Institutional and Socio-Cultural Factors Explaining the Development of Mutual Funds. A Cross-Country Analysis[1]

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Abstract: This paper explores the institutional and socio-cultural factors explaining the differential development and growth rates of the mutual fund industry in a sample of 41 countries. It draws on multivariate OLS regressions. It shows that the development of mutual funds is influenced positively by regulatory quality and economic and financial system development, but it is negatively related to the presence of a Lamfalussy type regulatory framework (as in all member states of the European Union). Also, widespread belief in work as the legitimate source of monetary gain seems to be negatively associated with mutual fund development. The growth rates of national mutual fund industries are negatively related to general economic development. The negative coefficient of the variable coding for regulatory quality indicates that a poorer regulation of the field (when compared to the developed countries) does not necessarily inhibit growth, especially in the case of young industries. Lamfalussy regulations do not have any significant effect on mutual fund growth. At the same time, mutual fund industries have grown most rapidly in countries with high percentages of Muslim and Christina Orthodox believers.

Keywords: mutual funds; the Lamfalussy process; quality of regulations; work and money; socio-cultural values; religion and finance

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Introduction

The development of the mutual fund industry in the United States and Western Europe has been one of the conspicuous processes on the international financial markets during the last two decades. Mutual funds have mirrored the growth of capital markets proving an excellent vehicle for the capitalization of investment opportunities and the dispersion of risk for lay investors. At the same time with the unprecedented development of the sector in the West, various mutual fund industries in Latin America, Asia, and the Pacific have tried to emulate the successful model of the leading national industries.

While several of the countries of in Europe managed to keep up with the global trends in the industry, most of the member states of the European Union are still not able to replicate the successes of the leaders of the mutual fund sector. As a consequence, the European Commission has embarked on a massive regulatory reform with the aims of harmonizing the legal framework in the field of securities, to create a common capital market in the European Union, and to stimulate the development of mutual funds across Europe. The later goal is to be achieved both through the distribution of fund shares across all EU member states (based on a common passport) and through the cross border investment in listed securities.

The development of mutual funds is pursued by national authorities as it already proved to be able to facilitate several general economic goals in the United States and the other countries where it reached a notable level. Mutual funds facilitated the participation of a large section of the population, those that do not possess the knowledge and risk appetite for financial speculation, to the notable growth of the capital markets. They created the premises for the

diversification of risk and the hedging of financial portfolios. They further proved excellent investment vehicles for the institutional investors with a more prudent strategy such as insurance companies and private pension systems. The growth of such institutional investors during the last decades of the twentieth century constituted itself a factor of development for the mutual fund industry providing an important source of investment capital. Last but not least, mutual funds constituted an important source of capital channeled towards companies in the real economy through the securities markets whose role became more prominent even in countries traditionally dominated by the banking system.

Given their increasing prominence, various authors have tried to identify the factors stimulating the growth of mutual fund investments in emerging markets (Kaminsky et al., 2001), as well as that of mutual funds industries across the world (Klapper et al., 2004; Khorana et al., 2005). Such analyses emphasize the role of economic and social development for the growth of mutual funds, the impact of investment fund regulations, as well as the effect of the rest of the financial system on mutual fund performance. In spite of identifying several key determinants of mutual funds development, neither of the previous studies examines the cultural and religious factors that might influence the industry. Similarly, no previous analysis has paid attention to the role played by the Lamfalussy type regulations for mutual funds in the countries of the European Union in spite of the fact that this has been one o the most conspicuous institutional developments in the field at the world level.

This paper uses a similar methodological toolkit as previous studies but draws on a more comprehensive set of variables with a potential impact on mutual fund development and expands to twelve years the period of time over which the development and growth of mutual funds is analyzed in a cross-country framework - from 1996 to 2007. It first reevaluates the impact of

factors used in previous analyses on a longer time frame and tries to find better variables that capture the influence of those factors. It further estimates the effect the adoption of a Lamfalussy regulatory framework for securities has on the development of mutual funds. Finally, our paper examines the influence exerted by socio-cultural factors – trust in people, attitudes towards financial satisfaction, the relation between work and money, and the desired role of money and material possessions, as well as that of religious affiliation on mutual funds in national settings.

Literature Review

The literature on mutual funds analyzes mainly their performance and structure on developed capital markets and in countries with good records and data sets such as the United States and the United Kingdom. Many such studies focus on the overhead and management costs of mutual funds showing that the lowest levels of costs and best performance relative to the capital market are those of index funds (Malkiel, 1995; Bogle, 1999). At the same time, actively managed funds and oversized funds, with potential diversification benefits, usually have a significant increase in management costs (Elton et al., 1996; Gruber, 1996; Carhart, 1997; James et al., 1999). Fees and management costs are closely related to the governance of mutual funds. Thus, while independent directors, small boards, or fund maturity all tend to reduce overhead costs (Malhotra and McLeod, 1997; Tufano and Sevick, 1997), marketing efforts and aggressive strategies are associated with higher costs and entry/exit fees (Chordia, 1996; Sirri and Tufano, 1997). Scale also plays a role in determining overall costs as economies of scope are balanced by managerial diseconomies (Collins and Mack, 1997; James et al., 1999).

A different literature evaluates the emergence and role of mutual funds in facilitating privatization in former socialist societies (Tirole, 1991; Pistor and Spicer, 1997; Kogut and

Spicer, 2002; Köke and Schröder, 2003). Such studies not only underline the importance of developed capital markets and sound institutional arrangements for the growth of the mutual fund industry, but some of them hint at the inverse relation between funds and markets indicating that well managed funds with good governance can have a stimulating effect on capital markets as a channel for funding businesses. Exploring further the relation between institutional reforms and growth, other studies analyze the performance of Western mutual funds investing on emerging markets (Kaminsky et al., 2001) or try to determine the factors that explain the differential development of the mutual fund industry around the world (Klapper et al., 2004; Khorana et al., 2005). In spite of highlighting the importance of general economic and institutional arrangements as well as that of particular organizational structures for the development of mutual funds, studies as those reviewed above do not generally account for socio-cultural factors that may play a role in the growth of the industry. Nor do they have the chance to examine the effects recent institutional developments, at the national or international level, such as the adoption of a common regulatory framework for securities and mutual funds have on the industry. Furthermore, while the quality of regulations pertaining to mutual funds themselves is taken into account, the indicators used so far say little about the general regulatory quality affecting the overall financial system or about the enforcement of regulations and its impact on investor behavior.

