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Finance and Long-Run Growth: The Role of Formal and Informal Institutions

Summary: The paper aims to empirically analyze the effect of the quality of the formal institutional environment and social capital on financial development and long-run economic growth for a sample of developed and developing countries using the Generalized Method of Moments (GMM) for the period spanning from 1980 to 2009. The author sets out to find out if there is a synergetic effect between financial sector development and: *first*, formal institutional aspects measured by the institutional environment quality index, *second*, informal institutional aspects measured by the level of social capital in society. The article examines if the qualities of formal institutions as well as the level of confidence and cooperation between individuals are important to promoting financial sector and consequently long-run economic growth.

The main results of the model are that (i) the development of formal institutions with a higher level of general institutional quality has a positive impact on long-run economic performance through the development of financial markets; (ii) the effect of financial sector development on long-run economic growth also depends on the state of informal institutions with a higher level of trust between individuals.

Keywords: financial development, institutions, social capital, economic growth

JEL classification codes: O16, O17, O43, Z13

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Introduction

The past decade has witnessed a resurgence of academic work on the effect of financial development on economic growth. However, the debate is not

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new since it can be traced back to Bagehot [1873] and Schumpeter [1912], who stressed the importance of the banking sector in providing the funds necessary for economic growth. The analysis of this theoretical consideration was later followed by several notable contributions, especially those from Gurley and Shaw [1955], Patrick [1966], and Goldsmith [1969], who offered a more consistent contribution to the debate by more accurately defining the role of financial intermediation in the economy.

This kind of analysis was extensively developed during the 1970s by McKinnon [1973] and Shaw [1973], both of whom stressed the positive effect of financial market liberalization and its influence on economic growth. Specifically, they asserted that government quantitative restrictions on the banking system restrain the volume and productivity of investments, and impede the process of economic growth. As a consequence, they recommended that the financial system be liberalized to increase the volume and productivity of investments.

However, the failure of certain financial liberalization experiences in some developing countries raised the skepticism of economists as well as policymakers about the aptitude and efficiency of these financial liberalization policies. Indeed, in many countries, banking sectors experienced many problems after the beginning of financial deregulation (Sheng [1995], Caprio and Klingebiel [1996]).

The most recent approaches highlight the importance of the development of the institutional environment in promoting financial system stability (La Porta *et al.* [1997, 1998], Barth *et al.* [2002], Acemoglu *et al.* [2002]). According to this literature, in countries with a less well developed institutional environment, financial reforms may exert adverse effects on the financial systems and economic growth. Another new factor that has been pinpointed by the recent literature, considered as the natural complement of the institutional environment, is the quality of social capital in individual countries.

This sociological concept has been adopted by political scientists (Putnam [1993] and Fukuyama [1995]) and especially by development economics. In this latter field, it has become widely accepted that a higher level of cooperation and confidence between individuals in a country, considered as the main determinant of social capital, improves not only the capabilities of individual agents, but also the overall economic performance (Temple and Johnson [1998], Knack and Keefer [1997], Durlauf [2002], and Dasgupta [2005]).

An extensive amount of theoretical and empirical investigations have been conducted to confirm the importance of this sociological concept in the development of economic performance because it contributes to a reduction in transaction costs (Knack and Keefer [1997]). Moreover, social capital has a positive effect on the development of financial markets because it encourages individuals to have more access to credit, increase their participation in the stock market and reduce their reliance on informal sources of finance (Guiso, Sapienza and Zingales [2000]). Social capital may also encourage individuals to respect financial contracts with their partners (Caldéron, Chong and Galindo [2001], and Hong, Kubik and Stein [2001]).

Despite the volume of empirical investigations on the effects of social capital on economic activity, few studies have focused on estimating the effect of social capital and institutional quality, *first*, on financial development and, *second*, on long-term economic growth. For this reason, we will try to find out if the effect of financial sector development on long-run growth depends on the formal institutional aspects measured by the institutional environment quality index and informal institutional aspects measured by the level of social capital in society. In other words, we will examine if the quality of formal institutions as well as the level of confidence and cooperation between individuals are important to promoting the financial sector and consequently long-run economic growth.

The aim of the paper is, specifically, to test empirically the effect of formal and informal institutional quality, measured by the level of social capital on financial development and long-run economic growth for a sample of developed and developing countries for the period spanning from 1980 to 2009 using a GMM-system method.

