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Abstract

Emerging markets are increasingly coming to the centre of attention in global economic issues as emerging stock markets and economies have seen impressive growth in the last 20 years. The relation between financial markets and economic growth has been object of extensive research and, more recently, the relation between investor protection, legal origins and financial development has been empirically proven, although these studies do not specifically compare emerging to developed countries. Although many studies were dedicated to explore investor protection, economic growth and financial markets, the comparison between emerging and developed economies (particularly in the more recent context of emerging growth) are not common in these works. This study intends to analyze the relation between equity markets development and growth and economic growth, comparing emerging and developed economies in the period between 2003 and 2007, in a sample of 72 emerging countries and 30 developed economies. Furthermore, what is called here the ‘moderating effect’ of investor protection on the relation between finance and economic growth (acting not only as a catalyst of stock market growth but as a catalyst of its positive contagion in the economy) is an innovative idea of this work that hasn’t been explored before. The methodology used is multivariate regression analysis using the measures of stock market depth and growth as explanatory and real GDP growth as dependent variable, controlling for several other variables. Empirical results lead us to believe that while in developed and more sophisticated economies the level of stock markets development can indeed improve the smart allocation of resources in society and thus contribute to economic growth, in emerging economies this is not true, although market cap growth goes side by side with economic growth even in these markets. If we observe that emerging markets had an average market cap/GDP of 50% in the period while developed economies had an average of 107.8%, it is possible that a maturity period is necessary until an economy reaches a certain level of market cap development so it can effectively contribute to growth. In addition, there is encouraging evidence of the ‘moderating effect’ idea, given that in low protection countries the relation between finance and growth was not significant, whereas in high protection countries it was, even when controlling for a minimum market cap/GDP level. The fact that market cap growth was a significant explanatory variable for economic growth regardless the level of investor protection is a further indication that in a first period of development economic growth is the leading factor, whereas after a certain level of institutional and financial development stock market capitalization can indeed spur growth and it plays this role more efficiently in countries with higher level of investor protection.
1. Introduction

Emerging markets are increasingly coming to the centre of attention in global economic issues as emerging stock markets and economies have seen impressive growth in the last 20 years. The relation between financial markets and economic growth has been object of extensive research and, more recently, the relation between investor protection, legal origins and financial development has been empirically proven, although these studies do not specifically compare emerging to developed countries.

Although many studies were dedicated to explore investor protection, economic growth and financial markets, the comparison between emerging and developed economies (particularly in the more recent context of emerging growth) are not common in these works. Furthermore, the moderating effect of investor protection on economic growth (not only as a catalyst of stock market growth but as a catalyst of its positive contagion in the economy) is an innovative idea that hasn’t been explored before. This study intends to analyze the relation between equity markets development and growth and economic growth, comparing emerging and developed economies in the period between 2003 and 2007.


Several factors have been pointed in the literature as being responsible for the cross-country different rates of economic growth, as for instance the degree of economic stability, institutional and educational development, international trade, investment, legal system and even religious and ethnic differences. One factor that has received increasing attention from the literature from the 1990s onwards has been the level of financial development.

However, the attempts to relate financial development and economic growth are not new, and have probably started with the work of Schumpeter (1959, first published in 1911), who argued that financial services are key in promoting economic growth. His reasoning is based on the fact that production requires financing to materialize, as entrepreneurs need credit to put their projects in place. In his words (at Arestis and Demetriades, 1996a) one “can only become an entrepreneur by previously becoming a debtor”.

In contradiction to the work of Schumpeter (1959), Robinson (1952) argued that financial development follows growth instead of driving it, so the causality relation would be the inverse, working in the line of where enterprise leads finance follows. Chick (1983, 1986; at Arestis and Demetriades, 1996a) added that although credit limitations might restrict growth, in developed financial systems financial markets merely respond to credit demand. Patrick (1966) was the first to identify and express the difficulty in establishing the direction of causality between financial development and economic growth. Building on the work of Patrick (1966), and McKinnon (1973) provide first empirical evidence of close ties between financial and economic development using a sample of few countries.
In a later study, McKinnon (1988) affirmed that although a higher rate of financial growth is positively associated with successful real growth, the problem of what is the cause and what is the effect remained unresolved, leaving unanswered the issue of whether finance is a leading sector in economic development or if it simply follows growth in real output. Following this discussion, much empirical work has been done (i.e.: King and Levine, 1993b, Arestis and Demetriades 1996a, Khan and Senhadji, 2000; which will be explored in a later section alongside with other papers) arriving at interesting results. The majority of these studies positively relate finance and economic growth, although the robustness of the results is an issue still under discussion.