Our research is also indebted to comparative studies in corporate finance and development economics. Such studies emphasize the role of securities in financing economic growth (Hall and Soskice, 2001; Baker et al., 2005), draw attention to the progressive "securitization" of European national financial systems (Deeg, 1999) and on the effects of the European monetary integration on capital markets (Ferrarini et al., 2002). They generally draw

attention to the increasing role of capital markets even in countries where the banking system has been historically responsible for funding businesses. Recently, authors like Andenas and Avgerinos (2003) shed light on the new forms of political and institutional processes underpinnings of financial integration in Europe, while Warren (2003) and Ferran (2004) described in detail the complex process of regulation implied by a common European market in financial securities. Scholars concerned by this historical process go beyond a statist paradigm situating the optimal forms of corporate governance in the financial sector in between regulation by state authorities (Majone, 1996; Bermann and Pistor, 2004) and arrangements emphasizing corporate initiative and self-regulation (Mantysaari, 2005; Ali and Gregoriou, 2006). Most such works focus on the broader institutional design of capital market integration and on Western European examples, neglecting the specifics of these pan-European processes the new members of the EU, in the area of mutual funds or with regards to the socio-cultural underpinnings of mutual fund performance. Distinctively, we generate our hypotheses from on a study based on qualitative methods and further reports from former socialist countries where mutual funds have been initiated recently. We pay attention both to socio-cultural factors and to the effects of the Lamfalussy regulatory framework adopted by all the EU member states.

The multifaceted relation between corporate governance, financial stability and growth has become almost commonsensical in development economics (OECD 2004a, 2004b, 2006). The legal view of the firm as a set of contracts emphasizing the role of clear property rights (Shleifer and Vishny, 1997; La Porta and Lopez-de Silanes, 1997, 1998, 1999a, 1999b) is the one to which our research is heavily indebted. While some authors working in this paradigm emphasize the flexibility of legal systems promoting good corporate governance (Becket al., 2004; Beck et al., 2005) others argue that all types of legal systems can facilitate the attainment

of good governance which is an essential condition for growth (Beck et al., 2000; Levine, 2002; Schmukler, 2004; Stulz, 2004). More diverse literatures bring to light the connections between political processes and effective governance arrangements (Chui et al., 2000; Keefer, 2004), the importance of the later in attracting foreign direct investments (Pajuste, 2005) or in promoting international financial integration (Dollar et al., 2004). Many of these studies are broadly comparative and theoretically minded. Although they identify key relations between institutions, governance and growth, they are seldom able to explain how such connections operate in practice, in specific contexts where decisions are made by investors.

More empirically minded studies try to operationalize previous theoretical categories, to define various indicators of the quality of corporate governance which are subsequently measured statistically (Berglöf, 2005; Love et al., 2005; Dragotă, 2006; Dragotă et al., 2006). Based on the creation and measurement of legal-institutional indices, scholars of finance and economics assess the quality of minority shareholders' rights as proxies for corporate governance quality (La Porta et al., 1998, 2000; Pajuste, 2002; Klapper et al., 2006), as well as the impact of minority shareholdes' protection on capital market development (Modigliani and Perotti, 1997; Pagano and Volpin, 2006) and the value of companies (Yarrow, 1985; La Porta et al., 2002; Buysschaert et al., 2003). Directly relevant to this research are studies using governance indexes to explain the development of capital markets in former socialist countries (Pistor et al., 2000; Pajuste, 2005; Dragotă, 2006; Dragotă et al., 2007; Ciobanu et al., 2007) or the failure of some CEE countries to build capital markets with growing importance in the economy (Markiewicz, 2007). Such studies focus mainly on legal provisions concerning the rights of investors in traded companies and commensurate the impact of corporate governance on capital markets understood mainly as stock markets. They generally neglect the governance problems of financial

intermediaries and their role in channeling the savings of many into investment capital financing public companies. Our study focuses precisely on the key role of the mutual fund industry, the governance challenges posed by such sophisticate intermediaries, and the mixed contribution of institutional, socio-cultural and economic development related factors to the growth of mutual funds in a broadly comparative setting.

Conclusions of Qualitative Research. Questions to be Addressed in a Comparative Setting

The previous literature identifies and tests the influence of various economic, political, social and regulatory factors on the development of mutual funds around the world. Most directly relevant to this research, Khorana et al. (2005) consider factors related to the economic development of the countries under survey, to the institutional structure of the mutual fund industry itself, to the competition or stimulus provided by the rest of the financial system of to the social characteristics of the population of each country that constitute the basis of the demand for mutual fund shares. Economic development is characterized by GDP and per capita GDP, measures of wealth and financial openness, as well as indicators about real interest rates and inflation. The factors characterizing the mutual fund industry refer to laws, regulations, and taxation, that is, to the regulations pertaining to mutual funds and the cost of compliance with them, to the taxation of funds, the age of the industry and the costs of starting up a fund. Other components of the financial system, and especially so the banking system, can be an alternative to mutual funds as they compete for the same investment capitals. Therefore, the authors analyze the effect banking system development, banking concentration or the role of deposit insurance schemes in stimulating investor confidence. Finally, a number of indicators of social development, closely related and statistically correlated with those of economic development, are

used as factors to explain the development of mutual fund industries: personal wealth, general level of education, newspaper circulation and the number of internet users in the country are all factors in the regressions performed in the article.

Klapper et al. (2004) use similar indicators for broadly the same type of factors to explain the different performance of mutual funds in a panel data setting. The use a more restrictive number of indicators among which GDP per capita, deviation and average of stock market return, stock market capitalization over GDP, stock market value traded ratio, bond market capitalization and dummies for financial crises and the type of financial system. Added to the above, the authors include a number of variables about the quality of the legal system, the political risk in each country and about voice and accountability as proxy for the quality of governance in each country. While the previous articles outline important factors contributing significantly to the growth of the mutual fund industry several others are not addressed or are treated only partially. Thus, while Khorana et al. (2005) include various measures of the quality of mutual fund regulations, they pay less attention to the regulations affecting the entire economic and financial system.

Although the indicators they use are more directly connected to the activity of mutual funds, one can expect that the multitude of lay investors are only vaguely aware of the specifics of fund regulations their behavior being more directly affected by the clarity and effectiveness of general regulations pertaining to financial and economic life. At the same time, one wonders whether the "Voice and Accountability" indicator developed by Kaufmann et al. (1999) in "Governance Matters" is the most appropriate one to measure overall regulatory quality. Furthermore, indictors of social and cultural values or trust are not considered by the above authors although they seem to appear often in the literature on the varieties of capitalism (Verdey,

1995b; Comaroff and Comaroff, 2001; Maurer, 2006). We formulate similar hypotheses about the factors expected to determine mutual fund development and growth but expand the range of factors considered based on the results of an ethnographic study and the review of the literature on varieties of capitalism in sociology and anthropology. Thus, we estimate the effect of the enforcement of regulations, the influence of socio-cultural factors for underlining financial practices, and the importance of a Lamfalussy type regulatory framework for developed mutual funds industries.