The main results of the paper are as follows:

- (i) the effect of financial sector development on long-run economic growth depends on the state of informal institutions with a higher level of trust between individuals;
- (ii) the development of formal institutions, with a higher level of general institutional quality, also has a positive impact on long-run economic performance through the development of financial markets.

The paper is organized as follows: the first section discusses the latest theoretical and empirical contributions to the debate. The second section focuses on the empirical methodology and on the different results of the paper. The third section will analyze the robustness of the results, and finally conclusions will follow.

Theoretical and empirical debate

A large body of literature has emerged, at both the theoretical and empirical levels, attempting to explain the relationship between financial development and economic growth. The debate shows that financial development/repression has positive/negative effects on economic growth through its impact on factor accumulation. An efficient financial system allocates funds to investment activities that yield the highest return (Greenwood and Jovanovic [1990]).

Bencivenga and Smith [1991] argue that the development of financial intermediation can eliminate liquidity risks and liquidity provision. In the same context, Saint-Paul [1992] proposes that the development of financial market activities can allow individuals to choose more productive technology and diversify their investment portfolio to insure themselves against risks. Other researchers argue that the effectiveness of financial intermediation in promoting economic growth depends on the quality of institutions.

La Porta *et al.* [1997, 1998, and 1999] find that the legal system plays a crucial role in promoting the development of financial institutions and

economic growth. They argue that weak contract enforcement creates incentives for default by debtors and increases the insolvency of the banking sector. Likewise, a higher level of corruption or political interference can divert credit to unproductive activities. In this context, the development of the institutional environment can improve the effectiveness of financial systems and promote economic growth. Another new factor that has been pinpointed by recent research reports, considered as the natural complement of the institutional environment, is the quality of social capital in individual countries.

The past decade has seen many investigations on the concept of social capital and its relationship with economic performance. For example, Putnam [1995] defines social capital as *“features of social life such as networks, norms, and trust that enable participants to act together more effectively to pursue shared objectives”* (p. 1). In this context and according to this view, social capital is a virtue of nations whereby individuals obey law, choose their leaders in a democratic way and show high levels of cooperation. Moreover, social capital can improve not only the capabilities of the different agents, at an individual level, but also the general economic performance at the aggregate level.

An extensive amount of empirical investigations have been conducted to test the importance of social capital in the development of economic performance and the development of the financial market. Knack and Keefer [1997] found that civic norms and trust are positively and significantly correlated with economic growth in a sample of 29 countries. According to Knack and Keefer [1997], lower trust can discourage innovation because entrepreneurs must devote more time to monitoring possible malfeasance by partners, employees and suppliers, while spending less time on innovation in new products or processes.

Therefore, an individual in a society with a high level of trust and civic cooperation standards spends less time protecting themselves from being exploited in economic transactions and devotes less time to diverting resources with a view to protecting them. In this case, the costs of monitoring and enforcing contracts are likely to be lower, raising the payoffs to many investments and other economic transactions.

La Porta, López de Silanes, Shleifer and Vishny [1997] found that the revenues of the 20 biggest firms as a percentage of GDP per capita are also positively correlated with the level of trust in people. Zak and Knack [2001] added other countries to the first sample used by Knack and Keefer [1997] and found that trust is higher in countries with more effective and functioning institutions.

Moreover, in a recent and original study, Guiso, Sapienza and Zingales [2000] examined the relationship between financial development and social capital. Their basic intuition is that *“...One of the mechanisms through which social capital impacts economic efficiency is by enhancing the prevailing level of trust ... Since financial contracts are the ultimate trust-intensive contracts, social capital should have major effects on the development of financial markets”*, (p. 527).

In fact, Guiso, Sapienza and Zingales [2000] found that the measures of trust and financial development proxies are highly correlated. Specifically, their

study of the north and south of Italy showed that in regions with high levels of trust, individuals have more access to credit, more participation in the stock market and less resort to informal sources of finance. Caldéron, Chong and Galindo [2001] extended the empirical analysis to cover a set of countries and found evidence of a significant correlation between higher levels of trust with financial deepening ratios and more developed stock markets, after controlling for human capital formation and law enforcement quality.

