coefficient is insignificant; thus corruption appears to have no impact on the financial development of fully democratic countries. The employment coefficient is significant at alpha 5 percent, and it reflects a positive association with financial development. Unlike table 18 however, the population density variable is found to be insignificant suggesting that

the populations of a fully democratic country does not impact its financial development. Just like population, it appears that urbanization does not affect financial development for fully democratic countries since the coefficients for both urbanization measures used are insignificant in estimation.

Table 20 displays the results for model A with the use of FGLS. Majority of the estimations suggest that government efficiency is a significant positive contributor to financial development. Unlike the findings of fixed-effects (within) and random-effects regression, the corruption coefficient is negatively significant suggesting an increase in corruption causes financial development to decline. Once more, population density coefficients are insignificant thus suggesting it does not impact the financial development of fully democratic countries. This time urbanization coefficients are found to be positively significant, suggesting an increase in urbanization will result in improvement in financial development.

Table 21 shows the findings for model B with the application of fixed-effects (within) regression. In accordance with model A's findings (table 18), the coefficient of government efficiency is positively significant at alpha 5 percent. This strengths the support that government efficiency has a positive impact on financial development of fully democratic countries. Again in line with the findings for model A model B indicates that corruption has no impact on financial development as the coefficients are insignificant. Estimated coefficients for population and urbanization in Table 21 are suggesting the same interpretation as Table 18. Thus both models A and B draw the same conclusions. The total population is found to have a significant positive impact on financial development, whilst urbanization exhibits a significant negative relation to financial development.

Table 22 displays the results for random-effects regression for model B. the government efficiency coefficient is proved to be positively significant in the first three estimated models, unlike model A were all estimations were significant. The corruption variable coefficient is once more insignificant as it was for model A, further implying that corruption does not impact financial development for fully democratic countries. Table 22 suggests the positive impact of employment is of a smaller magnitude that was reported by model A. Unlike model A; model B finds the coefficient of population, measured by total population to be positive and significant, meaning an increase in population causes financial development to increase. Both urbanization measures have insignificant coefficients, supporting implications of model A that urbanization does not affect financial development.

Table 23 reports models B results for FGLS estimations. All variable coefficients, except total population, are in line with the findings provided from model A. The only difference in this case in that the population variable is found to be positive and significant, whereas model A determined it as insignificant. Therefore model B suggests that an increase in population will result in further financial development.

Overall, we can observe strong evidence to support the notion that government efficiency positively impacts financial development for fully democratic countries. Corruption was found to be negatively significant for FGLS models, implying that an increase in corruption diminishes financial development. Both fixed-effects (within) and random-effects estimations, however, claim the coefficient is insignificant. Thus majority determine that corruption does not impact the financial development of fully democratic countries. Employment also appears to be a positive contributor to financial development. Whilst population density appears to be insignificant in

model A, total population incorporated in model B is positively significant, suggesting an increase in the total population furthers financial development. Each estimation technique draws different conclusions regarding the impact of urbanization on financial development. Thus, we can not conclude the impact of urbanization on fully democratic countries.

4.2.3 Flawed Democracy Countries

This section provides the analysis of results for flawed democratic countries. Table 24 displays the findings for fixed-effects (within) regression estimation for model A. It's suggested that government efficiency has no impact on financial development since coefficients are insignificant. Corruption coefficient appears to be negatively significant at alpha 1 percent, suggesting an increase in corruption results in a decrease in financial development for flawed democratic countries. Table 24 suggests that employment has a significant positive impact on financial development as coefficients are significant. Population density is found to be positively significant in models II to V, indicating an increase in population results in further financial development. Both urbanization measures are found to have the largest impact on financial development for flawed democratic countries since the coefficient is significant at alpha 1 percent and are of the most considerable positive magnitude.

Table 25 provides the results for random-effects regression for model A. Like fixed-effects (within), government efficiency is found to have an insignificant coefficient, alliterating the fact that government efficiency does not impact financial development for flawed democratic countries. Corruption was found to be negatively significant in model V, confirming Findings fixed-effects model A. In fact, all findings of Table 25 confirm the results displayed in table 24. Therefore, both fixed-effects (within) and random-effects regression suggest that flawed democratic

countries' financial development declines as a result of corruption, but that government efficiency has no impact.

Table 26 reports the findings of FGLS for model A. Unlike the two previous tables; government efficiency is found to be positive and significant, suggesting improvements in government efficiency would result in further financial development. Again unlike results provided by fixed-effects (within) and random-effects regression, FGLS displays corruption to be positive and significant, suggesting the opposite of previous findings. All control variable coefficients are in line with findings displayed in Table 25.

Table 27 shows the results for fixed-effects (within) regression estimations. All findings here are in accordance with that in Table 24. Therefore, both models A and B drew the same conclusions, that corruption diminishes financial development. Employment, population and urbanization variables are all positive contributors to financial development, while government efficiency appears to have no significant impact on financial development if flawed democratic countries.

Table 28 reports model B estimation when applying random-effects regression to the model. Like model A, government efficiency variable is found to be insignificant. The corruption variable coefficient is negatively significant, again confirming the finding of model A. It suggests that corruption causes financial development of flawed democratic countries to decline. Once more, all control variables appear to be significant positive contributors to financial development for flawed democratic countries.

Finally, Table 29 records results for FGLS used on model B. Like model A under FGLS, government efficiency positively impacts financial development as all coefficients are statistically significant at alpha 1 percent. Just as predicted by model A corruption exhibits a positive significant coefficient, suggesting an increase in corruption of flawed democratic countries would result in greater financial development. All control variables, except total urban population figure, display the same findings as reported in model A. Total urban population figure; however, in model B is negatively significant going against the findings found by model A.

Overall, there is weak evidence to suggest that government efficiency is positively related to the financial development of flawed democratic countries. There is sufficient evidence to support the notion that corruption diminishes financial development for flawed democratic countries. Moreover, there is substantial evidence that control variables included in the model positively contribute to financial development as most coefficients were proven to be

4.2.4 Former Communist Countries

Finally, the last subgroup to be examined is former communist countries. This subgroup is of interest as in the past they were under the tightest form of governance, and we are interested in the possible implications this could have on their financial development levels. As carried out many times before, both models A and B will be investigated with the use of the fixed-effects panel. Table 30 represent the findings for models A. Findings of this particular subgroup are very interesting as all variables other than corruption seem to have no impact on former communist countries financial development. As observed, there is a significant negative relationship amongst financial development and corruption, meaning an increase in corruption by one percent results in 0.821 percent decline in financial development.

Also, it appears that population density expresses a negative relationship with financial development, this becomes significant and of a high magnitude with the inclusion of corruption in models V and VII.

Table 31 portrays the same findings as model A for model B, the only main difference being here is the constant values. In table 31 they are of large value, indicating further that the variables within the model are not the main contributors of financial development for former communist countries. The coefficients were of the smallest magnitude when compared with the other subgroups, but they were also insignificant. While corruption was of relatively big magnitude, and it was not the greatest when compared to the other subgroups as we predicted. Therefore, our predictions did not hold when analyzing the findings of the former communist countries' subgroup.

Chapter 5

CONCLUSIONS AND POLICY RECOMMENDATIONS

This study investigates the determinants of financial development for thirty-one OECD countries for the periods 2002 to 2015 inclusively. The research aims to fill a gap in the literature as it examines the impact of government efficiency on the financial development level of OECD countries. To the best of our knowledge, this is the first study that has included this variable within its investigation. In order to analyze the impact of our primary independent variable, along with multiple social and macroeconomic independent variables, we conducted a panel regression. Our sample was then split into subgroups; EU 23 countries, former communist countries, fully democratic countries and flawed democratic countries to obtain robust results.

We applied both fixed-effects and random-effects methods to obtain our empirical findings from a magnitude of models since both fixed-effects (within) and random-effects displayed similar findings to one another. Our study consisted of seven equation models where variables where added to the model continuously, along with model types A and B where our population variable was substituted with another measure to see the implications of using different proxies. In regards to the whole sample, from our results of fixed-effects (within) regression model A and B we see that regressors; government efficiency, employment, urban population, total urban population and population density exhibit a significant positive relationship with financial development. This suggests that all independent variables included in our

model, with the exception of corruption contribute to the financial development of OECD countries. The corruption variable is significantly negatively related to financial development; therefore, it is detrimental to financial development.

For models A and B with FGLS, our results present similar findings of that to the fixed-effects model. The only difference here is that all regressors, except for corruption, are positively and significantly related to financial development throughout all seven models. The corruption variable coefficient is observed as insignificant. Finding from random-effects regression for models A and B are in line with the findings presented fixed-effects. Since the government efficiency variables coefficient remains significant within all seven models, there is strong evidence to suggest that government efficiency positively impacts financial development.

Since financial development is an essential contributor to economic growth and beneficial for many other fundamentals, it is in the countries interest to set regulations and form policies that would promote further financial development (Deltuvaite and Sineviciene, 2014; and Benczúr et al., 2018). Our research findings provide useful information for policymakers.