The importance of trust and cultural values is underlined by the ethnographic and qualitative studies of financial practices in developing and emerging markets. Sociological analyses of forms of capitalism met in Africa, Eastern Europe and Asia (Verdery, 1995a, 1995b; Comaroff and Comaroff, 1999, 2001; Mandel and Humphrey, 2002; Maurer, 2006) indicate that trust and religious values come repeatedly in interviews and surveys of lay investors. So does the uneasy relation between work and money suggesting that the adoption of capitalist practices is made possible by the diminishing importance of work as the only legitimate source of money and gain (Verdery, 1995b; Comaroff and Comaroff, 1999; Dunn, 2004). Similarly, a recent ethnographic study of the mutual fund industry in Romania conducted by the authors of this paper shows that trust, the quality of the judiciary and the enforcement of regulations are among the most important factors with impact on the growth of investment funds. Below is a list of factors and actors that mentioned them during a focus group organized with that occasion.

Table 1: Factors affecting the development of the mutual fund industry in Romania: weaknesses of the legal environment, enforcement of regulations, corporate governance practices, and public policies regarding the capital market in Romania. Results of a focus group organized in July 2008 in Bucharest. "X" indicates that actors in

column header mentioned the factors as influencing mutual fund development while "O" means that the actors in column header did not mention or disagreed that factors mentioned at the beginning of the row have any importance.

Factor of mutual fund development	Retail Investors	Asset Managers	Regulators and Politicians	Financial Analysts and Journalists
Legislative process concerning the capital market	X	X	O	X
Quality of laws and regulations for mutual funds	X	X	X	X
Public consultations for the adoption of laws	X	X	O	X
Enforcement of mutual fund regulations	X	O	O	X
Cost of complying with regulations	O	X	O	X
Activity of civil society	O	X	X	X
The quality of the judiciary	X	O	O	X
Statute and organization of securities regulator	X	X	O	X
Transposition of European Union regulations	X	X	O	X
Governance of investment funds	X	X	X	X
Trust in mutual funds and securities market institutions	X	O	O	X
Trust in people and society	X	X	X	X
Protection of retail investors	X	O	O	X

We perform several multivariate regressions in order to evaluate the influence of the factrs considered.[2] Concretely, we test for the significance of a diversity of indicators regarding the quality of regulations but we emphasize the indicators of "Government Effectiveness" and "Regulatory Quality" form "Governance Matters VII". The advantage of the two indicators is that they capture both the quality and enforcement of regulations and are standardized measures

[2] A detailed list of variables and sources of data is presented in **Annex 1** at the end of this paper.

of institutional quality with data available for all countries in the survey for each of the years analyzed in our study. We further include a dummy variable indicating the existence of Lamfalussy type regulations (the EU regulatory framework for securities and mutual funds) in the countries under survey trying to capture the influence exerted by the EU common market for mutual funds on the development of the local industry. Finally, we draw on data form the World Values Survey to include indicators about trust in society, attitude about money, the relation between work and money, and the religious affiliation of our subjects in the multivariate regressions trying to explain the differential development or growth rates of the mutual fund industry in countries included in the analysis.

Competing Institutional Frameworks for Mutual Funds

Mutual funds (open-end funds) are basically collective investment entities in which investors buy shares. In theory, they have several advantages over alternative investment vehicles and especially over risk funds (closed-end funds): 1. they allow people to pool resources and make more efficient and less risky investments with the help of professional administrators; 2. they allow the purchasing and redeeming of shares (i.e., entry and exit) on an ongoing basis. Administrators are supposed to implement the investments strategies and to calculate and declare publicly the current values of the shares. Money and other financial assets of the funds are kept by depositary banks which also keep a separate record certifying or not the public values of the shares declared by administrators. Regulators supervise the activity of administrators and depositaries and issues new regulations regarding the activity of these funds. Mutual funds are in sharp contrast with closed-end varieties of funds characterized by stricter entry/exit rules, higher risk profiles, and more sophisticated investors.

Whereas in most of the Western countries mutual funds would be considered relatively safe financial ventures with a passive portfolio administration strategy, closed-end funds can adopt a variety of forms and investment strategies satisfying the appetite for risk of sophisticate investors. The later are investment companies issuing non-redeemable shares that implement specialized investment strategies and more aggressive management programs. The responsibility for the results is assumed by the asset managers and the participation of investors to decision making is more limited than in the case of mutual funds.

Both types of investment funds have a long history in the United States. While closed-end funds were created at the end of the nineteenth century, the first mutual funds appeared in 1924. The Investment Company Act of 1940 provided the first rigorous classification of the investment funds and regulated the activity of investment companies. While mutual funds had a modest development up until the 1980s, they grew spectacularly during the 1990s and after. Some of the factors considered responsible for the development are the tight regulations with regards to the interest rates banks could pay on deposits, the increasing spreads practiced by commercial banks, the development of the life insurance industry and of the private pension schemes that provided unprecedented investment capitals, as well as the spectacular development of the stock exchange in the United States and other countries at the end of the twentieth century.

A functional separation of investment funds similar to that in the United States is implemented in most other parts of the world. In the European Union, the largest market for mutual funds after the United States, mutual funds are formally classified as UCITS (undertakings for collective investments in transferable securities). The EU has embarked on a massive regulatory effort in the field of securities for the last 10 years trying to emulate the growth of capital markets and investment vehicles in the United States. The key role in the

adoption of new laws in the EU member states has been played by the Council of European Securities Regulators (CESR) and its measures towards more integrated capital markets in Europe.[3] CESR is a consultative committee set up to help the EC in its initiative to harmonize and integrate European capital markets with the aim of facilitating cross border investments and financial capital mobility in Europe.[4] Its goals are not only to make national governments adopt harmonized regulations and to stimulate better cooperation among national securities regulators, but also to promote new modalities for policy making and the adoption of regulatory measures regarding the capital markets.[5]

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[3] The ensemble of institutions and policies centered on CESR is also known at the European Union level as the *Lamfalussy process*.