A different but complementary debate takes place in the economic growth theory field, questioning whether the effect of financial markets in economic growth would be transitional or permanent (assuming that financial development could be a cause of economic growth). There has been an extensive discussion in the literature opposing advocates of the neoclassical growth theory and the endogenous growth theories which are commonly referred to as new growth theories. Our scope in this study is not to go deep into the assumptions of these theories neither into the empirical evidence supporting each of them; we will rather limit ourselves to give an explanatory overview on the reasoning behind these theories and describe particularly the role of financial markets in economic growth under each of the models.

Under the traditional models of growth, the effects of financial development on economic growth are present only during the transition to an economy’s steady-state growth path. According to the neoclassical growth model (Solow 1956, Swan 1965), long-term growth is a function of population growth (labour force growth) and technological progress, thus in the long run output per capita grow only depending technological progress, which is considered an exogenous variable in the model. This determines the rate of growth of an economy in its steady state, when it has reached its full potential. However, the model leaves room for higher rates of growth during a ‘convergence’ period from an underdeveloped economy (below potential) and a developed one (that has reached its potential and grows according to its steady state rate of growth).

Under this model, financial markets can positively influence growth as they drive the economy to a higher level of savings thus a higher level of investment, which leads to higher level of output per capita in the transitional period. However, this increase in growth rate lasts only until the economy reaches the potential steady state of growth. So, from the neoclassical model we can imply that financial development can lead to a permanent increase in the level of output per capita and a transitional increase in the rate of growth of an economy, in other words, a developed financial system would contribute to increase the pace of the ‘convergence’ from an underdeveloped economy to a developed economy through higher growth rates.

Under the new theories of endogenous growth, financial markets can lead an economy to a higher growth path permanently. “New Growth Theories emphasize that economic growth results from the increasing returns associated with new knowledge” (Cortright, 2001). These theories are called ‘endogenous’ theories of growth because they make an attempt to internalize the technological factor into the model, considering it not an exogenous variable but a endogenous one dependant on elements such as investment in
research and development and education (see Romer 1986; for a comprehensive survey see Pagano, 1993).

As a consequence, the new growth theories question one of the Solow growth model core assumptions which is the diminishing returns of capital. According to this assumption, given a fixed rate of labour force and a fixed level of technological progress, more injection of capital on production has a decreasing contribution to the increase of production, until a level in which an extra unit of capital is just enough to compensate for the depreciated capital, having therefore no impact on growth. Endogenous growth theories propose on the other hand that non-diminishing returns are possible due to positive externalities in production such as spill over effects, learn by doing and so on. When a unit of capital is invested, this is also at least partially an investment in knowledge (i.e.: through research and development, training, learning by doing…), which has as a consequence an improvement in technology and therefore permits the additional unit of capital invested to have at least the same impact on output than the previous one, breaking the ‘diminishing returns’ barrier and opening room for higher growth rates than those predicted in the neoclassical steady state.

According to the Theory of Endogenous Growth, financial development can take economic growth to another path permanently rather than boosting it just temporarily. By increasing the amount of savings (thus investment), improving the average productivity of capital and continuously increasing its own efficiency in financial intermediation through the accumulation and development of knowledge, the financial system is able to take an economy to a permanent higher level of growth.

A particularly relevant implication of this debate on the present study is that, if we assume the neoclassical model is a better explanation of economic reality, and if we believe finance indeed spurs growth, the effect of financial development in economic growth should be more clearly felt in developing economies than in developed ones, given that their outputs per capita indicate that they have not reached a steady state, thus implying that there is room for accelerated growth in a ‘catching up process’ (particularly by the allocation of more capital to production and to a better allocation of this capital) . However, there are other variables influencing this relation like for instance the hypothesis that there could be a minimum threshold of financial development so finance could effectively influence growth, threshold which is not achieved in many developing countries. As mentioned earlier, the present study does not intend to deeply engage in the previously explained economic debate, although the discussion is useful as a background scenario to be kept in mind.