To enhance financial development, according to our empirical findings, a primary recommendation would be to increase government efficiency within the country. Policymakers should focus on improving political stability as it will result in greater efficient government spending thus enhancing government efficiency (Abeyasinghe, 2004). Enhancing political stability along with macroeconomic stability would also lead to increased investors' confidence and trust within the financial sector which

will result in a high potential number of investments thus also causing further financial development and therefore heighten economic growth prospects.

Our study also indicates that corruption reduces financial development. One way to decrease corruption would be to improve political legitimacy through the promotion of democracy, informing citizens that the government is working with them and not against them. Taking part in corruptive activities leads to wasteful spending of the government which would hinder government efficiency. Government agencies should, therefore, create bodies that audit and monitor government spending in order to identify any fraudulent or corruptive activities in order to prevent wasteful spending of the government (Rose-Ackerman, 2008). Another way in which to reduce corruption would be to take vigorous actions against those who take part in corruptive activities and to use of training on the code of business conduct and ethics to help authorities combat corruptive activities. Policymakers should also make sure that regulations and policies that are in place are not too rigid or inflexible as this would result in further corruption and lower the financial development, as rigid policies would encourage activities associated with the informal economy (Wallace and Latcheva, 2006).

Based on our subgroup results, this recommendation would be of greater importance for flawed democratic countries as government efficiency appeared to express the most substantial positive relationship with financial development for this subgroup. Greater democracy is suggested to provide heightened government efficiency. Asatryan and De Witte (2015) found that direct democratic reforms enhance the efficiency of the German governments' ability to provide cost-effective goods and services within the public sector. The main principle of democracy is a separation of

power, limiting the governments' power with the use and monitoring of a juridical and legislative body. This principle means that the government does not have the power in which to make laws and therefore cannot be held above it, this helps prevent corruptive activity within the government itself. The second most important principle is that government authority is reflective of its citizens as they are elected through a public vote. This suggests that governments within largely democratic countries are more efficient as they are formed by and have their citizens' best interests at heart (Prothro and Grigg, 1960).

Along with improvements in government efficiency, it is also essential for policymakers to improve the level of institutional quality in order to reap the benefits that come from reforming the financial sector. As improvements within institutional quality will deepen financial markets and improve the allocation of resources thus creating potential greater economic growth through improvements made in financial development.

The limitations regarding our study are as follows: Our study was carried out using panel data for a vast number of countries as only a short time span was analyzed as there is limited data available on government efficiency, the research may be improved by considering the use of time series data in order to achieve country-specific results that could be used to form more specialized policies that apply specifically to that country. It would be of interest to see a study done on developing countries as they are in greater need of financial development and they are presumed to have greater governmental corruption. Other studies could provide a more accurate picture of government efficiency’s impact on financial development by

accounting for legal regimes and bureaucracy. We leave further studies open for other researchers.

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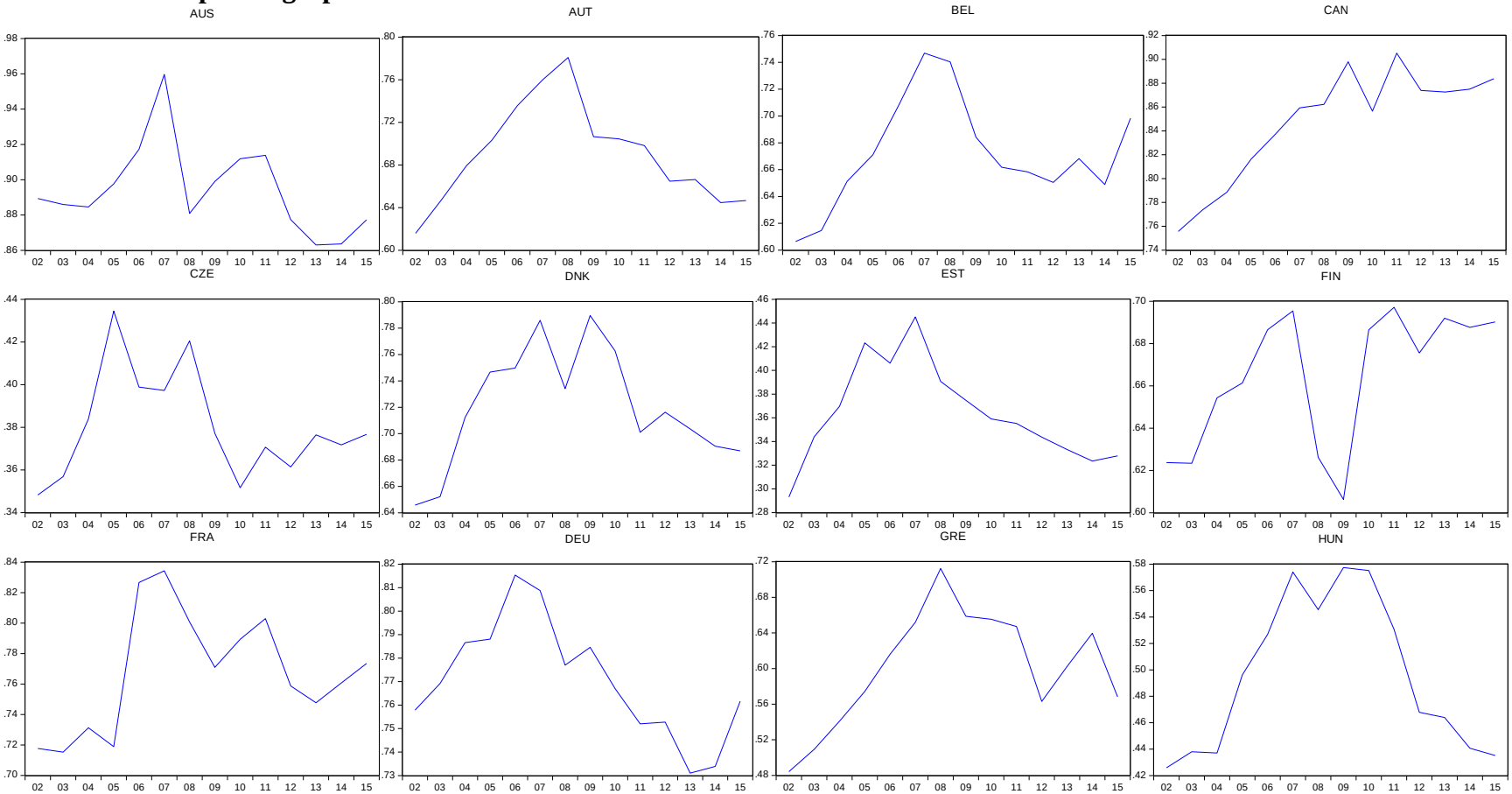
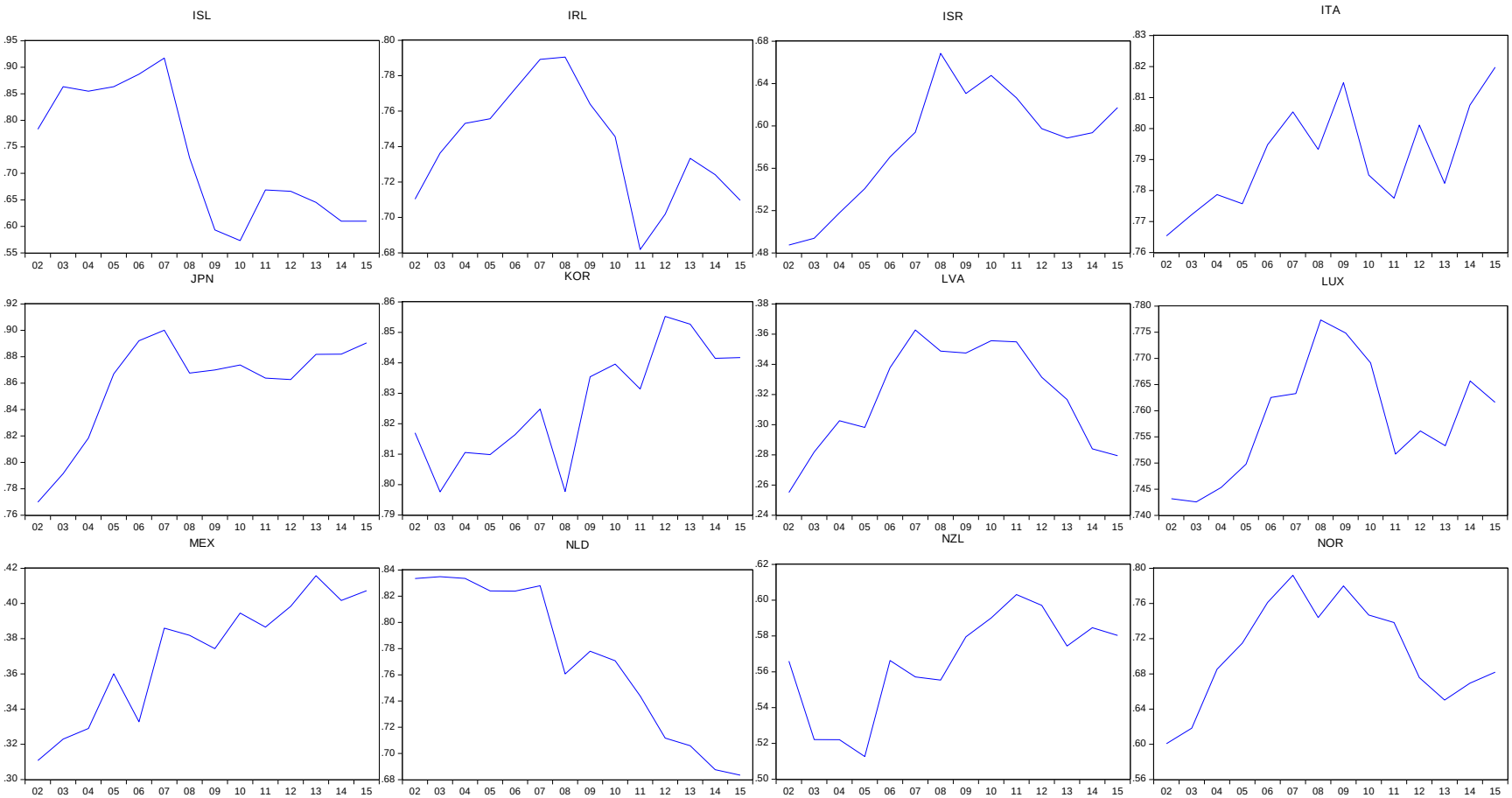
APPENDICES

