FINANCIAL INSTABILITY, FINANCIAL DEVELOPMENT AND POVERTY

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Abstract
There is a positive relationship between financial development and economic growth in short-run and long-run. Financial development is beneficial to the reduction of poverty. But the financial instability which accompanies financial development is is costly for the poor and reduces the positive effect of financial development on the reduction of poverty. The paper aims to analyze in detail the relationship and the (direct and indirect) effects between these variables, taking into account their economic and social importance. It is also highlighted the correlation between the financial economy and the real economy, emphasizing the impact on social welfare involved by the interaction of the above mentioned variables.

Keywords: *financial instability, financial development, poverty, economic growth, social welfare*

JEL Codes: E44, G01, E52

1.Economic cycles, financial instability and financial development

There is a strong link between economic cycles and financial instability: the peaks of business cycles are associated with financial instability.

If financial development is stable, its trend will have a low cyclical variability; therefore, high volatility of the cyclical component of financial development will lead to financial instability. For example, a large increase in the liquidity flow leads to a high variability of the cyclical component of the financial variable. The same situation can be observed in case of unexpected withdrawal of liquidity; these two phenomenons cause financial instability. So, the financial index is composed by both cyclical components and deterministic components. The financial instability indicator is the standard deviation of the cyclical component of the financial variable. When a cross country or an dynamic panel is taken into account, there can be calculated the standard deviation on the relevant periods. Financial instability is calculated as following [1]:

$$sFIN = \sqrt{Var(FIN^C)}$$

$$FIN = FIN^P + FIN^C$$

where $sFIN$ is the index of financial instability, FIN is the financial development variable, FIN^P is the trend component of financial development variable, FIN^C is the cyclical component of financial development variable.

Regarding the correlation between economic and financial indicators, there is a positive and significant correlation between all financial development variables and economic growth. The correlation between financial variables is often significantly positive and strong. Moreover, inflation rate is negatively correlated with economic growth and all financial variables. Therefore, the financial development indicators are positively correlated to economic growth while the financial repression measure (inflation rate) is negatively associated with growth. Lower income level countries have lower financial development indicators and higher income level have the greatest financial development indicators. Financial development indicators tend to increase by moving from low to high income countries. Since conditional convergence is a feature of cross-country data, the positive correlation between income per capita and financial development may suggest a negative relationship between financial development and economic growth.

To deepen the analysis of finance-growth relationship, it can be taken into account in the regression equation the instability of financial variables. So, each financial ha associated a development variable (the corresponding financial instability indicator). The basic growth regression may be represented as following [1]:

$$g_i = \alpha_0 + \alpha_1 \cdot (FIN)_i + \alpha_2 \cdot s(FIN)_i + \alpha_3 \cdot (EXO)_i + \varepsilon_i$$

where g_i is the growth of gross domestic product, $(FIN)_i$ is the indicator of financial development, which can be Commercial-Central Bank, Liquid Liabilities, Deposit Money Bank Assets or Private Domestic Credit; $s(FIN)_i$ is the financial instability index associated with the variable $(FIN)_i$; $(EXO)_i$ is a set of control variables; ε_i is the error term which is supposed to be independent and identically distributed. The financial effect on growth is therefore composed by: a) the positive effect of the financial variables and b) the negative effect of the financial instability variables. From this decomposition of the net impact of financial development on growth, it can be calculated the sum of the positive effect of financial variable and the negative effect of instability variable in the event of significant coefficients.

Therefore, the financial instability is positively associated with economic growth in most of the cases: financial instability reduces the economic growth. Therefore, financial instability lowers the contributional impact of financial development on economic growth. To investigate the impact of financial development and financial instability on economic growth, it is used the following equation [3]:

$$LGDPC = \theta_0 + \theta_1 LFD + \theta_2 IFL + \theta_3 LTGDP + \theta_4 LINV + \theta_5 PL + \varepsilon_t$$

Financial instability has also included in checking the hypothesis that financial instability has no impact on finance-growth link. This tends to extend our basic model that is being modeled in equation [3]:

$$LGDPC = \beta_0 + \beta_1 LFD + \beta_2 FNS + \beta_3 INF + \beta_4 LTGDP + \beta_5 LINV + \varepsilon_t$$

FD is the measure of financial development (credit to private sector as share of gross domestic product); FNS is the financial instability and it includes the inflation rate (IFL) as control variable, assuming that low inflation is a condition for sustainable economic growth; $TGDP$ is the trade openness (the sum between exports and imports as share of gross domestic product); INV represents the private investment (gross fixed capital formation); $GDPC$ is the real gross domestic product per capita (which measures economic growth).