3. Finance and Growth

Due to the existence of market frictions and transaction costs, any economy needs financial intermediaries in order to direct resources from surplus agents to deficit agents and optimally allocate them. Levine (2002) classifies market frictions in transaction costs or information costs (Levine, 1999). The crucial process of scrutinizing projects and managers, monitoring them and performing the financial transactions is costly, as it requires a certain technology and know-how in order to be done efficiently. As this combination of know-how and technology is not achievable individually (too costly), there are firms in the system responsible to optimize this process: the financial
intermediaries. Without intermediaries, households have to divide savings between capital and a liquid, but unproductive asset, “…the introduction of intermediaries shifts the composition of savings toward capital, causing intermediation to be growth promoting. In addition, intermediaries generally reduce socially unnecessary capital liquidation, again tending to promote growth” (Bencivenga and Smith, 1991, p. 195).

There are basically four ways of contagion between financial markets and economic growth: optimization of information, risk amelioration, and mobilization and channelling of savings. To these three channels of contagion from the financial markets to the ‘real’ economic growth, we could add a fourth: the direct effect of the development of a financial industry.

Optimization of information is directly related to the informational costs mentioned before. There are two main problems related to the acquisition of information: duplicity of efforts and a free-riding problem. Individual savers often do not have the time, capacity or means to collect and process information about potential borrowers (firms and managers) and to monitor them. As a consequence, they are not likely to invest money in projects they have little knowledge about. If every investor has to scrutinize every production process, much unnecessary duplicity of efforts is made, whereas a financial intermediary can concentrate these efforts and do it for a high number of investors. Furthermore, there is a free-riding problem when it comes to monitoring projects and management: bigger investors would have a higher incentive to do so whereas smaller investors would tend to free-ride; financial intermediaries once more can concentrate this task and do it for a high number of investors. According to Greenwood and Jovanovic (1990), the ability to acquire and process information may have important growth implications. Because many firms and entrepreneurs will solicit capital, financial intermediaries and markets that are better at selecting the most promising firms and managers will induce a more efficient allocation of capital and faster growth.

Financial intermediaries can also benefit growth by ameliorating risk, as they ease the process of trading, hedging, diversifying and pooling of risk. Let’s consider here two risks: liquidity and idiosyncratic risk. Liquidity risk refers to the uncertainty in converting assets into a medium of exchange. As an individual investor might be uncertain about committing its savings to a specific investment and not being able to withdraw when he needs the money, intermediaries play an important role by pooling savings and engaging in liquidity transformation, so they are able to have just the necessary level of short-term low return investments to satisfy liquidity needs at the same time they can invest in long-term more productive projects contributing to economic productivity (Bencivenga and Smith, 1991). Idiosyncratic risks refer to those risks associated to individual projects. Without intermediaries, more risky projects would never be able to raise capital, as individual investors would always prefer to put their money in low-risk projects. Financial intermediaries provide a solution to this problem by diversifying the investment through a cross-sectional pool of projects including more risky and less risky ones, satisfying the risk preferences of investors at the same time they encourage innovation and higher productivity by allowing some ‘highly risky but promising’ projects to raise capital (Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991).
Aggregating capital of several savers with the objective to turn it into investment is the activity of mobilizing and channelling savings, which is also performed by financial intermediaries in our society. This activity permits households to hold liquid and diversified portfolios (linked to the amelioration of risk function). An obvious challenge in mobilizing savings is to overcome the costs involved in attracting savers (by providing them information and credibility that will make them feel comfortable in allocating their savings to a certain agent and also by making them prefer to save a higher proportion of income rather than consume) and also the costs involved in collecting savings from dispersed households with diverse profiles and preferences. Once more, only specialized entities that concentrate these functions (the financial intermediaries) can perform them optimally. Efficiently mobilizing and channelling savings can boost economic growth through an increase in capital accumulation as well as through better resource allocation which ultimately contributes to the improvement in technological innovation (a source of sustainable long-term growth).