Appendix A: Figures

Figure 1
Financial development graphs

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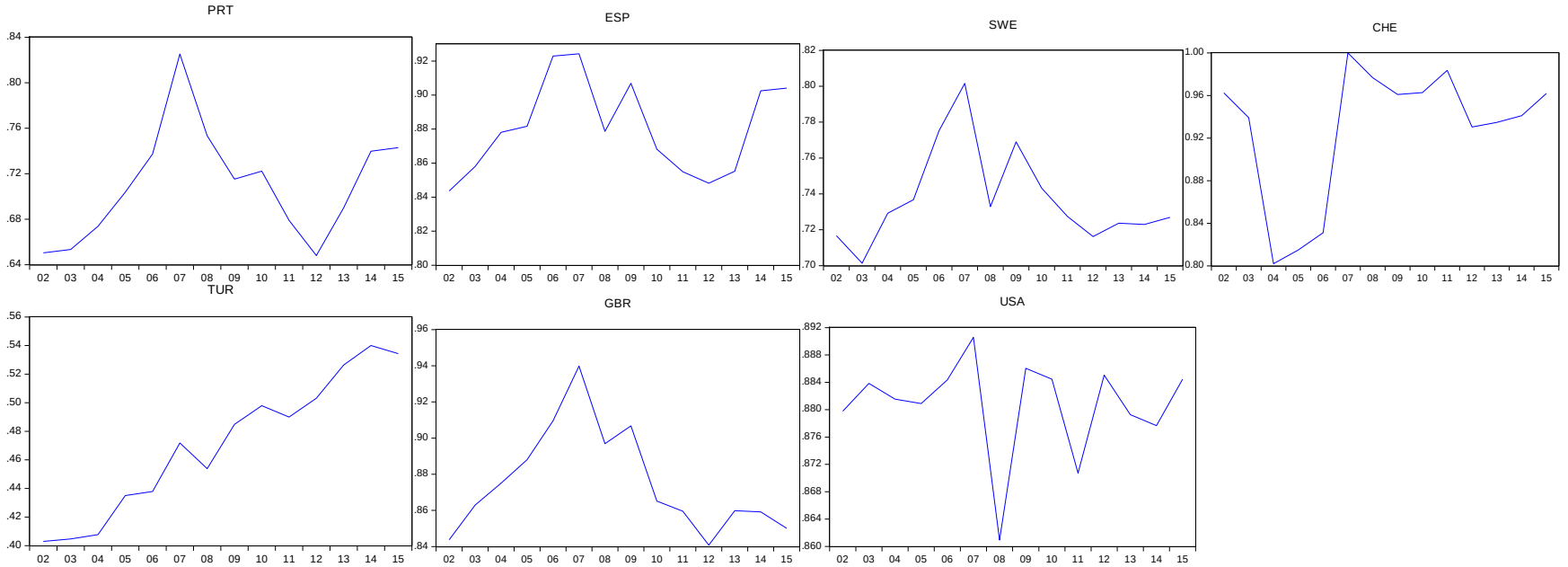
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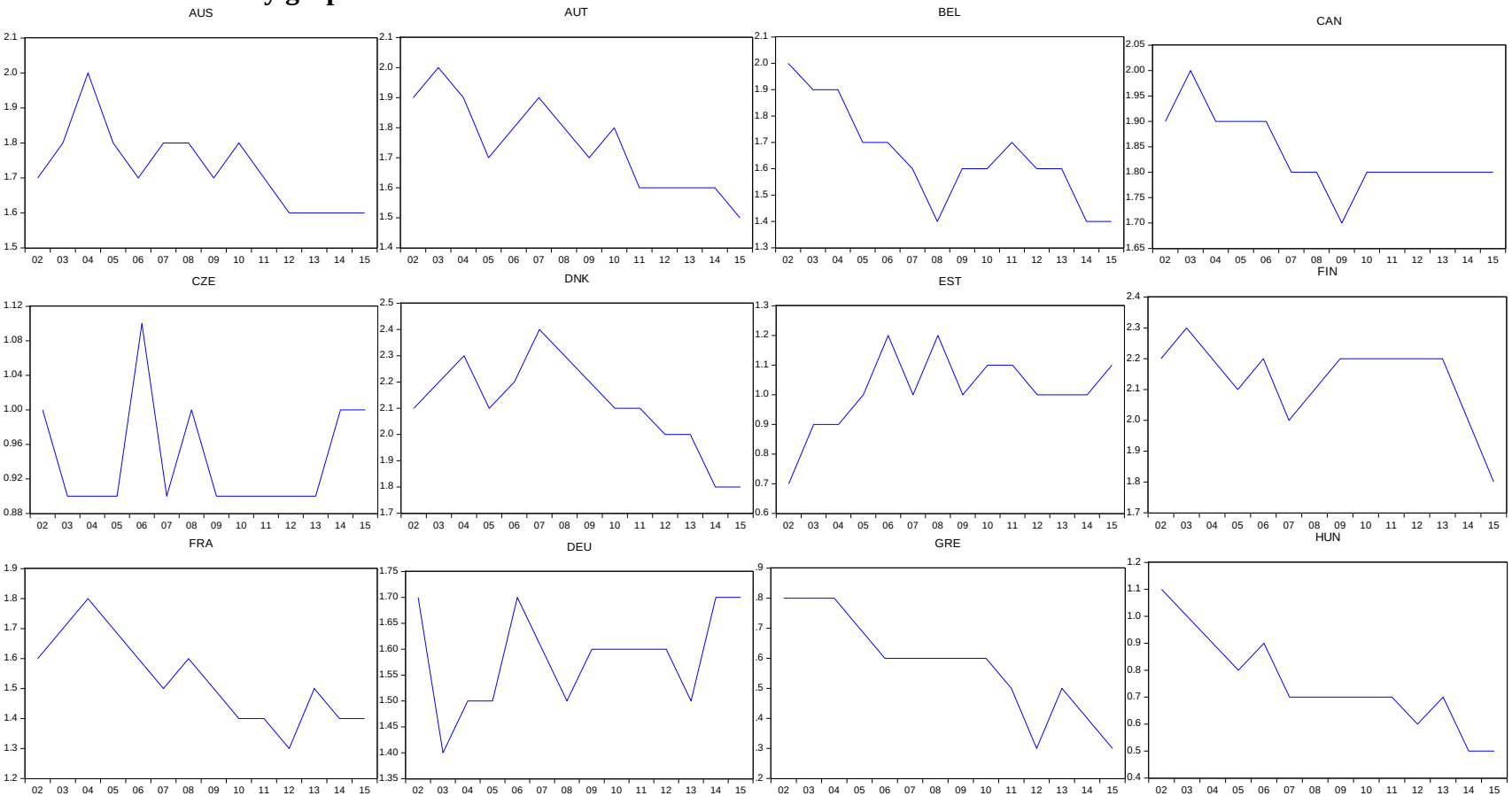
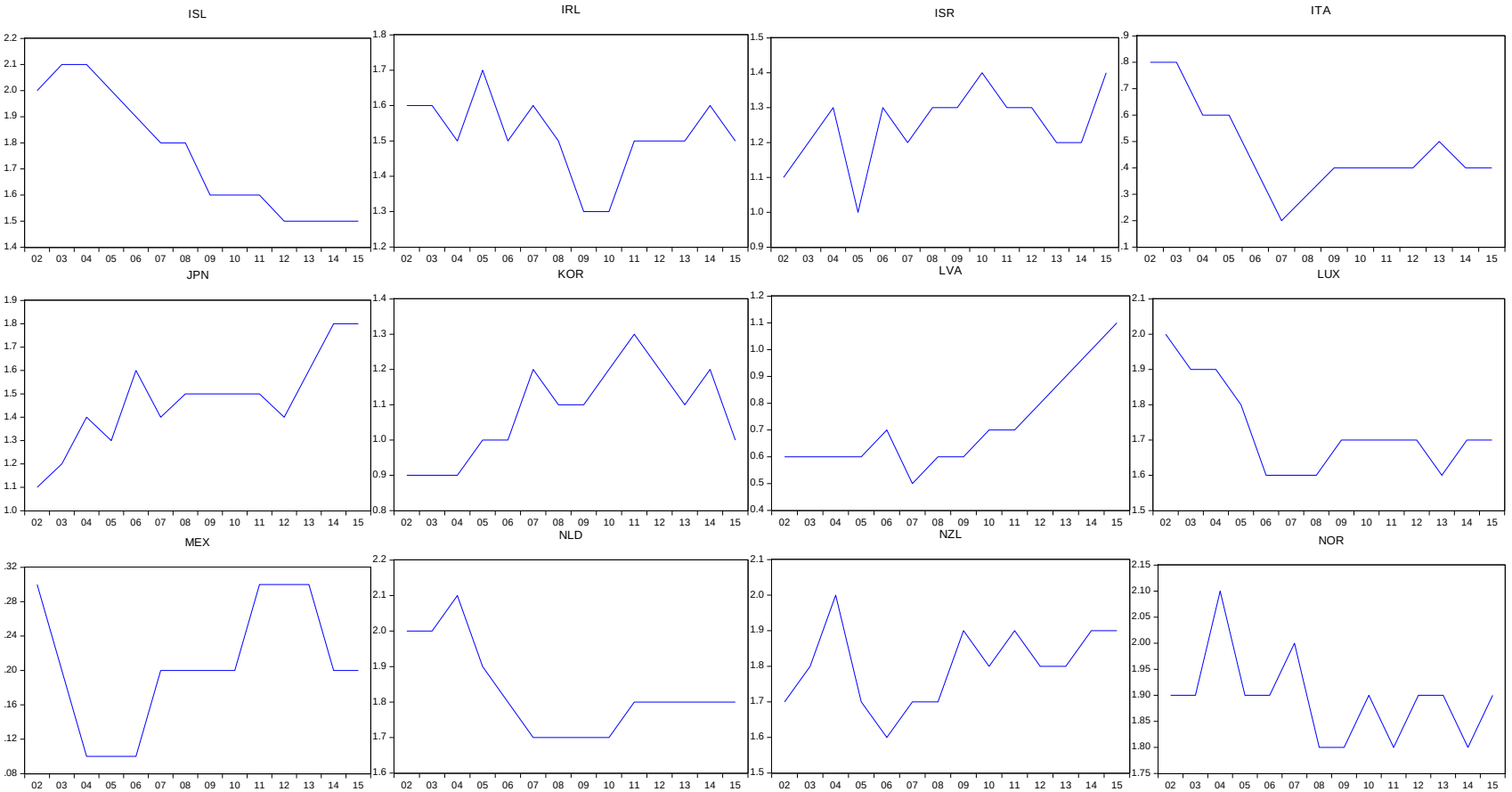
Figure 2
Government efficiency graphs