The methodological framework is important for the economic policies, taking into account the ability of the financial sector to manage the economic growth during financial crisis; therefore, an accurate estimates of the determinants of economic growth an essential condition. The following equation verifies co-integration among macroeconomic variables, where x_t is the time series vector:

$$x_t = \{LGDPC, LFD, FNS, LTGDP, INF, LINV\}$$

where $y_t = GDPC$. This approach involves an unrestricted vector auto-regression:

$$z_t = \mu + \sum_{j-1}^{q} \delta_j z_t + \varepsilon_t$$

where $z_t = [y_t, x_t]$. μ is the vector of constant term, and $\mu = [\mu_y, \mu_x]$ is the indicating matrix of vector auto-regressive parameters for lag j, y_t and x_t are the two time series that can be integrated at either $I(0)$ or $I(1)$ or that can be mutually co-integrated. In this case y_t is the economic growth ($GDPC$), x_t is the time series vector, FD is the financial development, FNS is the financial instability, $TGDP$ is the trade openness, IFL is the inflation, INV is the private investment. $\varepsilon_t = [\varepsilon_{y,t}, \varepsilon_{x,t}] \sim N(0, \Omega)$ is the error terms vector, where Ω is definitely positive.

The coefficients of equation can be investigated by ordinary least squares and non existence of long run link among the variables. This can be tested by calculating the null hypothesis of $\beta_1 = \beta_2 = 0$. Under the hypothesis $\beta_1 \neq \beta_2 \neq 0$, the stable relationship in long run between the variables is:

$$y_t = \varphi_1 + \varphi_2 x_t + v_t$$

where $\varphi_1 = -\beta_0/\beta_1$, $\varphi_2 = \beta_2/\beta_1$ and v_t is a stationary process having zero mean.

Therefore, financial development helps the rise of the economic growth. Trade has positively correlated with the economic growth, the last being accelerated by the international trade. Openness of an economy increases access to advanced technology, which may result in positive spillover effects. Therefore, the availability of necessary inputs increases domestic output, which leads to a greater economic growth. Private investment is also positively correlated

with economic growth, because the rise in private investment leads to employment opportunities for both skilled and unskilled workforce, that determine the rise of the output and, therefore, the rise of the economic growth.

Financial instability is inversely correlated with economic growth. Financial crisis reduces the growth rate. The efficiency of financial sectors' capital is reduced by the financial instability, and so the financial system is performing negatively. Financial instability reduces the confidence of the investors, which causes private investment to decline, affecting the economic growth. Financial instability weakens the economic growth. The short run impacts of independent variables on the dependent one may be represented as following [3]:

$$\Delta LGDPC = \beta_1 + \beta_2 \Delta LFD + \beta_3 \Delta INF + \beta_4 \Delta LTR + \beta_5 \Delta LINV + ecm_{t-1} + \varepsilon_t$$

$$\Delta LGDPC = \delta_1 + \delta_2 \Delta LFD + \delta_3 \Delta FNS + \delta_4 \Delta INF + \delta_5 \Delta LTR + \delta_6 \Delta LINV + ecm_{t-1} + \varepsilon_t$$

Economic growth is positively influenced by the differenced lagged terms, which means that economic policies in previous periods are a key indicator for economic growth in future. On short-run, financial development is negatively associated with economic growth and is significant, meaning that financial development cannot be beneficial for the economic growth. Therefore, financial development may take time to stimulate economic growth. Financial instability is inversely and insignificantly related to economic growth. Inflation is inversely correlated with economic growth.

2.Measuring the poverty, financial development and financial instability

The determinants of poverty may be different between industrial countries and developing countries. Financial markets are much more developed in industrial countries; therefore, the level of financial development should not be measured by the same indicators in both types of countries. The determinants and consequences of financial instability are not the same in both types of countries.

There can be used two indicators of monetary poverty. The first one is the average per capita income of the poorest 20% of the population. The second one is the share of the population earning less than one dollar per day.