Finally, a fourth channel of contagion from financial development to economic growth is the endogenous positive effect that the self-amelioration of the financial industry brings. By providing financial services, financial intermediaries accumulate resources themselves and also invest in the optimization of intermediation which is achieved through technological improvements and knowledge accumulation. Technical inefficiencies in the financial system such as outdated technology and untrained personnel cause higher costs in the intermediation process, which result in higher rates for borrowers and lower return for lenders, swallowing resources that would otherwise be invested in other productive sectors of the economy. Logically, with a developed financial sector resource allocation becomes optimal, less money is wasted due to imperfections in the system and there is a positive impact on economic growth. In addition, a more developed financial sector creates jobs and generates profits, constituting itself an important sector of the economy (particularly very relevant as a proportion of GDP in some regions such as The Netherlands, The city of London in particular and the UK in general, Singapore and others), in such regions the growth of the financial sector can have a direct impact on overall GDP growth besides and beyond the ‘indirect’ intermediation effects above explained.

4. The specific role of stock markets

It is now clear the general role played by financial intermediaries in the economy, but how about stock markets and their specific contribution to real economy? There are several ways in which stock markets complement banks in the function of efficiently allocating resources in the economy and promoting growth (see for instance LLSV, 2000 and Levine 1999a). For a start, a simple characterization of Cho (1986) model can give a first picture of how equity markets can be complementary to credit markets contributing to full capital allocation efficiency and economic growth.

Cho’s example assumes that banks and equity investors have the same information level on firms. Individual borrowers can be selected according to their expected return (productivity), but their risk is unknown. As banks cannot identify individual risk of borrowers (firms), they aggregate firms into groups and make their decision according to the variance of risk within groups. Banks expected return is a function of interest rate and default risk. This results in a suboptimal allocation of resources given that in many
cases more productive firms (innovative and aggressive) have a higher default risk allocated to them and a higher rate, and less productive firms that have long-date relationship with banks might have lower rates although they are not necessarily the most productive. However, on equity markets default risk is not a crucial factor (unless in extreme conditions), and investors take their decisions based on expected return (productivity), allowing highly innovative and productive firms to raise capital despite their weak links to credit markets and supposedly higher default risk.

Therefore, it can be inferred that equity financing (in general) is crucial for the expansion of new firms whose main asset are growth opportunities. However, these firms could use private equity as a source of financing and under this assumption stock markets would still make no significant contribution, but this form of finance (private equity) faces some drawbacks, such as excessive giving the investor an excessive power that suppresses entrepreneur’s initiative, just like if the company was being financed only by banks, the necessity for investors to compromise their capital for an unknown duration as they don’t have a clear decent exit option and also the idiosyncratic risks assumed by the private equity investors particularly if we take into consideration big projects demanding high level of financing that could consume a great share or all of a single investors’ savings, even a wealthy one.

Well-developed financial markets provide a solution for these dilemmas. From the investor’s side, developed stock markets ease risk diversification and the ability to avoid liquidity risk. It allows the investor to form well diversified portfolios with not many intermediaries (and by not necessarily having to rely on a bank to choose the projects, it can better adequate his own investments to his particular risk profile and preferred companies/industries). In addition, equity markets provide a good exit when the investor decides to cash in the returns (avoiding liquidity risks), therefore incentivizing private investment in high-growth companies. From the company side, sound equity markets provide a permanent opportunity for companies to raise capital, allowing firms to time their equity issues to take advantage of favourable investment sentiment toward the industry, the market or the specific company;

Taking a more general perspective, more liquid markets stimulate information gathering as it is easier for market makers to profit from this information, producing consequently a positive effect on resource allocation. In addition, stock markets might stimulate stricter corporate control as they provide opportunities for hostile takeovers and make easier to tight managerial compensation to performance, again having a positive impact on productivity. Finally, developed financial markets help in the function of mobilizing savings by helping to develop information disclosure procedures, accounting standards and contracting systems that make investors more confident to entrust their savings to others.

A problem arises, however, while trying to identify whether finance (being equity or debt) drives economic growth or it is the inverse. Indeed, one can observe that generally the developed countries with higher GDP have the most development financial markets, but even theoretically speaking (we are going to explore empirical evidence later) causality is not particularly clear as one could argue that ‘real’ economy growth and development comes first generating a demand for more sophisticated financial intermediation and providing the financial means to its implementation. As Greenwood
and Jovanovic (1990, p. 1076) have affirmed, “Financial intermediation promotes growth because it allows higher rate of return to be earned on capital, and growth in turn provides the means to implement costly financial structures”. The present study will provide more detail on this discussion while assessing empirical evidence of the influence of financial markets on economic growth.