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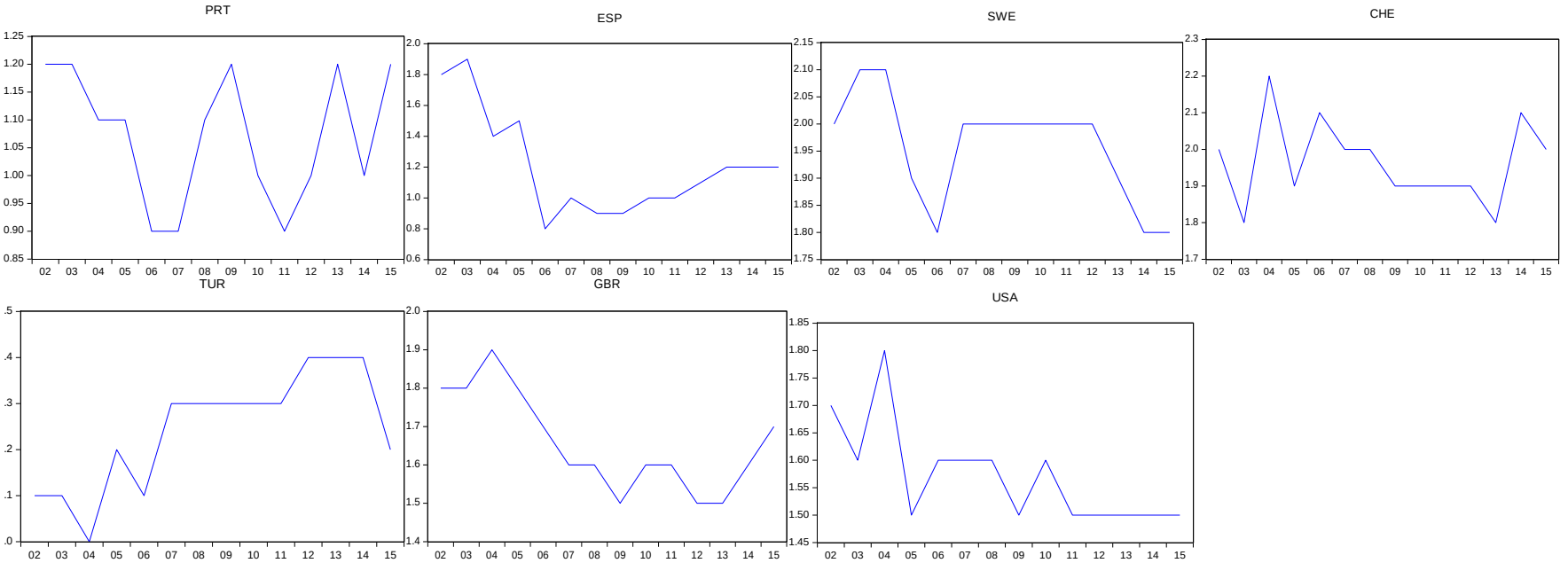
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Appendix B: Data Description

Table 1

Variable	Abbrievations	Definition	Source
Financial development	FD	Financial development index	International Monetary Fund (IMF)
Government effectiveness	GOVEFF	Ranging from −2.5 to 2.5, higher values indicating greater government efficiency	Worldwide Governance Indicators (WGI)
Corruption	CORRUPT	Lower rankings degarded as higher levels of corruption	International Country Risk Guide (ICRG)
Employment	EMPLOY	Employment percentage of population	Worldwide Development Indicators (WDI)
Population 1	POP1	Total population figure	Worldwide Development Indicators (WDI)
Population 2	POP2	Population density; average number of people per sq. km of land area	Worldwide Development Indicators (WDI)
Urbanization 1	URBAN1	Total urban population in percentage form	Worldwide Development Indicators (WDI)
Urbanization 2	URBAN2	Total urban population figure	Worldwide Development Indicators (WDI)

Table 2

Descriptive Statistics:

Variable	Obs	Mean	Std.dev	Min	Max
lfd	434	-0.41143	0.29883	-1.36627	0.00000
lgoveff	433	0.19299	0.62073	-2.30259	0.87547
lemploy	434	1.46415	0.33229	0.32714	2.51017
lpop1	434	16.41789	1.57838	12.56906	19.58708
lpop2	434	4.27272	1.41858	0.93923	6.26023
lurban1	434	4.35661	0.12285	4.01937	4.58352
lurban2	434	16.16933	1.57645	12.49285	19.38394
lcorrupt	434	1.30819	0.39498	0.00000	1.79176

Table 3

Correlation matrix:

	lfd	Lgoveff	lemploy	lpop1	lpop2	lurban1	lurban2	lcorrupt
1fd	1.0000							
1goveff	0.5587	1.0000						
1emloy	0.0635	-0.2685	1.0000					
1pop1	0.2686	-0.2829	0.1190	1.0000				
1pop2	0.0584	-0.1486	-0.0804	0.2992	1.0000			
1urban1	0.3035	0.3806	-0.2799	-0.0519	-0.0876	1.0000		
1urban2	0.2926	-0.2535	0.0973	0.9970	0.2927	0.0259	1.0000	
1corrupt	0.3980	0.6868	-0.1911	-0.2652	-0.3334	0.3121	-0.2412	1.0000

Table 4

Breusch and Pagan Lagrangian multiplier test for random effects:

	Var	Sd=sqrt (Var)
1fd1	0.0889613	0.2982638
e	0.0049992	0.0707049
u	0.0341306	0.1847447
Tests:		
Var (u)	0	
Chibars (01)	1799.79*	

Appendix C: Empirical Findings

Table 5

Fixed-effects (within) regression estimations for model A (whole sample):