Other important variables are those of the financial development and financial instability, which are calculated as an average over five years (the year of the poverty measure and the four previous years). Three indicators of financial development have been used to study the impact of finance on economic development [3]: the ratio to gross domestic product of the liquid assets of the financial system, M3 (currency plus demand and interest-bearing liabilities of banks and non banks), and the ratio to gross domestic product of the value of credits granted by financial intermediaries to private sectors. The ratio to gross domestic product of the liquid assets of the financial system is related to the ability of financial systems to provide transactions services and saving opportunities. M3, by excluding credit to the public sector, has the advantage of measuring more accurately the role of financial intermediaries in channeling funds to productive agents and possibly to the poor. The ratio to gross domestic product of the value of credits granted by financial intermediaries to private sectors approximates the quantity and quality of the provided services to the financial intermediaries.

Usually, there are two indicators used in evaluating the instability of a variable. The first indicator is the standard deviation of the variable growth rate. The second indicator is the average absolute value of residuals obtained by regressing the variable on its lagged value and a trend [3]. Therefore, V^x is the indicator of the variable x instability, and g^x is the growth rate of x:

The standard deviation of g^x is:

$$V_1^x = \sqrt{\sum_{t=1}^{n} \frac{1}{n-1} (g_t^x - g^x mediu)^2}$$

The average of the absolute value of residuals is:

$$V_2^x = \frac{1}{n} \sum_{t=1}^{n} |\varepsilon_t|$$

ε_t is obtained by estimating the following equation:

$$x_t = a + b \cdot x_{t-1} + c \cdot t + \varepsilon_t$$

3.The impact of financial development and financial instability on poverty

There is a positive relationship between finance and growth at long-run against a negative link at short-run. The variation of financial development effect on economic growth between the short and long run is strongly connected with the financial fragility, which is measured by the occurrence of systemic banking crisis (number of years that country experienced financial crises) and the financial volatility (standard deviation of financial development growth). The effect of the financial fragility implies a reduced financial development effect.

The positive effect of financial development on economic growth is reduced because of the increase of financial instability. Financial development should be encouraged in order to favor the growth and the poverty reduction (taking into consideration stable macroeconomic policies, which mean that the financial opening would should progressive and the banks should be under a strict supervision).

The effects of financial liberalization can be decomposed in two parts: a direct effect on growth (positive effect) and an indirect effect through crises (negative effect). The the direct effects of financial liberalization on growth is greater than the indirect effects related to the strong propensity of crises.

Financial development may have a positive impact on the poors' income. First, because it boosts economic growth (indirect effect). Second, even if access to financial services for the poor is more limited than the access for the rest of the population, it may be improved by financial development (direct potential effect). These relations may be formalized as following:

$$Pv_{i,t} = \alpha_0 + \alpha_1 \cdot Log(y_{i,t}) + \alpha_2 \cdot Fd_{i,T} + \alpha_3 \cdot Fi_{i,T} + \alpha_4 \cdot Log(1 + Infl_{i,T}) + u_i + \varepsilon_{i,t}$$

where Pv is the indicator of poverty, y is the level of gross domestic product per capita, Fd is the level of financial development, Fi is the level of financial instability, $Infl$ is the inflation rate, u is an unobserved country-specific effect, ε is the error term, i is the country, t is the year of poverty and income measures and T is the period of measure of the other variables [4].

In addition, a model of strategic interactions can be used to capture the effects of the feedback between poverty and finance (finance is correlated with liquidity, and therefore to financial stability). Assuming that the government is concerned about social welfare but in the context of a dualistic economy, the utility of elite groups and vested interests is prioritised over the utility of poorer groups. Assuming that there are n agents in the interest group each with utility u_i assigned the weight a_v, and m poor agents in the excluded group whose utility u_k is weighted a_p, then the social welfare function will take the following form [2]:

$$W\left(u_1^v, \ldots, u_n^v, u_1^p, \ldots, u_m^p\right) = a^v \sum_{i=1}^{n} u_i + a^p \sum_{k=1}^{m} u_k$$

where $a^v > a^p$.

The government will maximize this subject to the financing constraints and this will be determined by the availability of finance in the economy.

4.Conclusions

The main conclusions of this paper can be illustrated as following: (a) financial development is benefical for the poor; (b) financial instability significantly affects the poor and bear the risk to cancel the benefit of financial development. The liquidity constraint applies mainly to the investments of poor people in physical and human capital and therefore progress in financial intermediation is beneficial to the poor as it offers opportunities for their savings. However, bank crises are particularly detrimental to the poor as the availability of their deposits is no longer ensured.

5.Bibliography

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