Financial deepening and Growth

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1. Introduction

In this paper I will argue that financial deepening and economic growth are positively related and the development of the financial sector could be growth enhancing if managed adequately. Firstly, I describe how to support financial deepening. Secondly I set out the positive relation between growth and financial development. Thirdly I describe the relation between financial crises and financial deepening, along with some plausible solutions. Finally I underpin the aforementioned positive relationship with evidence from India and an econometric model. This paper finishes with a conclusion and an appendix containing the data I used to create the model.

2. Supporting financial deepening

In line with the International Monetary Fund (2012), financial deepening is the multifaceted process through which financial markets provide services which enable the exchange of goods, services, savings and investments efficiently. Fitzgerald (2006, p.1) states that "financial development thus involves the establishment and expansion of institutions, instruments and markets that support this investment and growth process". Searching through the immense amount of literature regarding financial deepening, there is a common factor which promotes financial development: Economic liberalisation. It implies the dismantling of any source of financial repression, by this it means government control on the market, any type of rate ceiling, high reserve requirement and priority lending (Demetriades and Andrianova, 2004). Furthermore, as reported by the World Bank (2005) financial liberalization is likely to produce more financial resources than an economy whose financial system is being controlled excessively. However, such alteration has to be progressive, and with the proper institutional transformation. Along with economic liberalisation, comes, intrinsically, the fact that the industrial establishment has to accept it. Financial development comes with more transparency and the removal of capital barriers, which may well cause economic damage to the domestic and financial industry of a country that has not experienced such process before, in the sense that those businesses have to face more competition with other producers from abroad, threatening their benefits. (Demetriades and Andrianova, 2004)

3. The positive relationship between economic growth and financial deepening

According to Fitzgerald (2006), financial liberalisation improves the efficiency of financial institutions offering more choices to investors, diversifying their portfolio and reducing risks.

Having well supervised and structured institutions enable large pools of private savings, that otherwise would be left idle, to be introduced into the financial markets. As Berthelemy and Varoudakis (1996) indicate, a medium of exchange is needed for an economy to experience growth, and since financial deepening offers such channels through economic liberalisation, financial development and growth may well be connected positively. Furthermore, the mobilization of savings has to be implemented in conjunction with an efficient allocation thereof, which stimulates the creation of financial institutions.

3.1 Financial deepening and its relationship with growth models

Entrepreneurs not always have the funds to initiate a business; they need credit in order to start it. Conforming to the demand-following hypothesis formulated by Patrick (cited in Berthelemy and Varoudakis, 1996, p. 17) financial deepening appears as a result of an increase of demand in the real sector, evidencing a diversification of markets. As the real sector grows, so does the demand for financial services, which is followed by unblocking the resources in the traditional sector and mobilizing them into the modern sector, where they can be invested productively. An example of the demand-following hypothesis is the creation of the Bank of England, which was created in the 17th century in order finance the Nine Years' War due to large debts of the government. Upon its creation, the development of private banks followed, triggering the structure of the financial English system for a long period of time. (Saint-Paul, 1996). Taking into consideration the Harrod and Domar and Solow and Swan models of growth, financial deepening has a very special function by providing the savings into their equations. Both models rely on savings to promote growth, in the former, savings are a part of the purchase power which the holders decide not to spend, and make them available to fund new investments (Hunt, 1989) In the latter, savings equals investment, which is used to generate more profits and therefore capital accumulation initiates. Taking these facts into consideration, a positive relationship can be seen between financial deepening and two growth models which have been at the vanguard of economic policy. Without a solid banking and stock market structure to fulfil demand for funds, money does not flow, capital does not accumulate, investment is not performed, profits are not generated and growth does not occur because entrepreneurs and investors do not have capital.