5. Empirical Evidence

The first empirical evidence of the link between finance and growth comes from the studies of Goldsmith (1969) and McKinnon (1973), using a sample of few countries. From the early 1990s onwards there has been a large body of empirical work with the objective to test the positive relation between financial development and economic growth. These studies mostly rely on cross-country regressions and find that the level of financial development explains a significant portion of cross-country different levels of economic growth.

Probably the most important early study relating financial depth to economic growth is the one by King and Levine (1993b). The authors study the phenomena in a sample of 80 countries over the 1960-1989 period, finding evidence consistent with Schumpeter’s view that the financial system can promote economic growth and also identify that financial development has predictive power over future growth, which the authors interpret as being a causal relationship that runs from financial development to growth. They use four measures of the level of financial development: liquid liabilities of banks and nonbank institutions as a share of GDP; ratio of bank credit to the sum of bank and central bank credit; the ratio of private credit to domestic credit and private credit as a ratio of GDP. Having in mind the dilemma posed on the causality between financial development and growth, the study of King and Levine (1993b) intend to control for that by regressing future economic growth on initial financial development.

Demetriades and Hussein (1996) conduct a causality test between financial depth and growth in a sample of 16 countries and find evidence for bi-directional causation. Their results challenge King and Levine (1993b) conclusions as these results (Demetriades and Hussein, 1996) provide little support to the view that finance is a leading sector in the process of economic development finding instead considerable evidence of bi-directionality and some evidence of reverse causation (from economic growth to financial development). Their findings also clearly demonstrate that causality patterns vary across countries and, therefore, highlight the dangers of statistical inference based on cross-section country studies which implicitly treat different economies as homogeneous entities. In the same line, Arestis and Demetriades (1996) argue that results obtained from cross country regressions and positively relating financial development with growth were not able to address the causality issue satisfactorily as there has been data misspecification, simultaneity bias and data used (being pooled data) particularly didn’t allow for different countries exhibiting different patterns of causality, which could reflect differences in institutional framework and financial policy. In their empirical study using data from 12 countries, Arestis and Demetriades (1996) suggest that the variation of causality reflect country-specific factors such as the quality of non-financial institution including the degree of sound governance, the type of financial policies followed and the effectiveness of the government institution which design and implement these policies.
Despite the criticism on methodology, Levine and Zervos (1998) have reinforced and complemented King and Levine (1993b) findings by using data on 49 countries from 1976 through 1993 in order to find that that stock market liquidity and banking development both positively predict growth, capital accumulation, and productivity improvements when entered together in regressions, even after controlling for economic and political factors, although they also notice that stock market size, volatility, and integration with world markets are not robustly linked with growth. The authors corroborate the view that financial markets provide important services for growth, and that stock markets provide different services from banks, but they reiterate that the theoretical debate of the impact of stock markets on growth was not over as there was still the argument that enhanced liquidity provide an easy exit to investors decreasing incentive to monitor management, therefore negatively impacting on resource allocation and growth.

Rajan and Zingales (1998) try to escape from the methodological problems in the regression model used by Levine and Zervos by trying to relate financial development and economic growth through the mechanism of external finance. In their study involving a sample of 36 individual industries in 41 countries over the 1980s, they observe that industrial sectors which are more in need of external finance develop disproportionately faster in countries with more developed financial markets, concluding that financial development reduces the costs of external finance to firms and thus promotes growth.

Demirguc-Kunt and Maksimovic (1998) examine the effect of market cap to GDP ratios, stock market turnover and bank deposits to GDP in 30 countries over the period of 1980-95 on the excess growth of firms in those countries over the period 1986-1991, finding that both stock market cap and the size of the banking system are positively related to this excess growth. In addition, the authors find that the investors’ protection through the legal system is positively related to the excess growth, concluding that an active stock market and a well developed legal system are important to enhance firms’ growth as firms in economies with such characteristics are able to raise external finance more easily and have higher rates of growth.