[4] CESR is the concrete result of a series of action plans and policies outlined in the Financial Services Action Plan (FSAP) initiated by the European Commission in 1999 and made an integral part of the "Lisbon Agenda" by the European Council in Lisbon in April 2000. FSAP's aim was to further the creation of a single market in financial services within the EU; it also identified the need of pan-European reforms in securities markets regulations that could be addressed by the adoption of new laws, by the implementation of new law-making policies, and by paying attention to the mechanisms of market supervision. See Committee of Wise Men (2001), *Final Report on the Regulation of European Securities Markets*, available at www.cesr-eu.org .

[5] *A Committee of Wise Men on the Regulation of Security Markets* chaired by Baron Alexandre Lamfalussy was mandated by the *ECOFIN* of July 17, 2000 to produce a more accurate diagnosis of the state of capital market regulation across Europe and to suggest more specific policies to further their integration. Apart from a lucid evaluation of the weaknesses in European capital markets, the *Final Report on the Regulation of European Securities Markets* suggested a systematic set of measures organized according to a four level approach consisting of framework principles (level 1), directives and regulations to implement the principles (level 2), enhanced cooperation among national securities regulators to implement levels 1 and 2 (level 3), and actions to enforce Community law and to strengthen European coordination in securities regulation (level 4). In summary, the Lamfalussy process was meant to introduce not only new (harmonized) principles and regulations of securities

The regulatory framework instituted by CESR in all member states of the European Union is meant to create the premises for the selling of mutual fund shares across national borders. It is simultaneously supposed to facilitate cross border investments by mutual fund managers in assets traded on European securities markets. Basically meant to create the institutional foundations for the free movement of capital in the EU, the regulatory reform is supposed to bring benefits at a microeconomic level as well. Thus, it is assumed that cross border distribution of shares and cross border investments will offer increased opportunities for hedging and portfolio diversification as well as new opportunities for profits.

The framework imposes a new classification of investment funds into UCITS (undertakings for collective investments in transferable securities) referring to institutional solutions harmonized at the EU level and non-UCITS type entities where national regulators can create specific, non-harmonized types of funds. Elaborating on a previous EU directive[6] regarding investment funds, the new regulations roughly reproduce the former (and current in the United States) classification into mutual funds and closed-end funds.[7] While non-UCITS and closed-end funds are seen as more risky undertakings available for institutional and sophisticate

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markets but to institutionalize a new process of policy making in the field characterized by broad and transparent consultations with, the incorporation of suggestions from, and the strengthened cooperation among all market actors.. For a more detailed presentation of the working methods and policies implemented by CESR see "How CESR Works within the Lamfalussy Process," document available at http://www.cesr.eu/index.php?page=institutional context&mac=0&id= , and the excellent book by Ellis Ferran (2004).

[6] See *Directive 85/611/EEC of the Council (UCITS)* on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS).

[7] For a classification of European types of investment funds see the web site of the European Fund and Asset Management Association (EFAMA) at www.efama.org; for the American varieties and their regulation see the website of the Investment Company Institute (ICI) at www.ici.org.

investors, UCITS and mutual funds, having to comply with tighter and uniform regulations across borders, operating on the principle of freely redeemable shares by investors and imposing clear provisions with regard to prospectus and the release of relevant information, are open to the general public of lay investors as well as to institutional investors facing prudential regulations such as insurance companies and pension funds. The later are the variety supposed to have grown consistently around the world with the development of capital markets during the last decades.

The EU officials are optimistic about the creation of a single market for mutual funds in Europe and on the stimulating effect the Lamfalussy regulations on the mutual fund industry. The examination of the "Lamfalussy League tables" – the reports of the transposition of Lamfalussy regulations in all member states, indicates that all directives and recommendations regarding mutual funds have been transposed quickly into national legislation. [8] Given the current uniformity of regulations with regards to mutual funds in all member states of the European Union yet the diverse performance of the local mutual fund industry, questions arise regarding the factors explaining their different development in Europe and around the world. Our paper analyses the influence of the regulations affecting the entire financial system (less analyzed by the existing literature on mutual funds), the different enforcement abilities of national governments and the influence of socio-cultural factors in different countries on the growth of the mutual fund industry over a period of twelve years.

[8] The most important "Lamfalussy" directives adopted by the European Commission through the co-decision procedure and after consultation of market actors by CESR are the Prospectus Directive, the Market Abuse Directive, the Transparency Directive, and the Markets in Financial Instruments Directive (MiFID).

Methodology Used and the Generation of Hypotheses

We generated our hypotheses from the he study of previous comparative analyses of mutual fund development around the world (Klapper et al., 2004; Khorana et al., 2005) and based on an ethnographic study of the mutual fund industry in a former socialist society (see previous section). With an industry only 15 years old, Romania is currently integrated into the European Union and had to adopt the Lamfalussy type regulations regarding securities a long time before its formal accession into the EU in 2007. While the case of Romania can be considered atypical in many respects with regards to the countries with a developed mutual fund industry, its utility for the generation of research hypotheses comes precisely from its "exoticism". A former socialist society that embarked on the transition to capitalism twenty years ago, Romania tried to emulate the capital market institutions of the United States and is now involved in the building of a single European market for mutual funds. During the 1990s, it tried to adopt the laws, regulations, institutional solutions and technical expertise from the United States in an attempt to create a successful domestic mutual fund industry. It is currently doing the same thing in emulating the European model for investment funds. However, in spite of the successful "on books" transfer of laws, regulations and institutions, the case of Romania has so far proved to be a failure in almost all respects regarding the local establishment of mutual funds. The causes of this failure are, beyond factors related to general economic development, the age of the industry, the effectiveness of government and the quality of regulations (especially with regards to their enforcement), as well as the socio-cultural foundations of economic practices that both differ profoundly from its most successful peers and are hard to change in a short period of time.

We have gathered multi-annual data on a multitude of dependent and explanatory variables (see **Annex 1** for a list of dependent and explanatory variables) for a sample of 41

countries that submit reports on the state of the mutual fund industry to the Investment Company Institute. We have further computed averages for the series gathered over the period from 1996 to 2007. For most of the series we have yearly data. For the variables based on the World Values Survey (WVS) we have two series of data coming from two waves of the survey for each indicator. As WVS data refers to socio-cultural factors with a great stability in time and as the waves of the survey are conducted over three to four year windows, we take the two data series as sufficient and used their average in our analysis.