3.2 Financial deepening and liquidity crises

Berthelemy and Varoudakis (1996) point out that financial deepening could help mitigate the effect of liquidity crises. As they indicate, some investments are highly illiquid, and they require some

time before generating profits. However, investors can be forced to sell their investment earlier if a liquidity crisis breaks out, which therefore has a negative impact on them. This uncertainty creates a demand for low yield liquid investment, discouraging more productive but illiquid assets. Financial intermediaries such as banks and stock markets reduce those risks as they enable exchanges between those who have suffered the loss and those who have not, making liquidity disruptions more manageable for the economy. Consequently, Berthelemy and Varoudakis (1996) hold the view that financial institutions fulfil a very important purpose, better managing liquidity crises, and consequently having a positive effect on growth.

3.3 Financial Deepening and productivity risks

Productivity risks support the existence of financial intermediaries such as banks and stock markets (Berthelemy and Varoudakis, 1996). Productive capital as a share of wealth increases through risk diversification, which in turn affects the rate of growth positively. Improving productivity involves selecting state of the art technology, but should a crisis ensue, investors might be highly vulnerable due to more specialized machinery. Berthelemy and Varoudakis (1996) argue that financial deepening enables the agents to diversify their investment, not just nationally, but internationally. Therefore growth might be stimulated due to the aforementioned investment allocation, allowing entrepreneurs to invest in more productive but riskier technology, knowing that financial markets exist to support them.

4. Financial crises and financial deepening

Financial developing might bring about a dangerous problem: financial crises. Demirguc-kunt and Detragiache (1998, p.6) state that "[...] when financial liberalization takes place […] the opportunities for risk taking increase substantially". This is due to the fact that bank managers take on more daring decisions and risky investments, what is called 'moral hazard', particulary where the supervision and the legal system of banking are weak, and sometimes, where schemes to protect depositors are put into practice. The authors concluded that financial liberalisation and consequently financial deepening, augment the possibility of crises in the banking sector.

4.1 Financial deepening and high interest rates

The Crisis in the 90´s devastated some countries in South America and financial deepening, through a liberalised economy, had as an outcome a surge in capital inflows and deposits, which allowed credit growth to consumers, state and corporations. Over time, the terms of lending deteriorated,

which had many consequences, such as a rise in real interest rates (The World Bank, 2005). Demirguc-kunt and Detragiache (1998) indicate that, in this case, a rise in short term interest rates increases the interest that banks pay to its depositors, which might generate an asset-liability mismatch. Normally banks maintain as assets long term loans with a fixed interest. If the latter cannot be adapted quickly enough to match with the ones banks pay to its depositors, banks have to endure losses or decreasing benefits, causing distress in their balance sheets, and ultimately it might lead to major problems in the financial system if the losses cannot be mitigated. This could cause the economic growth to slow down due to an underperforming financial sector.

5. Possible solutions

The understanding of the factors that trigger financial crises is without doubt one of the major concerns of policy-makers around the globe (Demirguc-kunt and Detragiache, 1998). As reported by the World Bank (2005), the first lesson to learn from the crisis in the South American countries, among other nations, is to have the proper regulated and supervised institutions offering the best risk-return ratio, assisted by political reforms. Secondly, political decisions should not be delayed. For instance, in the 90´s, in a bid to sustain the boom, governments in South America supported weak banks, which eventually increased the number of non-performed loans, and consequently compounded the problem. Finally, financial reforms have to be designed properly, taking into the consideration how stable, financially speaking, a country is. Many reforms undertook in the 90´s were applied in a context of an already destabilized economy, postponing the needed adjustments on which to build the changes.

Putting aside the financial system structure, another solution might come from what Armenta (n.d) calls human capital formation, which could help to run financial institutions properly and improve integrity. The banking sector is highly specialized and technical, and according to Armenta (n.d), a good deal of finance accounting, business law and economic knowledge is needed to perform tasks adequately , along with proper training in how to prepare agreements, interviews and negotiations. Armenta (n.d) concludes her paper stating "[…] that financial sector human capital, in the form of skilled and competent professional bankers contributes to the stability of banks".