Levine et al. (2000), trying to address the issue of country-specific differences, examines not only whether the exogenous component of financial development affects economic growth but also whether cross-country differences in legal and accounting standards explain the different levels of financial development, finding a positive relation between finance and growth and also observing that the cross-country differences in legal and accounting systems can explain the different financial development levels. Finally the authors conclude that legal and accounting reforms that strengthen creditor rights, contract enforcement, and accounting practices can boost financial development and accelerate economic growth.

In a larger sample of 159 countries during the period between 1960-1999, Khan and Senhadji (2000) have conducted a test to relate financial depth and economic growth also using the OLS methodology and taking four measures of financial depth: domestic credit to the private sector as a share of GDP; the previous plus stock market as a share of GDP; the previous plus private and public bond market capitalization as a share of GDP and finally stock market capitalization as a share of GDP alone. They have
controlled for other drivers of growth, more specifically investment as a share of GDP, population growth, initial income (log of GDP per capita) and increase in terms of trade. Their results reinforce previous empirical studies positively relating financial depth and growth. However, an interesting aspect of their study is that while testing not for the whole period but for 5-years panels, only credit to the private sector and stock market cap were significantly related to growth, indicating that financial depth is less efficient in explaining growth dynamics.

Wurgler (2000) complements general findings by exploring the direct effect of financial development on resource allocation. The author uses a sample of 65 countries and observes that financial markets appear to improve the allocation of capital through efficiently allocating resources where growth opportunities are. The author finds that countries with developed financial markets increase investment in growing industries and decrease investments in declining industries, and also observes that legal protection of investors is positively correlated to efficient capital allocation and is particular useful for limiting investment in declining industries. Morck et al. (2000) complements the last part of Wurgler findings by observing that prices move together in poor economies stock markets more than they do in rich economies markets, and showing that the explanation to this phenomenon is not related to market size and only be partially related to company’s fundamentals, being rather associated to the level of investor property rights (in line with LLSV approach that will be explored in the next chapter).

Some improvements in methodology directed to address the criticisms of simultaneity bias, omitted variables and country specific effects have been done lately. Caporale et al. (2004) apply to a sample of 7 countries a different methodology to test causality in VARs (developed by Toda and Yamamoto, 1995) and their results suggest that a well-developed stock market can foster economic growth in the long run. Their study also provides support to theories according to which well-functioning stock markets can promote economic development by fuelling the engine of growth through faster capital accumulation, and by turning it through better resource allocation. Beck and Levine (2004) use generalized-method-of-moments technique applied to a panel of data of 40 countries for the period 1976-1998 and the results obtained confirm their previous observations that both stock markets and bank developments positively influence economic growth, having addressed the methodological issues.

6. Methodology and Data

In the studies that have used regression analysis as a methodology to test the relation between financial markets development and growth, the regression model generally was the following:

\[ Y = B_0 + B_1FD_i + B_2X_i + e_i \]

Where \( Y \) = economic growth, \( FD_i \) = a measure of financial depth and \( X_i \) = a set of control variables.

Khan and Senhadji (2000) explain that several indicators of financial depth have been suggested by the literature: initially M1 and M2 (that measure the availability of money...
in the system) were used, then it has evolved to M3 (liquid liabilities of the banking system) and finally credit available to the private sector (a more complete but less available indicator) has been used as a measure, together with stock market capitalization to GDP.

The present study is particularly interested in the comparison of the relation between equity markets development and economic growth in emerging and developed economies, so credit to the private sector is used in the regression models only as a control variable in order to provide a more accurate view of the particular effect of equity markets. The final regression model used in this study is the following:

\[ Y = B_0 + B_1 F_{Di} + B_n F_{Fn} + \varepsilon_i \]

Where \( Y \) = average economic growth in the period, \( F_{Di} \) = equity market development or growth indicator, \( B_n F_{Fn} \) = control variable and \( \varepsilon_i \) = error factor. Control variables used are credit to the private sector, investment to GDP, log of initial income and population growth. The regressions are run for a sample of emerging economies and a sample of developed economies, and results are compared.