We take the average data series and do an analysis of pairwise correlations between all the variables. We are thus able to identify both variables that determine our dependent variables and pairs of highly correlated explanatory variables. O the basis of the above analysis we are able to select a more limited set of variables which we use in multivariate regressions. We compute regressions using four dependent variables mainly for robustness checks but also because some of them provide different information about the development and/or growth of the mutual fund industry across the sample of countries in the survey. We report mainly the regression models whose coefficients are statistically significant but also include some of the models which, in spite of not being rigorously significant, still provide interesting information for our analysis.

Data Gathered

The paper uses aggregate country level data on the net asset values of mutual funds, data about the economic performance and the development of the financial sector, indicators about institutional performance and the quality of laws and regulations, as well as results of survey on various socio-cultural values around the world.

We have access to data on the net asset values of mutual funds provided by the Investment Company Institute (ICI) and the European Fund and Asset Managers Association (EFAMA). Finally, due to data consistency considerations as well as to insure the existence of time series for all the countries in the survey, we use the data series of total net assets (in million US Dollars) made available by the Investment Company Institute. This reduces the sample to 44 countries from which we further exclude Lichtenstein, because of the lack of data for most of the other variables used in our analysis, as well as Luxembourg and Ireland. The later two countries have abnormal ratios of net asset values under management by the mutual fund industry to GDP (as well as very high NAV per capita) and have been excluded from the sample for statistical analysis.[9] We end up with 41 countries from around the world for most which we have gathered annual data for all the indicators used in the analysis and assembled from a variety of sources for the period between 1996 and 2007.

The single source for the data series on net asset values (ICI) insures consistency of the classification of the industry into mutual funds (of interest to the present analysis) and closed-end funds, as well as the similar treatment of funds of funds and of the home and foreign-domiciled funds. It also assures comparability as all NAVs are reported in US$. Supplemental data from EFAMA and national industries are used to check on the ICI provided data. Given the diversity of regulatory frameworks and of the different classification schemes adopted by national industry regulators, data consistency provided by a single source overcomes the disadvantages of a diminishing number of countries in the survey.

[9] Klapper et al. (2004) and Khorana et al. (2005), the two articles using a similar multivariate analysis on a panel of countries around the world cited in this paper, also exclude the two outliers (Luxembourg and Ireland) from their analysis.

Table 2: Descriptive statistics of the dependent and a selection of explanatory variables.

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	N
NAV (million US$)	312,643	42,139	7,296,259	112	1,122,483	42
NAGDP	0.3049	0.1957	2.6937	0.0014	0.4775	41
NAPOP	7,379	2,739	79,091	3	14,150	41
NASMK	0.4923	0.2910	4.5504	0.0068	0.7422	41
NAGR	0.3180	0.2153	1.4408	0.0557	0.3051	40
GDP (million US$)	735,972	235,116	9,960,825	17,030	1,689,098	41
POP (million)	102.02	21.99	1,279.24	1.99	253.98	41
SMKC	0.7284	0.4705	3.5942	0.0754	0.6694	42
CPI	6.02	6.09	9.64	2.24	2.33	42
GEFF	1.04	1.09	2.18	-0.59	0.84	42
REGQ	0.92	1.02	1.77	-0.61	0.67	42
RLAW	0.90	1.03	1.99	-0.90	0.87	42
FSDEP	0.6798	0.5255	2.1714	0.1694	0.4369	40
LIPV	0.0373	0.0261	0.1288	0.0015	0.0338	42
NLIPV	0.0246	0.0230	0.0474	0.0040	0.0124	42
LISTC	840	274	5535	51	1455	21
PVBDK	0.2848	0.2411	1.1691	0.0008	0.2637	34
PBBDK	0.3698	0.3381	1.0419	0.0498	0.2247	39
REMIT	0.0099	0.0048	0.1042	0.0001	0.0171	40
INTUS	28	26	57	2	17	41
GDPCAP	15,168.18	12,360.73	38,180.71	502.26	11,726.90	41
FDIOUT	3.3248	1.4970	21.1250	0.0357	4.5336	41
OPNGDP	79.50	66.71	314.33	22.40	51.77	41
RINTR	0.0520	0.0386	0.4604	0.0000	0.0695	42
INFCPI	0.0577	0.0292	0.4158	-0.0003	0.0824	42
INDAGE	40	43	83	6	20	40
NEWSPP	195	166	558	26	145	37
PPTRUST	0.3191	0.3053	0.6650	0.0280	0.1600	40
FRCHOIC	6.84	7.03	7.85	4.70	0.73	40
FINSAT	5.64	5.83	7.50	3.30	1.01	30
WKMNY	0.5406	0.5285	0.8780	0.2650	0.1445	32
FUTMNY	0.5983	0.6350	0.7810	0.3530	0.1092	34
HDI	0.8693	0.9208	0.9627	0.5234	0.1048	40
ICRGPRR	77.00	78.17	91.33	48.50	9.71	42
AVGSCH	8.58	8.915	12.25	2.45	2.19899	42
MSLM	0.0595	0.0030	0.9890	0.0000	0.2106	42
OTDX	0.0728	0.0030	0.9770	0.0000	0.2396	42
PRST	0.2252	0.0350	0.9690	0.0000	0.2972	42
RCAT	0.4740	0.4445	0.9890	0.0030	0.4021	42
OTHR	0.1651	0.0455	0.9450	0.0020	0.2616	42

We assemble a comprehensive database of dependent and explanatory variables. Basic statistics for the countries in the analysis (population size, GDP, per capita GDP) are taken from the World Development Indicators (WDI) Database of the World Bank and from the International Financial Statistics (IFS) Database of the International Monetary Fund. Such data is used both as explanatory variables and to compute the dependent variables employed in the analysis and for robustness checks.

A group of indicators measuring the relative size of financial flows from and into each country (FDI to GDP ratio, Imports and Exports per GDP, Remittances per GDP, etc.) are taken from Beck, Demirgüç-Kunt and Levine's "A New Database on Financial Development and Structure". Initiated in the 1990s, the database has been updated periodically, including as recently as the end of 2008, containing data for all the countries in the survey for every year in the analysis.

We use indicators for the development of securities markets, banking system and overall financial system in each of these countries. Competing financial institutions (banks, pension funds, insurance schemes) can act both as alternatives to mutual fund investments having a negative effect on the development of the industry, and as pools of capital channeled specifically through mutual funds by institutional investors thus stimulating the development of the industry. We examine the effects of such alternative financial systems on the mutual fund industry.

Banking system regulations and safety, with ambivalent effects on the growth of mutual funds, are described by indicators regarding the existence, type, and coverage of deposit insurance schemes. We include a number of such indicators taken from Demirguc-Kunt et al. (2005) in our regressions that offer a more technical description of the "supply side" characteristics of the banking industry in the country.