It appears that, in a country-specific analysis as well as at cross-country level, trust is found to be a significant determinant of financial sector development. In fact, financing activity is reduced to granting loans with a promise to pay back the incurred amounts. The success of the financing operation will depend not only on institutional aspects (law enforceability, the quality of bureaucracy) but also on the degree of trust prevailing between the partners. In other words, the respect of the financial contract established between the *financer* and the *finanee* depends, to a large extent on the attitude of individuals to trust others. If the *finanee* exchanges money with the financer with an implicit intention to not reimburse anything in the future, the use of financial contracts will be reduced, and this fact may entail bank insolvency and eventually lead to general financial fragility.

For Caldéron, Chong and Galindo [2001], a low level of trust can exacerbate different kinds of risks and they conclude that “*the perceived probability of misbehaviour on the borrower’s behalf can be higher than there is high trust*” (p. 8). They measured social capital by indicators such as electoral participation and blood donation and concluded that these indicators are significantly correlated with indicators of financial development. In another work, Hong, Kubik and Stein [2001] found that, in the United States, people who “*know their neighbours*” tend to have higher participation in the stock market.

Empirical Investigation

Our objective consists of investigating empirically the effect of formal institutional quality and social capital on financial development and long-term economic growth for a sample of 89 developed and developing countries. We apply a dynamic panel using data from the period spanning from 1980 to 2009. The approach uses a GMM-system estimator that contains both first-differenced and levels equations as developed by Arellano and Bond [1991], Blundell and Bond [1998, 2000], and Arellano [2003]. We, *first*, eliminate the unobserved country-specific effects through the equations in first-differences, and, *second*, control the endogeneity of the explanatory variables.

The estimated equation is as follow:

$$Y_t^i - Y_{t-1}^i = (\alpha - 1)Y_{t-1}^i + \beta' X_t^i + \eta_i + \varepsilon_t^i. \quad (1)$$

Where $Y_t^i - Y_{t-1}^i$ is the logarithm of the annual real GDP *per capita* in country i in year t , X_t^i is a set of explanatory variables, including the ratio

of investment to GDP (INV_t^i), the population growth rate (POP_t^i), η_i captures unobserved country-specific effects, and ε_t^i is an error term. In equation (1), we include other explanatory variables, which are the initial level of real GDP *per capita* (Y_0^i), the liquid liabilities to GDP indicators (LLY_t^i), and an interactive variable between the financial development indicator and either the trust index¹ as proxy of the social capital indicator ($Trust_t^i$) or the general institutional environment quality index² (IQ_t^i).

To eliminate the country-specific effect, we will take the first difference from equation (1):

$$\Delta Y_t^i - \Delta Y_{t-1}^i = (\alpha - 1)(Y_{t-1}^i - Y_{t-2}^i) + \beta'(X_t^i - X_{t-1}^i) + (\varepsilon_t^i - \varepsilon_{t-1}^i). \quad (2)$$

In order to resolve the endogeneity problem that may occur in equation (2), we will use in the GMM method the lagged levels of the explanatory variables as instruments. The following moment conditions are used to calculate the difference estimator:

$$E[Y_{t-s}^i(\varepsilon_t^i - \varepsilon_{t-1}^i)] = 0 \text{ for } s \geq 0; t = 1, \dots, T, \quad (3)$$

$$E[X_{t-s}^i(\varepsilon_t^i - \varepsilon_{t-1}^i)] = 0 \text{ for } s \geq 0; t = 1, \dots, T. \quad (4)$$

The equation in levels uses the lagged differences of the explanatory variables as instruments under two conditions: *first*, the error term is not serially correlated and, *second*, the explanatory variables are uncorrelated with the future realization of the error term. Therefore the stationary properties are as follow:

$$E[Y_{t+p}^i \eta_i] = E[Y_{t+q}^i \eta_i] \text{ and } E[X_{t+p}^i \eta_i] = E[X_{t+q}^i \eta_i] \text{ for all } p \text{ and } q. \quad (5)$$

The additional moment conditions for the regression in levels are:

$$E[(Y_{t-s}^i - Y_{t-s-1}^i)(\eta_i + \varepsilon_t^i)] = 0 \text{ for } s = 1, \quad (6)$$

$$E[(X_{t-s}^i - X_{t-s-1}^i)(\eta_i + \varepsilon_t^i)] = 0 \text{ for } s = 1. \quad (7)$$

In summary, the GMM system estimator is obtained using the moment conditions in equations (3), (4), (6), and (7). Following Blundell and Bond [1998], we use the Sargan test to check for the validity of the instruments. The

¹ Social capital measured by the level of trust is computed as the percentage of individuals who trust other people and is extracted from the *World Value Survey* (WVS).