Fixed Eff A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.05623*	0.05977*	0.05096**	0.05072**	0.05612*	0.05083**	0.05627*
lemploy	-	-	0.07968**	0.08392**	0.09094**	0.08388**	0.09081**
lpop2	-	0.30145*	0.36895*	0.29581*	0.31470*	-0.10570	-0.16680
lurban1	-	-	-	0.37772***	0.46271**	-	-
lurban2	-	-	-	-	-	0.39914***	0.48035**
lcorrupt	-	-	-	-	-0.12245*	-	-0.12289**
constant	-0.42116*	-1.70794*	-2.11299*	-3.45241*	-3.75441*	-6.54381*	-7.44586**

Note: *, ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 6

Random-effects regression estimations for model A (whole sample):

GLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.07267*	0.07400*	0.07174*	0.06675*	0.07106*	0.08463*	0.08517*
lemploy	-	-	0.03890	0.06424***	0.06543***	0.03974	0.03957
lpop2	-	0.04687	0.04821***	0.04248	0.03905	0.00971	0.00896
lurban1	-	-	-	0.63365*	0.69305*	-	-
lurban2	-	-	-	-	-	0.07977*	0.08027*
lcorrupt	-	-	-	-	-0.07082***	-	-0.02101
constant	-0.42482*	-0.62534*	-0.68758*	-3.45988*	-3.61394*	-1.81658*	-1.79382*

Note: *, ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 7

FGLS regression estimations for model A (whole sample):

FGLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.23964*	0.24656*	0.27951*	0.27390*	0.27724*	0.30927*	0.30544*
lemploy	-	-	0.16721*	0.20465*	0.19666*	0.16428*	0.16230*
lpop2		0.02960*	0.02475*	0.02995*	0.02984*	0.00264	0.00303*
lurban1	-	-	-	0.23039*	0.2119*	-	-
lurban 2						0.07546*	0.07546*
lcorrupt	-	-	-	-	-0.00781	-	0.01341
constant	-0.43531*	-0.79162*	-0.79162*	-1.87078*	-1.76543	-1.93203*	-1.93417*

Note: *, ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 8

Fixed-effects (within) regression estimations for model B (whole sample):

Fixed Eff B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.05624*	0.05992*	0.05105**	0.05080**	0.05621*	0.05080**	0.05621*
lemploy	-	-	0.08021**	0.08426**	0.09120**	0.08426**	0.09120**
lpop1	-	0.30944*	0.37726*	0.30492*	0.32348*	-0.06136	-0.12784
lurban1	-	-	-	0.36627***	0.45131**	-	-
lurban2	-	-	-	-	-	0.36627***	0.45132**
lcorrupt	-	-	-	-	-0.12242**	-	-0.12242*
constant	-0.42116*	-5.50101*	-6.73000*	-7.14418*	-7.67037*	-5.45745*	-5.59200*

Note: *, ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 9

Random-effects regression estimations for model A (whole sample):

GLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.07266*	0.08554*	0.08505*	0.077981**	0.08087*	0.07798*	0.08087*
lemploy	-	-	0.03474	0.06151***	0.06244***	0.06151***	0.06244***
lpop1	-	0.07509*	0.07445*	0.06992*	0.06792*	-0.54629*	-0.59153*
lurban1	-	-	-	0.61621*	0.65944*	-	-
lurban2	-	-	-	-	-	0.61622*	0.65945*
lcorrupt	-	-	-	-	-0.05195	-	-0.05195
constant	-0.42483*	-1.66005*	-1.70030*	-4.34854*	-4.43787*	-1.51078*	-1.40103*

Note: *, ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 10

FGLS regression estimations for model B (whole sample):

FGLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.23964*	0.29518*	0.32096*	0.29735*	0.29296*	0.29735*	0.29296*
lemploy	-	-	0.17967*	0.20234*	0.20398*	0.20234*	0.20398*
lpop1	-	0.08591*	0.07731*	0.07732*	0.07786*	-0.22282*	-0.21323*
lurban1	-	-	-	0.30014*	0.29109*	-	-
lurban2	-	-	-	-	-	0.30014*	0.29109*
lcorrupt	-	-	-	-	0.0190		0.01902
constant	-0.43531*	-1.87346*	-1.99325*	-3.33352*	-3.33077*	-1.95131*	-1.99027*

Note: *, ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 11
SUBGROUPS COUNTRY LIST

31 OECD	EU23	FULLY DEMOCRATIC	FLAWED DEMOCRATIC	FORMER COMMUNIST
Australia	Australia	Australia	Belgium	Czech Republic
Austria	Belgium	Austria	Czech Republic	Estonia
Belgium	Czech Republic	Canada	Estonia	Hungary
Canada	Denmark	Denmark	France	Latvia
Czech Republic	Estonia	Finland	Greece	
Denmark	Finland	Germany	Hungary	
Estonia	France	Iceland	Isreal	
Finland	Germany	Ireland	Italy	
France	Greece	Luxembourg	Japan	
Germany	Hungary	Netherlands	Latvia	
Greece	Iceland	New Zealand	Mexico	
Hungary	Ireland	Norway	Portugal	
Iceland	Italy	Spain	United States	
Ireland	Latvia	Sweden		
Isreal	Luxembourg	Switzerland		
Italy	Netherlands	United Kingdom		
Japan	Norway			
Korea	Portugal			
Latvia	Spain			
Luxembourg	Sweden			
Mexico	Switzerland			
Netherlands	Turkey			
New Zealand	United Kingdom			
Norway				
Portugal				
Spain				
Sweden				
Switzerland				
Turkey				
United Kingdom				
United States				

Table 12

Fixed-effects(within) regression estimations for model A EU23 subgroup:

Fixed Eff A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.03814	0.03916	0.026665	0.02841	0.03504	0.02879	0.03545
lemploy	-	-	0.09878**	0.10696**	0.11681*	0.10733**	0.11715
lpop2	-	0.03569	0.10955	0.00500	0.05469	-0.45169	-0.44942
lurban1	-	-	-	0.44633	0.49814***	-	-
lurban 2	-	-	-	-	-	0.45846***	0.50714***
lcorrupt	-	-	-	-	-0.15967*	-	-0.15977*
constant	-0.43672*	-0.59493	-1.06370***	-2.54579**	-2.78965**	-5.82200**	-6.39913**

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 13

Random-effects regression estimations for model A EU23 subgroup:

GLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.05160**	0.054701**	0.04674***	0.04556***	0.05677**	0.05392**	0.06408*
lemploy	-	-	0 .08690**	0.11254*	0.11496*	0.08469**	0.08100**
lpop2	-	0.05758	0.05884	0.04983	0.05088	0.01421	0.01491
lurban1	-	-	-	0.52791**	0.61265*	-	-
lurban2	-	-	-	-	-	0.05870	0.05784***
lcorrupt	-	-	-	-	-0.07557	-	-0.03107
constant	-0.44022*	-0.69579*	-0.82679*	-3.10992*	-3.38503*	-1.55351*	-1.49770*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 14

FGLS regression estimations for model A EU23 subgroup:

FGLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.18805*	0.18547*	0.23093*	0.23052*	0.11540*	0.26736*	0.15983*
lemploy	-	-	0.21708*	0.24132*	0.29159*	0.18573*	0.31513*
lpop2	-	0.05569*	0.04208*	0.04188*	0.03910*	0.00501	0.00903
lurban1	-	-	-	0.28988*	0.10391	-	-
lurban2	-	-	-	-	-	0.05364*	0.05303*
lcorrupt	-	-	-	-	0.39968*	-	0.37847*
constant	-0.43392*	-0.67342*	-0.94199*	-2.23171*	-2.02541*	-1.60242*	-2.31018*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 15

Fixed-effects (within) regression estimations for model B EU23 subgroup:

Fixed Eff B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.03814	0.03941	0 .02688	0.02849	0.03516	0.02849	0.03516
lemploy	-	-	0.09951**	0.10735**	0.11719*	0.10735**	0.11719*
lpop1	-	0.04370	0.11896	0.01296	0.06300	-0.42623	-0.42734
lurban1	-	-	-	0.43917	0.49033***	-	-
lurban2	-	-	-	-	-	0.43918	-0.42734***
lcorrupt	-	-	-	-	-0.15999*	-	-0.15600*
constant	-0.43671*	-1.13822	-2.48858	-2.70114	-3.52466***	-0.67864	-1.26658

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 16

Random-effects regression estimations for model B EU23 subgroup:

GLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.05160**	0.06064**	0.05405**	0.05264**	0.06299*	0.05264**	0.06300*
lemploy	-	-	0.08169**	0.11045*	0.11161*	0.11045*	0.11161*
lpop1	-	0.05826***	0.05527**	0.05600***	0.05665**	-0.51390**	-0.58786*
lurban1	-	-	-	0.56990*	0.64450*	-	-
lurban2	-	-	-	-		0.5699018*	0.64451*
lcorrupt	-	-	-	-	-0.06521	-	-0.06522
constant	-0.44022*	-1.37719*	-1.44739*	-3.96841*	-4.21734*	-1.34394*	-1.2493*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 17

FGLS regression estimations for model B EU23 subgroup:

FGLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.18805*	0.26250*	0.26934*	0.26240*	0.16443*	0.26240*	0.16443*
lemploy	-	-	0.18793*	0.21884*	0.31594*	0.21884*	0.31594*
lpop1	-	0.07969*	0.05287*	0.05800*	0.05915*	-0.23753*	-0.07939
lurban1	-	-	-	0.29554*	0.13854***	-	-
lurban2	-	-	-	-	-	0.29554*	0.13854***
lcorrupt2	-	-	-	-	0.36142*	-	0.36143*
constant	-0.43392*	-1.75522*	-1.58360*	-3.00724*	-2.96759*	-1.64625*	-2.32961*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 18

Fixed-effects (within) regression estimations for model A Fully democratic subgroup:

Fixed Eff A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.10320**	0.10676**	0.11497**	0.10360**	0.10408**	0.10740**	0.10795**
lemploy	-	-	0.10411**	0.12533*	0.12533*	0.12522*	0.12523*
lpop2	-	0.01729	0.11515	0.43212*	0.43557*	1.81013*	1.80935*
lurban1	-	-	-	-1.42414*	-1.41985*	-	-
lurban 2	-	-	-	-	-	-1.39103*	-1.38620*
lcorrupt	-	-	-	-	-0.01129	-	-0.01308
constant	-0.33214*	-0.39972	-0.92537***	4.09121*	4.07682*	14.49677*	14.4441*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 19

Random-effects regression estimations for model A Fully democratic subgroup:

GLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.08601***	0.09040***	0.08425***	0.06759	0.06785	0.094045**	0.09154***
lemploy	-	-	0.09715**	0.08813**	0.08811**	0.09473**	0.09033**
lpop2	-	0.01253	0.01852	0.01200	0.01180	0.01125	0.01007
lurban1	-	-	-	-0.40712***	-0.24013	-	-
lurban 2	-	-	-	-	-	0.03226	0.03226
lcorrupt	-	-	-	-	-0.06288	-	-0.07294
constant	-0.32247*	-0.37248*	-0.53150*	1.30028	0.66800	-1.01330*	-0.88616**

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 20

FGLS regression estimations for model A Fully democratic subgroup:

FGLS A	**Model I**	**Model II**	**Model III**	**Model IV**	**Model V**	**Model VI**	**Model VII**
lgoveff	0.18957*	0.19529*	0.18573*	0.21122*	-0.02058	0.13454*	0.01664
lemploy	-	-	0.04941*	0.06818*	0.0508*	0.04998*	0.01796
lpop2	-	0.00472	0.00579	0.00502	0.00463	-0.00177	-0.00154
lurban1	-	-	-	0.18757*	0.41780*	-	-
lurban 2	-	-	-	-	-	0.03813*	0.02842*
lcorrupt	-	-	-	-	-0.64573*	-	-0.46473*
constant	-0.17354*	-0.19273*	-0.26359*	1.09814*	-1.16429*	-0.86552*	-0.01529

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 21

Fixed-effects (within) regression estimations for model B Fully democratic subgroup:

Fixed Eff B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.10320**	0.10773**	0.11566**	0.10294**	0.10342**	0.10294**	0.10342**
lemploy	-	-	0.10465**	0.12543*	0.12543*	0.12543*	0.12543*
lpop1	-	0.02235	0.12077	0.43568*	0.43913*	1.85776*	1.85679*
lurban1	-	-	-	-1.42207*	-1.41763*	-	-
lurban 2	-	-	-	-		-1.42208*	-1.41765*
lcorrupt	-	-	-	-	-0.01141	-	-0.01141
constant	-0.33214*	-0.69113	-2.41588	-1.22718	-1.28408	-7.77611*	-7.81258*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 22

Random-effects regression estimations for model B Fully democratic subgroup:

GLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.08601***	0.09814**	0.09085***	0.07643	0.07849	0.07643	0.07849
lemploy	-	-	0.09084**	0.08476**	0.08026**	0.08476**	0.08026**
lpop1	-	0.04008**	0.03839***	0.03388	0.03329**	0.39322***	0.19302
lurban1	-	-	-	-0.35933	-0.15972	-	-
lurban 2	-	-	-	-	-	-0.35933	-0.15972
lcorrupt	-	-	-	-	-0.07532	-	-0.07532
constant	-0.32247*	-0.96861*	-1.06824*	0.59570	-0.14585	-1.05905*	-0.88138*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 23

FGLS regression estimations for model B Fully democratic subgroup:

FGLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.18957*	0.14436*	0.11590*	0.15165*	0.01295	0.15165*	0.01295
lemploy	-	-	0.05639*	0.08300*	0.03104**	0.08300*	0.03104**
lpop1	-	0.03900*	0.03844*	0.03270*	0.031318*	0.17300*	0.55590*
lurban1	-	-	-	0.20570*	0.58722*	-	-
lurban 2	-	-	-	-	-	0.20570*	0.58721*
lcorrupt	-	-	-	-	-0.60641*	-	-0.60641*
constant	-0.17354*	-0.81819*	-0.90568*	-1.72711*	-2.44411*	-0.77985*	0.26012**

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 24

Fixed-effects (within) regression estimations for model A Flawed democratic subgroup:

Fixed Eff A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.00237	0.00674	-0.01737	-0.01127	-0.00215	-0.01001	-0.00087**
lemploy	-	-	0.13396**	0.18599**	0.20749**	0.18437*	0.20542
lpop2	-	0.68233*	0.808034*	0.74908*	0.76247*	-0.26887	-0.40017
lurban1	-	-	-	1.07105*	1.22539*	-	-
lurban 2	-	-	-	-	-	1.02727*	1.17324*
lcorrupt	-	-	-	-	-0.14806*	-	-0.14692*
constant	-0.57044*	-3.77198*	-4.56331*	-8.99864*	-9.59551*	-16.52334*	18.18093*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 25

Random-effects regression estimations for model A Flawed democratic subgroup:

GLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.01195	0.00931	-0.00214	-0.00035	0.01009	0.01958	0.02380
lemploy	-	-	0.06815	0.12091***	0.13122**	0.07295	0.07573
lpop2	-	0.33198*	0.34562*	0.29302*	0.27373*	0.18542*	0.19444*
lurban1	-	-	-	0.95424*	1.05548*	-	-
lurban 2	-	-	-	-	-	0.14368*	0.14853*
lcorrupt	-	-	-	-	-0.12177**	-	-0.07059
constant	-0.56915*	-2.12749*	-2.29384*	-6.25510*	-6.48121*	-3.91556*	-3.963*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 26

FGLS regression estimations for model A Flawed democratic subgroup:

FGLS A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.26839*	0.18307*	0.20831*	0.20058*	0.07130**	0.25118*	0.20123*
lemploy	-	-	0.34556*	0.32085*	0.42894*	0.24983*	0.27240*
lpop2	-	0.19018*	0.16757*	0.19019*	0.10930*	0.07064*	0.06238*
lurban1	-	-	-	-0.04232	0.12117	-	-
lurban 2	-	-	-	-	-	0.14653*	0.13618*
lcorrupt	-	-	-	-	0.61872*		0.16891*
constant	-0.52546*	-1.44677*	-1.84994*	-1.74033*	-2.93746*	-3.65449*	-3.67274*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 27

Fixed-effects (within) regression estimations for model B Flawed democratic subgroup:

Fixed Eff B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.00237	0.00780	-0.01635	-0.01027	-0.00115	-0.01027	-0.00115
lemploy	-	-	0.13525**	0.18474*	0.20606*	0.18474*	0.20606*
lpop1	-	0.69219*	0.82010*	0.75122*	0.76390*	-0.29791	0.43886
lurban1	-	-	-	1.04911*	1.20277*	-	-
lurban 2	-	-	-	-	-	1.04913*	- 1.20276*
lcorrupt	-	-	-	-	-0.14763*	-	-0.14763*
constant	-0.57044*	-12.17601*	-14.52411*	-17.98237*	-18.72614*	-13.15102*	-13.18728*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 28

Random-effects regression estimations for model B Flawed democratic subgroup:

GLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.01195	0.02295	0.03290	0.02266	0.02920	0.02266	0.02920
lemploy	-	-	0.04064	0.10212	0.11009***	0.10212	0.11009***
lpop1	-	0.17268*	0.16030*	0.14010*	0.14349*	-0.73149*	-0.82778*
lurban1	-	-	-	0.87158*	0.97125*	-	-
lurban 2	-	-	-	-	-	0.87159*	0.97126*
lcorrupt	-	-	-	-	-0.09503***	-	-0.09503***
constant	-0.56915*	-3.46303*	-3.31430*	-6.84034*	-7.23372*	-2.82657*	-2.76095*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 29

FGLS regression estimations for model B Flawed democratic subgroup:

FGLS B	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	0.26839*	0.27659*	0.33319*	0.29004*	0.22320*	0.29004*	0.22320*
lemploy	-	-	0.35616*	0.35334*	0.39243*	0.35334*	0.39243*
lpop1	-	0.14190*	0.12977*	0.12882*	0.11999*	0.16724**	0.04224
lurban1	-	-	-	0.29606*	0.16223**	-	-
lurban 2	-	-	-	-	-	-0.29606*	-0.16223**
lcorrupt	-	-	-	-	0.23757*	-	0.23757*
constant	-0.52546*	-2.91171*	-3.23025*	-4.50509*	-4.11049*	-3.14170*	-3.3634*

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 30

Fixed-effects (within) regression estimations for model A Former communist subgroup:

Fixed Eff A	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
lgoveff	-0.01144	-0.03788	-0.05292	-0.01971	0.06768	-0.02796	0.06475
lemploy	-	-	0.07223	0.08238	0.06035	0.07916	0.05940
lpop2	-	-0.39465	-0.25311	-0.11757	-1.45809***	-0.46017	-1.48246
lurban1	-	-	-	0.47187	0.0557386	-	
lurban2	-	-	-	-	-	0.31083	0.01147
lcorrupt	-	-	-	-	-0.82025*	-	-0.82073*
constant	-0.96350*	0.66990	-0.01873*	-2.58932	5.59560	-3.7872	5.76364

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%.