The other topic in this research is the relation between investor protection, equity markets development and economic growth. There are reasons to believe that investor protection affects economic growth through equity markets in two ways: higher levels of investor protection contribute to the development of equity markets (LLSV 1997, 1998 and subsequent literature), and also higher levels of investor protection might increase the efficiency of the resource allocation function performed by equity markets, given that with higher shareholder protection, tunneling - which is a major cause of suboptimal resource allocation - is restricted.

FIGURE 1 – EQUITY MARKETS X INVESTOR PROTECTION X ECONOMIC GROWTH

The simple model presented in figure 1 is based on existing literature presented in previous chapters. Investor protection promotes the development of equity markets as it gives confidence to shareholders to put their money on companies, while equity markets development promotes economic growth through efficient resource allocation, which is in turn affected by the level of investor protection. Therefore, investor protection level could work as a moderating factor in the relation between equity markets development and economic growth, and not only as a promoter of the development of equity markets. The arrow going back from equity markets development to investor protection represents the improvement in local corporate governance systems and business culture.
brought as a consequence of the development of equity markets, an item that will not be explored here but can be considered an extra element of the positive relation between equity markets development and investor protection and could be object of further research.

For this part of the study, the sample will not be divided into emerging and developed markets but instead will be divided in high/low investor protection measured by the anti-self-dealing index. The following methodology is used: the whole sample (including emerging and developed economies) is divided in three according to different levels of shareholder protection (measured by the anti-self-dealing index), being high protection (anti-self-dealing index above 0.47, 27 observations), medium protection (anti-self-dealing index between 0.37 and 0.47, 15 observations) and low protection (anti-self-dealing index below 0.37, 27 observations). Then, the relation between stock markets and economic growth is compared among high protection countries and low protection countries according to the multivariate regression model using the same equation as previously explained. Finally, a third sample of low protection countries with higher market cap/GDP ratio is used in order to control for the effect of different levels of stock market depth.

The economic data necessary to perform the tests described were collected from different sources according to availability. Notably the International Monetary Fund, the World Bank and the CIA World Factbook were used as sources of data (a complete list of variables and respective sources can be found in Table 2). The sample used in the present study contains data of 72 emerging economies from 5 different regions (Africa - 15, Asia - 16, Central and Eastern Europe - 15, Latin America and Caribbean - 18, Middle East – 8) as well as 30 developed economies. The distinction between emerging and developed markets followed the International Monetary Fund classification, and the different emerging regions were also classified according to the IMF criteria, although countries originally classified by the IMF as ‘Commonwealth of Independent States’ were re-classified here as being part either of Central and Eastern Europe or Asia, depending on their cultural and historical identification and also geographic location. The full sample of 102 countries used in this study covers (as for 2007) 96.8% of world GDP, 85.2% of its population, 98.7% of world’s market cap and 92.4% of world’s listed companies. Table 3 illustrates the sample coverage and distinguishes between emerging and developed countries.

7. Results

7.1. Equity Markets Development and Economic Growth

Three indicators of stock market development and growth were used as explanatory variables in the model (initial market cap to GDP, average market cap to GDP and market cap to GDP average growth), while GDP growth was the dependent variable in all regression models. Table 02 shows the results.
The sample is lower than the initial 102 countries in the multivariate models because not all control variables were available for some countries. It can be observed that none of the explanatory variables are significant for emerging countries (although the best of the three predictors is market cap growth), while average market cap/GDP and initial market cap/GDP are significant for developed countries.

These results lead us to believe that, while in developed and more sophisticated economies the level of stock markets development can indeed improve the smart allocation of resources in society and thus contribute to economic growth, in emerging economies this is not true, although market cap growth goes side by side with economic growth. If we observe that emerging markets had an average market cap/GDP of 50% in the period (considering average of countries’ market cap/GDP) while developed economies had an average of 107.8%, perhaps we could talk about the necessity of a maturity period until an economy reaches a certain level of market cap development so it can indeed contribute to growth.

While looking at control variables, it was observed that emerging markets GDP growth was significantly explained by investment/GDP, log of initial income and population growth, while developed economies GDP growth was significantly explained by financial depth indicators (stock markets development indicator as well as credit to the private sector), investment/GDP and population growth. This might indicate again that
financial depth only plays a significant role in economic growth when a certain level of financial development and also economic development is achieved, until then other factors might be better drivers of growth.