² The institutional environment quality index is a composite measure of other institutional environment indicators which are: voice and accountability, political stability and absence of violence, government effectiveness, and regulatory quality, rule of law and control of corruption. High values of all these sub-institutional indices reflect an improvement in the quality of the institutional environment and better governance in the economy.

sources of the variables used in the model are the Penn World Table [2011] (PWT), Thorsten Beck's financial development database [2010], Kaufman, Kraay and Zoido-Lebaton's institutional indexes, and the World Value Survey (WVS) database of the World Bank. The different regression of equation (1) using the GMM system method, carried out in Table (1), shows a negative and significant effect of financial development on economic growth.

Table 1
Financial Development, Trust, Institutional Environment Quality and Economic Growth

	Regression 1	Regression 2
Constant	-9.789*** (-2.93)	-10.951*** (-3.30)
Yi (Log)	-0.937*** (-3.02)	-0.535* (-1.76)
INVY (Log)	4.954*** (6.07)	5.938*** (8.07)
POP (Growth rate)	-0.269 (-1.34)	-0.629*** (-3.94)
LLY (Log)	-2.601*** (-3.89)	-1.620*** (-4.29)
Trust* LLY (Log)	1.554*** (2.77)	-
IQ*LLY (Log)	-	0.790*** (2.91)
Observations	1138	1344
Sargan test	676.45***	666.02***

Note: The dependent variable is the annual real GDP per capita growth rate; * and *** represent 10% and 1% significance levels respectively; figures in parentheses are absolute values of t statistics.

Source: own results

Such a result is not new in the empirical literature, especially when it comes to developing countries (De Gregorio and Guidotti, [1995]; Bethélemy and Varoudakiss, [1995], and Boulila and Trabelsi, [2004]), and could be due to instability and massive government intervention in these countries' financial systems.

In regression (1) of Table (1), we introduced an interactive variable of financial development and social capital (Trust). The result of the regression shows that the coefficient becomes positive and significant at the 1% level for both indicators of liquid liabilities to GDP. This result shows that financial development can have a significant effect on growth only through a high level of confidence between individuals in a society. In other words, the positive effect of financial development on economic growth in the long run is determined by the presence of a healthy social climate with a high level of trust and cooperation among economic agents.

In the same field we tried to test empirically the relationship between the quality of formal institutions, financial development and economic growth in

the long run. The estimation results presented in regression (2) of Table (1) confirm the positive effect of institutional quality as measured by the IQ index on financial development and long-term economic growth.

In sum, the above results show a coherent set of findings: improved formal and informal institutional quality leads to greater financial development and long-term economic growth for a sample of developed and developing countries. These findings are consistent with the view that a healthy social environment with a high level of trust and cooperation among individuals helps develop a sustainable financial system where individuals respect the rules, share information and reimburse their financial commitment. On the other hand, a good institutional environment with a high level of control and better regulation encourages people to behave in the right way and respect rules; it also influences their decision on whether or not to engage in corrupt activities. Corruption is likely to be particularly strong in a society where institutional regulation and government control are highly valued. To analyze in depth the complementarity between institutional quality and social capital, we will try to examine whether the positive relationship between institution, trust, financial development and economic growth remains valid for a group of countries with a strong institutional environment and another group with a weak institutional environment.

The approach uses the World Bank indicator of governance measured by the control of corruption index defined by “the degree to which corruption is perceived to exist among businesses, public officials and politicians”. A high percentile rank indicates a strong institutional environment in a country, while a low percentile rank shows that a country has a weak institutional environment³.