Table 31

Fixed-effects (within) regression estimations for model B Former communist subgroup:

Fixed Eff B	Model I	Model II	Model III	Model IV	Model V	Model VI
lgoveff	-0.04237	-0.05577	-0.02245	0.06873	-0.02244	0.06874
lemploy	-	0.07140	0.08006	0.06385	0.08006	0.06385
lpop1	-0.41766	0.27115	-0.14484	-1.46006***	-0.60518	-1.74184
lurban1	-	-	0.46021	0.28165	-	
lurban2	-	-	-	-	0.46038	0.28184
lcorrupt	-	-	-	-0.81797*	-	-0.81797*
constant	5.39592	3.06352	-0.81785	20.8298	1.300845	22.12611***

Note: * , ** and *** indicate statistical significance at 1%, 5% and 10%

Appendix D: Literature Review

Paper	Sample	Variables	Method	Main findings
Oueslati Tayssir Ouerghi Feryel (2018)	22 developed, 34 emerging and 33 developing countries (1980-2010)	Financial structure, financial openness, inflation, FOREX, interest rate, transparency and legal independence, assets, public debt, institution variables(rule of law, regulations and democracy index)	GMM	Significant influence of central bank and monetary policies on the fluctuation of the level of FD. Legal, real independence and transparency of the central bank important in improving FD especially for developed countries.
Sami Ben Naceur Mondher Cherif Magda Kandil (2014)	12 MENA countries (1960-2006)	Bank development, stock market development, inflation, saving rate, interest rate, government size, openness, institution quality (corruption, bureaucracy, democracy and law) and FD	Univariate analysis, multivariate analysis, fixed effects and random effects	Results send strong signals regarding the role of macroeconomic fundamentals and institutional quality in promoting financial sector development.
Vilma Deltuvaitė Lina Sinevičienė (2014)	EU countries (2000-2011)	Private credit to GDP, stock market capitalization to GDP, non-life insurance premium volume to GDP ratio, life insurance premium volume to GDP, pension fund assets to GDP, mutual fund assets to GDP and GDP per capita	Hierarchical cluster analysis and Spearman's correlation coefficient	Positive statistically significant monotonic relationship between economic growth and FD in the EU countries exists.
Jose L.Ruiz (2018)	Industrialized (32) and Developing economies (84) (1991-2014)	Bank private credit to GDP, domestic credit to the private sector, real GDP per capita, government expenditure, gross capital formation, exports, imports, inflation, domestic credit to the private sector and population growth	Fixed effects	Countries below the finance threshold grow less and those above grow faster.
Dilek Durusu-Ciftci M. Serdar Ispir Hakan Yetkiner (2017)	40 selected countries with both credit and stock markets (1989-2011)	Bank credit, credit issued to the private sector, stock market development, real GDP per capita and population growth rate	Panel AMG and Common-Correlated effects	FD plays a role in economic growth. Government needs to take measures to foster the development of financial sector to accelerate economic growth.
Nahla Samargandi Jan Fidrmuc Sugata Ghosh (2015)	52 middle income countries (1980-2008)	Growth rate of real GDP, population growth, openness to trade, government expenditure, fixed capital formation and bank-based financial proxies	Panel ARDL model, PMG estimator and dynamic fixed effects	FD and economic growth are negatively associated in the long run. Existence of an inverted U shape in the finance–growth nexus.

Siong Hook Law Nirvikar Singh (2014)	87 developing and developed (1980-2010)	Economic growth, investment, FD, GDP, population growth and human capital	GMM	More finance is definitely not always better and it tends to harm economic growth after a point.
Dimitris K.Christopoulos Efthymios G.Tsionas (2004)	10 developing countries (1970-2000)	Financial depth, investment and inflation	Unit root, panel cointegration and VECM	No short run causality between financial deepening and output.
Kaouthar Gazdar Mondher Cherif (2015)	18 MENA countries (1984-2007)	GDP growth, FD, macroeconomic stability, trade openness, government consumption, inflation, quality of bureaucracy, law and order, corruption, and democratic accountability	GMM	Institutional quality mitigates the negative effect of FD on economic growth.
Siong Hook Law W.N.W. Azman-Saini Mansor H.Ibrahim (2013)	85 countries (1980-2008)	FD, institutional quality, initial income per capita, investment- GDP ratio, population growth rates and human capital	Threshold regression approach	FD-growth nexus is contingent on institutions, promotes growth after institutions exceed a certain threshold level. Better institutional quality is potent in ensuring the effectiveness of FD in delivering long-run economic benefits.
Syed Hassan Raza Hina Shahzadi Misbah Akram (2014)	27 developed and 30 developing (1990-2012)	FD, population growth, , trade openness, FDI, government spending, democracy index and rule of law	Fixed effects model	Financial sector development is important as it makes available funds for the development of the country by efficient allocation of financial resources.
Jyh-Lin Wu Han Hou Su-Yin Cheng (2010)	13 EU countries (1976-2005)	Financial depth, financial system, domestic assets, stock market development, economic development, inflation and FOREX	PMG estimators and impulse response analysis	Long term equilibrium relationship among banking market development, stock market development and economic development.
Muhsin Kar Şaban Nazlıoğlu Hüseyin Ağır (2011)	15 MENA countries (1980-2007)	FD (narrow money to income, quasi money to income, M2 to income, deposit money bank liabilities to income, private sector credit to income and domestic credit to income) and economic growth	Bootstrap panel Granger causality analysis	Direction of causality between FD and economic growth is sensitive to the measurement of FD. It is both demand-following and supply-leading.
Thorsten Beck Hans Degryse Christiane Kneer (2014)	77 countries (1980-2007)	Financial sector size and growth, GDP growth by financial sector, education, inflation, government expenditure and trade openness	Pairwise correlation regression	Financial intermediation increases growth and reduces growth volatility, becomes weaker over time.

Zareh Asatryan Kristof DeWitte (2015)	2000 Bavarian municipalities (German state) (mid 2000's)	Direct democratic activity, initiative dummies, turnout rate, expenditure, population, revenue, social security contributions and voting population	Conditional efficiency model based on Free Disposal Hull	More direct democratic activity associated with higher government efficiency.
Ashkan Mohamadi Juhana Peltonen Joakim Wincent (2017)	59 countries (2008-2015)	Entrepreneurship, government efficiency, corruption, population, per capita GDP, unemployment, financial market development, FDI and trade openness	Fixed effects	Under less efficient governance the relationship between control of corruption and entrepreneurship is convex.
Antonis Adam Manthos D.Delis Pantelis Kammas (2011)	50 developing and developed countries (1980-2000)	PSE index, public administration efficiency, public infrastructure efficiency, public education efficiency, economic stabilization, economic performance, democracy, politics and military	Fixed effects	Positive relationship between the level of democracy and the efficiency of the public sector.
Andrzej Cieślik Łukasz Goczek (2018)	142 countries (1994-2014)	Trade openness, education, population, life expectancy, government consumption, investment rate, FDI, FOREX volatility, GDP, inflation, political stability and corruption	GMM	Corruption hampers growth through its impact on investment by diverting international investment. Corruption imposes significant costs on the economy.
Roland Beck Georgios Georgiadis Roland Straub (2014)	132 countries (1980-2005)	Private credit, stock market capitalisation, bank credit to depositors, financial sector assets, financial reform index, crisis dummy, value added share and household credit share	GMM	Finance has a positive effect on growth only up to a point; beyond this the positive marginal effect of finance on growth vanishes.
Emilios Galariotis Alexis Guyot Michael Doumpos (2016)	French municipalities (2000-2012)	Revenue compositions, costs and expenditures, financing abilities and debt burden and tax rates.	Fixed effects	Debt is important for economic and financial performance. Municipalities in wealthier departments are less efficient.
Carl Henrik Knutsen (2013)	45 Sub-Saharan African states (1972-2004)	GDP, freedom house index, bureaucratic quality index, regime duration, population, religion dummies and colonial dummies	OLS PCSE and GMM	Democracy's effect on growth is higher when level of state capacity is lower. It may mitigate economic advantage of autocracies.
Giorgio d'Agostino J. Paul Dunne Luca Pieroni (2016)	106 countries (1996-2010)	Investment, corruption measures, political stability, regulation quality, trade openness, time and regional dummies	Fixed effects GMM	Combating corruption is likely to directly increase aggregate economic performance and have an indirect effect of reducing the negative impact of military burden.