7.2 Investor Protection, Equity Markets Development and Economic Growth

In order to measure the moderating effect of investor protection on the relation between equity markets development and economic growth, the sample was divided in two according to the criteria explained in section 6. The multivariate regression models are the same as in the previous tests (also explained in section 6), and the results are shown in the following table.

<table>
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<th>TABLE 03 – MULTIVARIATE REGRESSIONS: GDP GROWTH X STOCK MARKETS (ACCORDING TO INVESTOR PROTECTION LEVEL)</th>
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<tbody>
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<td>N. Obs</td>
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<td>Model*</td>
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<td>Average Market Cap/GDP*</td>
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<td>Market Cap Avg. Growth**</td>
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| GDP Growth x Stock Market Cap - High Investor Protection
| Model*** | 27.00   | 0.35        | 1.84       | 2.25        | 0.087   |
| Average Market Cap/GDP | 27.00 | -0.01       | 0.01       | -1.28       | 0.215   |
| Model** | 27.00    | 0.39        | 1.78       | 2.69        | 0.050   |
| Initial Market Cap/GDP | 27.00 | -0.02       | 0.01       | -1.78       | 0.189   |
| Model | 27.00    | 0.31        | 1.89       | 1.91        | 0.136   |
| Market Cap Avg. Growth | 27.00 | 0.01        | 0.02       | 0.66        | 0.519   |

The results show that all explanatory variables are significant for high investor protection economies, while none of them is significant for low investor protection economies. It happens almost the same thing as in the comparison between emerging and developed economies, and this is not coincidence as developed economies tend to have a higher level of investor protection. However, this does not prove the moderating factor hypothesis suggested in section 6, as the effect could be only due to the higher market/cap to GDP level presented by high investor protection countries.

In order to refine our test, a third sample of ‘low investor protection’ countries was organized including the countries with investor protection level between 0.37 and 0.47 (initially excluded from both high and low protection samples), and then excluding the countries with average market cap/GDP below 30% in the period. The result is a sample of 27 countries with a significantly lower investor protection index in relation to the ‘high protection’ sample but a not significantly lower market cap/GDP ratio, as shown in table 04.
Table 04 also presents the results of the multivariate regressions that were performed using this third sample. Results are encouraging to the hypothesis of the moderating effect, given that in low protection countries nor average market cap to GDP neither initial market cap to GDP were significant predictors of economic growth, while in high protection countries they were. This indicates that with low investor protection levels, more developed stock markets do not necessarily represent stronger economic growth. However, even in this sample (as in the emerging markets sample), market cap growth was a significant explanatory variable for economic growth.

8. Conclusion, Limitations and Future Research

Analyzing the relation between stock market development and economic growth, the results lead us to believe that while in developed and more sophisticated economies the level of stock markets development can indeed improve the smart allocation of resources in society and thus contribute to economic growth, in emerging economies this is not true, although market cap growth goes side by side with economic growth. If we observe that emerging markets had an average market cap/GDP of 50% in the period while developed economies had an average of 107.8%, the suggestion is that a maturity period is necessary until an economy reaches a certain level of market cap development so it can effectively contribute to growth.

Despite the fact that the methodology applied does not address the causality issue, the results indicate a hypothesis that could be object of further research: economic growth lead to the development of financial markets until these markets are developed enough to ‘give back’ and help to promote growth. Thus, the causality relation would be stronger from growth to financial development in a first moment, being stronger the other way around after a certain threshold. Finally, the empirical analysis presented in this work gives evidence of the moderating effect of investor protection in the relation between stock market development and economic growth, even when controlling for
market cap to GDP levels. The fact that market cap growth was a significant explanatory variable for economic growth regardless the level of investor protection further reinforces the above mentioned idea that in a first period of development economic growth is the leading factor, whereas after a certain level of institutional and financial development stock market capitalization can indeed spur growth and it does more efficiently in countries with higher level of investor protection.

The most evident limitations to the above analyses are the short period studied and the simplicity of the techniques that does not test for causality issues. The short period of the study despite bringing the advantage of an analysis of a specific business cycle makes generalizations of the findings not reliable. Furthermore, the methodologies used are able to identify relations but not able to confidently identify causal relations between variables, which puts in question the meaning of the explanations given.

9. References