In regression (3), Table (2), equation (1), we will use as explanatory variable the interactive variable of financial development and social capital measured by the “trust index”. The result of the regression shows that the coefficient of the interactive variable is positive for the group of countries with a strong institutional environment; however it is negative for the group of countries with a weak institutional system. This result supports the view that countries with strong institutions build mutual trust between individuals and the regulatory

³ Using the World Bank database, the following are classified as countries with a high level of control of corruption: Australia, Austria, Belgium, Canada, Chile, Cyprus, Denmark, Estonia, Finland, France, Germany, Hong Kong, Iceland, Ireland, Japan, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Portugal, Singapore, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, the United States, and Uruguay.

Countries with a medium and low level of control of corruption: Albania, Algeria, Argentina, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Brazil, Bulgaria, China, Colombia, Croatia, the Czech Republic, the Dominican Republic, Egypt, El Salvador, Ethiopia, Georgia, Ghana, Greece, Hungary, India, Indonesia, Iran, Italy, Jordan, South Korea, Kyrgyzstan, Latvia, Lithuania, Macedonia, Malaysia, Mali, Mexico, Moldova, Morocco, Nigeria, Pakistan, Peru, the Philippines, Poland, Puerto Rico, Romania, Russia, Rwanda, Saudi Arabia, Serbia, Slovakia, South Africa, Tanzania, Thailand, Trinidad and Tobago, Turkey, Uganda, Ukraine, Venezuela, Vietnam, Zambia, and Zimbabwe.

authorities, promote transparency, positively influence the development of the financial system and long-term economic growth. Similarly, the convergence hypothesis is respected in the model. The coefficient of the initial real GDP per capita is negative and significant at 1% level of confidence, which is consistent with the work of Mankiw, Romer and Weil [1992].

Investment remains a robust driver of long-term economic growth. The results in Table 2 show that the coefficient of investment is positive and significant at 1% level of confidence for the two groups of countries and the financial development indicator measured by the ratio of liquid liabilities to GDP.

Table 2

Financial development, trust, institutional environment and economic growth by group of countries

	Regression 3		Regression 4	
	High control of corruption	Medium & low control of corruption	High control of corruption	Medium & low control of corruption
Constant	6.803** (1.89)	-3.041 (-0.76)	-2.256 (-0.66)	-3.221 (-0.76)
Yi (Log)	-1.748*** (-4.91)	-1.311*** (-4.82)	-1.167*** (-3.81)	-0.685** (-1.97)
INVY (Log)	3.512*** (5.25)	5.844*** (6.38)	5.027*** (8.34)	3.884*** (4.54)
POP (Growth rate)	-0.286* (-1.74)	-0.682*** (-2.77)	-0.080 (-0.55)	-0.901*** (-4.12)
LLY (Log)	-1.185*** (-3.67)	-0.396 (-0.44)	-1.708*** (-4.25)	-0.268 (-0.58)
Trust* LLY (Log)	0.454 (1.38)	-0.393 (-0.60)	-	-
IQ*LLY (Log)	-	-	0.972*** (3.08)	-0.008 (-0.03)
Observations	520	618	698	646
Sargan test	801.53***	600.48***	988.47***	373.90***

Note: The dependent variable is the annual real GDP per capita growth rate; *, ** and*** represent 10%, 5% and 1% significance levels respectively; figures in parentheses are absolute values of t statistics.

Source: own results

In regression (4), Table (2), equation (1), we will use the interactive variable of financial development and the quality of institutional environment as an explanatory variable. The result confirms the importance of good institutional quality to the development of the financial system and long-term economic growth. The coefficient of the interactive variable of financial development and institutional quality is positive and significant at 1% level of confidence for the group of countries with high control of corruption. However, the coefficient of the interactive variable is negative and not significant, in some cases positive, for the group of countries with low control of corruption.

Robustness Analysis

To test the robustness of our results, which address the relationship between social capital, financial development and economic growth in the long run, we tried to estimate the equation given by:

$$Y_t^i - Y_{t-1}^i = (\gamma - 1)Y_{t-1}^i + \lambda' V_t^i + \eta_i + \varepsilon_t^i. \quad (8)$$

Where $Y_t^i - Y_{t-1}^i$ is the logarithm of the annual real GDP *per capita* in country i in year t , V_t^i including the list of explanatory variables, which are the initial level of real GDP per capita (Y_0^i), the liquid liabilities to GDP indicators (LLY_t^i), and an interactive variable that alternately refers to the social capital indicator measured by the trust index ($Trust_t^i$) and to the general institutional environment quality index (IQ_t^i); ε_t^i is an error term and η_i captures unobserved country-specific effects.