6. Country Evidence

Ensuing from the discussion above about the pros and cons of financial deepening, I now consider the example of India, where the benefits of financial deepening can be proved.

6.1 India

Pursuant to the World Bank (2005), India experienced a steady transformation of its financial sector in the 90´s, averting any major crisis. Financial liberalisation was put into practice, banks' regulations were applied, the rule of law reinforced, investments from abroad were allowed into the country and macro-stability was pursued. These actions reflect the aforesaid conditions to establish a sound financial system which could bring growth to an economy. Apart from that, growth figures set aside, financial depth has also a positive effect on poverty reduction. As stated by the Institute of Developing Economies in its conclusions (2010), "[…] the developing of the Banking sector has been beneficial for the poor in India". Finally, The RBI (India Central Bank) declared in 2005 its commitment to what it called 'financial inclusion', including a battery of schemes in order to provide access to financial services for everyone.

6.2 Econometric model

The World Bank's data (2015) has provided me the needed information to create an econometric model. It allows me to test the influence of a series of variables, namely domestic credit, credit information and tertiary education; on $GDP per capita in India from 2004 to 2013.

Dependent Variable: LOG(GDP)
Method: Least Squares
Sample: 2004 2013
Included observations: 10

Variable	Coefficient
C	8.006926
LOG(CREDIT/100)	0.334324
LOG(INFORMATION)	0.143116
LOG(EDUCATION/100)	0.580153
R-squared	0.940944
Adjusted R-squared	0.911416

The regression have been run using the Econometric Software Eviews

Using a Log-Log model allows us to linearize the model. The coefficients act as elasticities, and they are highly remarkable, especially in the case of credit as a percentage of GDP, and university education. The impact of high education, as Armenta points out, has a large effect on it. The adjusted R-squared is very significant and according to it 91% of the changes in GDP can be attributed to the inputs included in the model

7. Conclusions

After reviewing the aforementioned sections, a plausible conclusion can be extracted: Financial deepening might be growth enhancing due to better saving mobilization and allocation, connecting the right agents with the funds to invest. Moreover, it also improves the efficiency of the system through a better management of risks and liquidity crises, as long as it is implemented carefully, regulated and greatly supervised with a staff meticulously trained for it. The econometric model I produced also corroborates the positive relation between economic growth and financial deepening. There are a few vulnerabilities in terms of financial crises when applying these policies, which have to be corrected through well-structured policies.

Number of words from the introduction to the conclusions: 1993

8. Appendix

8.1 The econometric model

It is based on the following equation

Ln (GDP per capita) = β0 + β1Ln (credit/100) + β2Ln (information) +β3Ln (education/100)

8.2 Data

The data and the definition of the variables have been obtained from the World Bank (2015) data base.

8.2.1 GDP per capita

GDP per capita is gross domestic product divided by midyear population.

GDP per capita in $USA		
	2004	650
	2005	740
	2006	830
	2007	1,069
	2008	1,042
	2009	1,147
	2010	1,417
	2011	1,540
	2012	1,503
	2013	1,499

8.2.2 Domestic credit as a % of GDP

Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government.

Domestic credit as % of GDP		
	2004	57.6
	2005	58.4
	2006	60.9
	2007	60.8
	2008	67.7
	2009	70.1
	2010	71.9
	2011	73.8
	2012	75.9
	2013	77.1

8.2.3 Credit information

Credit information index measures rules affecting the scope, accessibility, and quality of credit

information available through public or private credit registries. The index ranges from 0 to 8, with higher values indicating the availability of more credit information.

Credit information		
	2004	1
	2005	1
	2006	4
	2007	5
	2008	5
	2009	5
	2010	5
	2011	5
	2012	5
	2013	7

8.2.4 Education

Tertiary gross enrolment ratio (ISCED 5 and 6) is the total enrollment in tertiary education regardless of age, expressed as a percentage of the total population.

Education		
	2004	11
	2005	11
	2006	12
	2007	13
	2008	15
	2009	16
	2010	18
	2011	23
	2012	25

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