Dummy variables are used to test for the effect of financial crises on the growth of the mutual fund industry and for the role of the Lamfalussy-type regulatory framework in stimulating the development of mutual funds in the EU countries as opposed to the rest of the sample. The dummy for financial crises is created with data taken from Laeven and Valencia (2008), while the Lamfalussy dummy is created with data from the Lamfalussy transposition tables published by the European Commission and reports from the Committee of European Securities Regulators (CESR).

Various measures of political stability and the quality of the political environment are taken from Kaufmann et al.'s "Governance Matters VII" (2008) with data running through 2007 and from the Political Risk Ratings published by the International Country Risk Guide. The quality of laws and regulations and the perception of corruption are also reflected by indicators from Kaufmann et al. (2008) and from Transparency International's Corruption Perception Index.

Further data about social development and quality of life indicators is taken from the WDI Database of the World Bank as well as from previous studies of development economists such as Barro and Lee (2000) or the UNDP World Development Report.

Finally, a variety of indicators referring broadly to socio-cultural values are taken or adapted from the database of the World Values Survey. Such indicators reflect the religious beliefs of citizens of the considered countries, attitudes towards money and financial satisfaction, the relation between work and money, and the trust in their fellow people.

Description of Data and Summary Statistics

The examination of the descriptive statistics and average values for the dependent variables indicates the ample differences in the levels of development of the mutual fund industry in the

countries compared, both in absolute and relative terms. Net asset values ranging from 112 million US$ to 7,296,259 million US$, NAV to GDP ratio ranging from 0.14% to 269% and per capita NAV anywhere from 3 US$ to 79,091 US$ indicate a large dispersion in the indicators of mutual fund development. The average growth rates of national industries for the period from 1996 to 2007 also varied greatly with a minimum of 5.57% and a maximum of 144%. At the same time, the median growth rate was 21.53% indicating an uneven evolution of the various national industries during the analyzed period (see **Annex 2** for the NAV figures for the years 1996 to 2007).

The outliers are Lichtenstein, Luxembourg (with a NAV to GDP ratio of 4,862.00%), and Ireland (with a NAV to GDP ratio of 269.37%), all European countries that host impressive mutual fund industries due to the fiscal and regulatory facilities created by the governments. As previous studies of mutual fund development show (Klapper et al., 2004; Khorana et al., 2005), these values do not come from domestic factors but indicate that a considerably large international industry is located there. As a consequence, these countries are eliminated from the sample on which multiple regressions are performed.

At the other end of the spectrum, postsocialist countries like Romania and Russia, or Asian countries like Pakistan have the least developed mutual fund industries of those included in the analysis. Thus, Romania had an average NAV per capita of 3.45 US$ and an average NAV to GDP ratio of about 0.14% during the period. Russia had slightly higher values even if they stay small when compared to the rest of the countries: NAV per capita of 10.82 US$ and an average NAV to GDP ratio of 0.42% for the period. Coming from a different historical and political context, Pakistan displayed similarly low values of these indicators: average per capita NAV of 3.45 US$ and average NAV to GDP ratio of 0.57% for the period. At he same time,

these countries made efforts to stimulate the growth of the industry during the analyzed period. Given the low starting point, it comes as no surprise that these are the countries with the highest average annual growth rates of the industry in the sample analyzed: Russia – 144.08%, Pakistan - 129.02%, and Romania – 83.80%.

The United States leads the rest of the countries in the sample in terms of the NAV of the mutual fund industry with an annual average for the period of 7,296,258.67 million US$. It is also among the first in the world with regards to the NAV to GDP ratio (71.79%) and of the average per capita NAV (24,750.91 US$). Apart from Hong Kong, a regional financial center for Asia with high average values for NAV (285,022.17 million US$) and for per capita NAV (41,749.88 US$), the rest of the countries with developed mutual fund industries come from North America, Europe and the Pacific. Thus, Canada had an average NAV of 344,958.08 US$, average per capita NAV of 10,907.33 US$ and a NAV to GDP ratio of 44.97%. Of the European Countries, the United Kingdom, France, and Spain have the highest figures for the industry. The average NAV of UK funds was 432,698.17 million US$, the average per capita NAV was 7,241.50 US$, while the NAV to GDP ratio was on average 27.91%. France had average NAV of 1,019,476.83 US$, average NAV per capital of 16,909.57 US$ and a NAV to GDP ratio of 73.73%. Similarly, Spain's average values for the indicators were 244,459.50 million US$ NAV, 5,855.31 US$ in NAV per capita and 39.46% for the NAV to GDP ratio. Finally, of the Pacific societies, Australia stands out with an average NAV of 461,624.27 million US$ for the period, an average annual NAV per capita of 461,624.27 US$, and an average NAV to GDP ratio of 92.04%.