Arusha Cooray (2011)	71 developed and developing countries (1990-2005)	Financial sector size and efficiency, government size, quality governance index, share of private investment, human capital, religious fractions and colonial dummy	OLS	Government sector size and quality are important for financial sector efficiency; however, government quality matters more than the size of the government sector for financial sector size.
Péter Benczúr Stelios Karagiannis Virmantas Kvedaras (2018)	Selected OECD, EU and EMU countries (1990-2014)	Spilt financing by source, credit by banks to the private non-financial sector, outstanding debt securities, market capitalization, private credit for households, GDP per capita, inflation, education, government expenditure and trade openness	GMM estimators	Further financial deepness and a better structure would promote economic growth.
Ibrahim Muhammad Muye Ibrahim Yusuf Muye (2017)	3 economic blocs (1984-2013)	Financial sector development (market and bank), GDP, institutional quality, globalization, corruption, rule of law and bureaucratic quality	Panel cointegration DOLS, FMOLS, PMG and panel VECM causality	Both the institutional quality and globalization variables are significant factors that influence the long run behaviour of the financial sector.
Lorenzo Ductor Daryna Grechyna (2015)	101 developed and developing countries (1970-2010)	FD (private credit and liquid liabilities), real sector, GDP, government expenditure, trade openness, inflation and human capital	GMM	Inverted U-shape between FD and economic growth.
David Hauner Annette Kyobe (2010)	114 countries (1980-2004)	Government efficiency (PSP, PSE and DEA), health and education expenditure of the general government, income, inflation, democracy, corruption and population density	Fixed effects, random effects and GMM	First to analysis determinants of government efficiency with a large country panel. Efficiency declines with the level of spending. Benefits of improving institutions extend from economic growth and FD, to government efficiency.
U. Michael Bergman Michael M. Hutchison Svend E. Hougaard Jensen (2016)	27 EU countries (1990-2012)	Cyclically-adjusted primary balance, fiscal rule strength index and government efficiency	Dynamic panel regression and GMM	Strength of fiscal rules and also the efficiency of government may affect the sustainability of public finances in European Union countries.

Shrabani Saha Rukmani Gounder Jen-Je Su (2009)	100 countries	Corruption index, economic freedom, democracy, RGDP, GINI index, unemployment and adult literacy	PLS and Fixed effects	Interaction effect of democracy and economic freedom has a significant impact on controlling corruption.
Berrak Bahadir Neven Valev (2015)	45 countries (1970-2004)	Credit, bank credit, liquid liabilities, GDPC, inflation, trade openness, government spending, legal system, ICRG index and corruption.	Fixed effects and time dummies	Convergence present after controlling for quality of institutions. Institutions are the most important fundamental determinant of FD. Levels of FD across countries become more similar over time despite differences in institutions.
Salvador Rivas Aceves Chiara Amato (2017)	40 developed and emerging countries (2000- 2007) (2007-2013)	GDP growth, lending rate, central government debt, financial freedom, fiscal freedom, financial depth, market capitalization and gross capital formation	OLS	Financial sectors are linked, inefficiency negatively effects growth. For economic growth, marginal product of capital must always be higher than its yield. High returns from stock markets decrease the econ growth.
Siong Hook Law Ali M.Kutan N.A.M. Naseem (2018)	87 devloping and developed countries (1984-2014)	FD, institution quality, RGDP, population growth, investment, human capital, trade openness, inflation, government consumption and PRS index	GMM	Financial curse occurs when institutions are weak. Institutions play an important role in the FD-growth nexus. Findings support that FD is embedded within sound institutional quality.
Abdulsalam Abubakar Salina HJ. Kassim Mohammed B. Yusoff (2015)	ECOWAS (1980-2011)	FD indicators (broad money, domestic and bank credit), human capital, FDI, government expenditure and inflation.	Unit root, cointegration, causality, FMOLS and DOLS	Financial intermediation encourages accumulation of human capital. Implies that policies that encourage financial deepening will promote economic growth.
Dalia Simion Marieta Stanciua Sabin Armaselu (2015)	Romania (1994-2012)	Stock market capitalization, turnover of the capital market, (structure, efficiency and stability of financial sector), domestic credit, loan rate and growth of broad money.	Correlation and regression	Financing refers to the procurement and allocation of resources at both micro and macro level. Increase growth of capitalization grants and domestic credit growth will lead to economic development.

George Adu George Marbuah Justice Tei Mensah (2013)	Ghana (1961-2010)	RGDP, employment, capital stock, government expenditure, trade openness, inflation, and several FD indicators.	ARDL	Growth effect of FD is sensitive to the choice of proxy used.
Yu Wang Liwei Cheng Hao Wang Liangyu Li (2014)	73 countries (2000-2008)	Legal rights index, GDP per capita, regime dummy variables, OFDI, investments, FD and human capital,	GMM and PTM	Strong promoting effect of economic development on OFDI begins when control variables reach a certain range.
Vilma Deltuvaitė Lina Sinevičienė (2014)	EU countries plus China, Iceland, Japan and the US.	Financial structure index (market, bank and both based), GDP, private credit, market capitalisation, private bond market and public bond market capitalisation.	Hierarchical cluster analysis, descriptive statistics and correlation analysis	Banking sector and financial markets are better developed where level of economic development is higher.
K.C.Chen Lifan Wu Jian Wen (2013)	28 provinces (1978-2010)	GDP, inflation, fixed asset investments, total bank deposits, total bank loans, real capita income and the share of the state sector to total industrial output.	Threshold regression model OLS	Positive financial impacts are on advanced provinces, negative impacts are on less-developed provinces, high-income provinces have a positive finance–growth relationship.
M. Kabir Hassan Benito Sanchez Jung-Suk Yu (2011)	168 countries (1980-2007)	GNI per capita, domestic credit by bank, M3, gross domestic savings, trade, government expenditure and inflation.	panel regression, VAR and Granger causality	Low initial GDP per capita level is associated with a higher growth rate and a well-functioning financial system may boost economic growth in these countries.
Patricia Funk Christina Gathmann (2013)	331 federal ballots held in Switzerland (1950-2000)	Population density, urbanization, unemployment rate, income, religion, fiscal policy and political system.	Canton-level panel data	Stronger direct democratic institutions are more conservative institutions. Voter preferences and direct democratic institutions have independent effects on fiscal policy and the size of government.
U. Michael Bergman Michael M.Hutchison Svend E. Hougaard Jensen (2016)	27 EU countries (1990-2012)	Government efficiency, fiscal solvency, debt level, dependency ratio, CPI, population, degree of openness, political variables and dummy variables.	Dynamic panel regression and GMM fixed effects	Stronger national fiscal rules associated with more sustainable fiscal policies, effect holds over a large spectrum of government efficiency characteristics, policy transparency and policy commitment.

Chiung-Ju Huang (2016)	13 Asia-Pacific countries (1997-2013)	Corruption perception index, economic growth and economic freedom	VECM, bootstrap panel Granger causality analysis and GMM	There is limited value for Asian-Pacific countries to adopt anti-corrupt policies as the means to promote economic development.
Michael Jetter Alejandra Montoya Agudelo Andrés Ramírez Hassa (2015)	155 countries (1998-2012)	Corruption perceptions index, political regime type, GDP, freedom of the press, democracy, imports, government size, inflation rates, investment, trade openness, population and education levels	OLS and two-way fixed effects	Income levels drive the nonlinear relationship between democracy and corruption. In richer countries democracy reduces corruption, vice versa for poor countries.
Andrzej Cieślik Łukasz Goczek (2018)	142 countries (1994-2014)	Trade, education, population, government consumption, investment rate, FOREX volatility, GDP, inflation, corruption and political stability	GMM,	Corruption directly hinders economic growth by hampering investment.
Michael Jetter Christopher F.Parmeter (2018)	123 countries (2001-2010)	Corruption index, government size and efficiency, democracy, political rights, rule of law, federal system, trade openness, GDP, FDI, urbanization, education, population, religion and colonialism	BMA and IVBMA	Distinct economic and institutional characteristics are main drivers of corruption, whereas deeply rooted cultural, historical, and geographical aspects remain largely irrelevant.
Ibrahim Muhammad Muye Ibrahim Yusuf Muye (2017)	BRICS and MINT countries (1984-2013)	FD, RGDP, real irate, globalization and institution quality (rule of law, corruption and bureaucracy quality)	Panel cointegration, DOLS, FMOLS, PMG, VECM and causality	Effect of globalization on FD is more significant on the stock market than the banking sector in the BRICS and MINT countries.