In regression (5), Table 3, equation (8), we will use the trust index as an interactive variable. The use of the GMM system method for the 1980-2009 period shows that the presence of a healthy social climate with a high level of trust and cooperation among economic agents, as measured by the trust index, has a positive influence on long-term financial development and growth. Similarly, we see that the convergence hypothesis is respected in the model. In other words, countries that initially have low per capita income tend to grow faster than high-income countries. This result is justified by the negative correlation between the real GDP per capita growth rate and the initial real GDP per capita, and is consistent with the work of Mankiw, Romer and Weil [1992].

Table 3
Trust, institutional environment, and financial development

	Regression 5	Regression 6
Constant	4.984* (2.40)	-2.718 (-1.09)
Yi (Log)	-1.067*** (-3.38)	0.495** (1.92)
LLY (Log)	-2.797*** (-4.10)	-0.644* (-1.77)
Trust* LLY (Log)	2.037*** (3.63)	-
IQ*LLY (Log)	-	0.256 (0.98)
Observations	1141	1351
Sargan test	681.63***	700.98***

Note: The dependent variable is the annual real GDP per capita growth rate; *, ** and *** represent 10%, 5% and 1% significance levels respectively; figures in parentheses are absolute values of t statistics.

Source: own results

This result remains robust with the institutional environment quality index. In regression (6), Table (3), equation (8), we will use the institutional environment quality index as an interactive variable. The result of the regression reveals a positive long-term relationship between the quality of the institutional environment, financial development and economic growth. Indeed, the coefficient of the interactive variable of financial development and the IQ index is positive. Therefore, developing the quality of formal institutions appears to be important to financial development and economic growth in the long run.

Conclusions

In this paper we tried to show the importance of the development of informal institutions, as measured by the indicator of social capital, and the importance of the development of formal institutions, as measured by the index of Kaufman and Kraay, to financial development and long-term economic growth for a sample of developed and developing countries during the period of 1980-2009.

The output of the regression using the generalized method of moments (*GMM System*) reveals two main results: *first* there is a positive relationship between social capital measured by trust, financial development and long-term economic growth. *Second*, there is a positive relationship between the quality of formal institutions, financial development and long-term economic growth.

These results are statistically robust. In addition, improvements in the quality of formal institutions such as rules and laws and in the quality of informal institutions such as the level of trust and cooperation among individuals in society also play an important role in the development of financial institutions and economic growth in the long run.

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FINANSE A DŁUGOOKRESOWY WZROST GOSPODARCZY – ROLA INSTYTUCJI FORMALNYCH I NIEFORMALNYCH

Streszczenie

Celem artykułu jest przeprowadzenie empirycznej analizy wpływu kapitału społecznego i jakości otoczenia instytucji formalnych na rozwój finansowy i wzrost gospodarczy, na podstawie próby krajów rozwijających się i rozwiniętych, w latach 1980-2009, przy wykorzystaniu metody uogólnionych momentów.

W artykule podjęto próbę przetestowania hipotezy o istnieniu efektu synergii pomiędzy rozwojem sektora finansowego oraz: *po pierwsze* z instytucjami formalnymi opisywanymi za pomocą indeksu jakości otoczenia instytucjonalnego; *po drugie* instytucjami formalnymi wyrażanymi za pomocą poziomu kapitału społecznego. Innymi słowy, podjęto próbę oceny czy jakość instytucji formalnych, a także poziom zaufania i kooperacji między członkami społeczeństwa są konieczne do promowania sektora finansowego a w konsekwencji wzrostu gospodarczego w długim okresie.

Zasadniczymi wynikami wynikającymi z przeprowadzonych analiz modelowych są: (i) rozwój instytucji formalnych wywiera pozytywny wpływ na efektywność gospodarczą w długim okresie, poprzez rozwój rynków finansowych; (ii) wpływ rozwoju sektora finansowego na wzrost gospodarczy zależy również od stanu instytucji nieformalnych oraz od podwyższonego poziomu zaufania wśród członków społeczeństwa.

Słowa kluczowe: rozwój finansowy, instytucje, kapitał społeczny, wzrost gospodarczy

Kody JEL: O16, O17, O43, Z1