Table 3: Dependent Variables. Average Values for the period 1996-2007

	NAV	NAGDP	NAPOP	NASMK	NAGR	GDP
	million US$		US$ per capita			million US$
Americas						
Argentina	4,506.00	0.01507	120.55	0.05552	0.3111	292,055.26
Brazil	214,294.83	0.30096	1,178.21	0.73688	0.2116	677,212.20
Canada	344,958.08	0.44970	10,907.33	0.42264	0.1548	741,469.98
Chile	9,010.75	0.10337	561.37	0.10538	0.2409	81,115.13
Costa Rica	1,383.25	0.05129	220.31	0.63273	0.1424	17,029.93
Mexico	39,204.78	0.04692	282.16	0.24477	0.2060	582,523.70
United States	7,296,258.67	0.71787	24,750.91	0.53141	0.1231	9,960,824.98
Europe						
Austria	78,704.08	0.39234	9,665.21	1.81552	0.1264	196,029.88
Belgium	84,850.50	0.35126	8,211.26	0.45110	0.1728	235,116.40
Czech Republic	3,437.64	0.04774	308.43	0.20274	0.4202	61,328.32
Denmark	47,184.58	0.28174	8,749.69	0.46047	0.2533	161,320.02
Finland	26,818.17	0.19573	5,118.64	0.17202	0.3886	125,463.58
France	1,019,476.83	0.73730	16,909.57	0.98185	0.1347	1,345,407.20
Germany	246,676.67	0.12857	3,000.11	0.28151	0.1023	1,898,939.72
Greece	30,060.25	0.22278	2,738.87	0.45068	0.0906	135,770.30
Hungary	4,380.82	0.07127	397.58	0.27460	0.3644	51,208.01
Ireland	327,965.42	2.69371	79,090.85	4.55040	0.6156	104,065.47
Italy	394,437.58	0.35527	6,816.06	0.83242	0.1574	1,102,856.86
Liechtenstein	13,619.00				0.5059	
Luxembourg	1,101,455.08	48.62078	2,417,338.60	31.54802	0.2124	21,038.09
Netherlands	91,459.08	0.23644	5,696.33	0.21193	0.0557	385,427.72
Norway	26,374.25	0.14519	5,732.96	0.29097	0.2189	173,228.01
Poland	10,418.33	0.05065	272.77	0.19670	0.5465	178,784.31
Portugal	23,070.42	0.20500	2,223.96	0.54583	0.0697	111,734.00
Romania	111.50	0.00143	3.45	0.01363	0.8380	43,157.94
Russia	1,545.67	0.00422	10.82	0.00676	1.4408	292,448.39
Slovakia	2,839.40	0.04334	219.55	1.20211	0.4975	22,738.24
Slovenia	3,351.50	0.02128	278.16	0.31942	0.6985	21,119.74
Spain	244,459.50	0.39455	5,855.31	0.56845	0.1119	607,782.92
Sweden	92,165.67	0.35094	10,240.28	0.31653	0.1926	252,607.45
Switzerland	94,381.00	0.36621	12,883.14	0.15272	0.1320	252,778.35
Turkey	16,350.67	0.02505	114.98	0.16899	0.4025	286,497.64
United Kingdom	432,698.17	0.27915	7,241.50	0.19418	0.1644	1,501,648.75
Asia and Pacific						
Australia	461,624.27	0.92039	20,953.40	0.91504		422,202.53
China	434,063.00	0.01515	27.22	0.13789		1,461,464.24
Hong Kong	285,022.17	1.44149	41,749.88	0.36765	0.3433	181,250.98
India	29,997.33	0.04989	26.97	0.10886	0.2722	526,552.32
Japan	433,446.00	0.09032	3,415.41	0.11696	0.0691	4,770,364.04
Korea, Rep. of	179,178.40	0.28110	3,456.39	0.50034	0.1084	552,905.65
New Zealand	9,315.67	0.16890	2,341.88	0.41222	0.0719	54,518.58
Pakistan	3,560.00	0.00569	3.45	0.08780	1.2902	80,781.05
Philippines	859.67	0.00683	7.55	0.02403	0.4922	82,195.51
Taiwan	45,073.00				0.2262	

Africa						
South Africa	36,017.42	0.23295	761.54	0.12108	0.2616	142,911.15

National mutual fund industries display different patterns with regards to growth over the examined period. While the industries of all of the countries under survey grew in terms of NAV from 1996 to 2007, the patterns and rhythms of growth differ from region to region. Thus, the NAV in the United States and most countries of Western Europe grew continuously even if at small average annual rates. Many of the countries of Asia, Latin America and even North America display a different growth pattern. Their NAV grow during the 1990s and decline sensibly between 2000 and 2002 only to grow again during the last five years of the period under survey. They also register slightly higher average growth rates for national industries than the most developed countries. At the same time, most of the former socialist societies of Central and Eastern Europe have created their mutual fund industries sometime in the second half of the 1990s and grew continuously since and at relatively high average annual growth rates. Although neither of the countries in the later group have so far recorded significant values in terms of total NAV of national industries, per capital NAV or NAV to GDP ratios.

Results of Regressions

Based on the pairwise correlation matrix for all the variables we are able to see both the explanatory variables that are highly correlated with our dependent variables and the high correlation among certain explanatory variables. On the basis of such information we are able to exclude from the analysis variables that do not seem to be correlated with the dependent variables and that do not have a significant influence on the indicators of mutual fund development. Of the remaining explanatory variables, we select a few that we include in differently specified multivariate regression models. We exclude a number of variables from the

analysis that are highly correlated with our strongest explanatory variables and could induce multicoliniarity into our regressions.

We use the average annual NAV to GDP ratio as our main dependent variable. We take it as the most representative indicator of mutual fund development in spite of the criticism brought to it by previous authors. Although it is computed as the ratio of a static indicator with a dynamic one, it insures comparability across countries and highlights the importance of mutual funds to the funding of economic growth instead of simply indicating a particular structure of the financial system (as in the case of mutual fund NAV to primary securities used by Khorana et al. [2005]). We include three more dependent variables in the analysis for robustness checks. We use average per capita NAV, average NAV to stock market capitalization ratio, and the average annual growth rate of NAV for each of the countries. We generally perform the same multivariate regressions as in the case of the primary dependent variable to which we add a small number of models each time when that seems to make economic sense or when the pairwise correlation analysis suggests a new model specification.

The results of the models with NAV to stock market capitalization ratio are usually not significant at any of the 1%, 10%, or 15% levels so we do not include them in the list of results reported (see **Annex 3**: Multivariate regression results). Models using the average NAV growth rate as dependent variable generally have opposed signs to those using average NAV to GDP or average per capita NAV. We report them in **Annex 3** but give them a different interpretation than that for the first two classes of multivariate OLS models.

We report results for all specification significant for the first series of multivariate OLS models for each of the other two types of model specifications. In addition, we report results for models that are significant when per capita NAV and NAV growth rate are used as dependent

variables. We mark differently models significant under all three specifications of the dependent variables, models that are significant under at least one of the specifications and models whose coefficients are not significant at any of the levels considered. In addition to that, we report on a number of models whose coefficients are not significant but still have the same sign under all specifications. They suggest interesting even not statistically significant relations between variables under analysis.

Interpretation of Results

We compute the dependent variables used in the regressions based on indicators such as GDP, population size and stock market capitalization. As measures of financial sectors development we use stock market capitalization, financial system deposits and a dummy for financial crises. We use further measures of financial openness such as the ratio of remittances to GDP and the degree of financial openness which we compute as the ratio of exports and imports to GDP. To further characterize the economic development and the economic environment in the country we use GDP per capita, the real interest rate and the CPI measured inflation. To characterize the regulatory environment and the quality of governance in the country we use the regulatory quality index from "Governance Matters VII", the corruption perception index from Transparency International, a dummy variable indicating the British origin of the legal system, and a dummy variable indicating the presence of a Lamfalussy type regulatory framework. We further use of variable for the mutual fund industry age. The human development index and ICRG's political risk ratings are composite indices of social development and political environment. Finally, a series of variables derived from the World Values Survey denote the socio-cultural values prevalent in the countries analyzed. Such are indicators of trust in people,

perceptions of the freedom of choice and degree of financial satisfaction, the relation between work and money or the importance money and material possessions should take in the future. In addition to that, we include variables measuring the percentage of Muslim, Christian Orthodox, Protestant, Roman Catholic and other religions believers.

In our first series of multivariate models we **use net asset value to GDP (NAGDP) ratio** as dependent variable. Models (4) and (6) are significant under all specifications reported (when dependent variables are per capita NAV or NAV growth rate) at least at the 15% level. This is strong indication of the determination of NAV to GDP ratio by regulatory quality, industry age and a British legal system. All coefficients are positive and significant indicating a direct determination of mutual fund industry development by the three factors. Regulatory quality proves to be an excellent determinant of the industry development as it is significant in most model specifications. It replaces well all other indicators of regulatory and legal system quality used in previous analyses of mutual fund development capturing both the quality of laws and regulations and the effectiveness of their enforcement.[10]

CPI and regulatory quality are highly correlated. The two indicators could be interchanged in multivariate OLS models. We use more often regulatory quality both because of the higher degree of determination for models in which it is present and for its informational content.

Model (3) is significant indicating that the presence of the Lamfalussy regulatory framework has a negative impact on mutual fund development. The finding is somehow surprising both given the assumed goals of the European Commission with the regulatory harmonization attempted at the EU level and because many of the countries in the common EU

[10] See description of indices in Kaufmann et all. (2008), "Government Matters VII".

securities market are economies with developed financial systems. At the same time, this can suggest further measures to be taken towards the stimulation of mutual fund growth in EU countries.

Models (1), (13), (15), (22), (23) and (24) all suggest a positive influence of per capita GDP on mutual fund development. This is in accord with results of previous studies and indicates that economic development generates investment capitals that can further determine the development of the financial system. At the same time, there is a high correlation between regulatory quality and GDP per capita and the two indicators can be used alternatively in models for the determination if mutual fund development.

Other variables whose coefficients are significant in various models are stock market capitalization (model [2]), outflows of FDI (model [11]), degree of openness (models [5] and [16]). Models (15), (20), (23) and (24) indicate that mutual fund development is positively determined by an attitude which sees the decline of the role of money and material possessions in the future as a good thing. While this might appear counterintuitive, it might also mean that such attitudes are common among people in developed (post-materialist) societies that already have a high degree of economic development and, by consequence, a developed mutual fund industry. There is a positive, even if not very strong, correlation between GDP per capita and responses indexed by this variable (FUTMNY). While this aspect cannot be completely elucidated here, it indicated an issue that can be addressed in future research.

Although it does not have a significant coefficient in any of the models reported in our paper (models [7], [14], [25]), the sign of the relation between attitudes towards work and money and mutual fund development is always negative and we decided to report it. The variable codes for the answers of people agreeing that gaining money without work is a bad thing. The sign of

the relation (minus) is logical and comes to confirm many ethnographic studies of money in postsocialist or postcolonial societies (Verdery, 1995b; Comaroff and Comaroff, 1999; Mandel and Humphrey, 2002). It explains why the adoption of capitalist financial institutions and practices around the world is premised on the reconfiguration of attitudes towards money, the diminishing role of vulgar labor theories of values, and the view of investment and financial speculation as legitimate forms of gain. Further study of the relations between the ideologies of work and money and the adoption of capitalist practices is needed.

At the same time, factors such as real interest rates and inflation are not significant coming to nuance some of the results of previous studies of mutual fund development around the world. Also, religion does not seem to play any role in explaining the size of the mutual fund industry.

Our second series of multivariate OLS models uses **per capita NAV (NAPOP)** as dependent variable. We use such specification of regression models as a robustness check for our main dependent variable. The variables with a significant influence on the development of mutual funds are the same: per capita GDP, regulatory quality, financial system deposits, outflows of FDI, degree of openness, and stock market capitalization. The variable coding for attitudes towards the future of money is also significant in several specifications of multivariate models. The variable coding for the presence of Lamfalussy regulations is again significant in a model in which it appears with regulatory quality and it has again a negative influence on mutual fund development. The variable coding for attitudes towards work and money is closer to being significant and again its coefficient is negative having the same significance as in the previous series of multivariate models. Finally, inflation, real interest rate or religion are still not significant under this class of specifications.

The final series of multivariate OLS models we report on use the **average annual growth rate of mutual fund industry (NAGR)** as dependent variable. This series of specifications is not simply used for robustness. As the results are constantly opposed to those of the previous two series of models, this indicates that mutual fund development and growth are separate processes with different determinants.

Regulatory quality and GDP per capita are significant in several specifications each. In all significant specifications the coefficients of the two variables are negative indicating an negative relation between economic development and regulatory quality and the development of mutual funds. This means that, during the analyzed period, less developed countries had higher average annual growth rates of the industry. This is not surprising as they started from a much lower base but reflects an encouraging trend of growth for the worldwide mutual fund industry.

Model (7) shows that economic openness can be a significant factor and its influence is positive. Thus, this is one of the few factors considered whose influence is positive on both the development and growth of mutual funds. Model (8) shows a significant and negative influence of real interest rates. Combined with the significant and positive coefficient of inflation in model (9), this indicates the growth rates of mutual funds have been the highest in less stable economies with smaller real interest rates for the period and higher inflation. The emerging, postsocialist or postcolonial societies where the fund industry has been created recently is also where the growth of mutual funds has been the most accelerated (model [10]).

In the area of socio-cultural values we are able to report some interesting results. Model (11) shows that attitudes towards financial satisfaction, usually associated with economic and social development, exert a negative influence on the development of mutual funds. The dummy

variable on Lamfalussy type regulations is not significant under any specification and alternates signs so we can infer that this factor does not exert any real influence on our dependent variable.

The variable coding for attitudes towards work and money is generally not significant with the exception of model (25) where its coefficient is significant. Furthermore, in all model specifications its coefficients are negative indicating that a widespread belief that gaining money without work is bad inhibits the growth of mutual funds in the respective countries. The variable coding for attitudes on the future role of money and material possessions is not significant in any of the specifications tried and its coefficient is usually positive. This, again, might indicate that the variable does not stand for a factor with influence on mutual funds but codes for cultural attitudes towards money in societies where economic processes have or are occupying the center stage of social life.

Models (18) to (23) report on the role of religious affiliation in the process analyzed. Thus, while the presence of large percentages of Muslims and Christian Orthodox believers in the country seems to exert a positive influence on the growth rates, the growth of mutual funds seems to be influenced adversely by the presence of larger proportions of Roman Catholic believers. Although it is hard to decide if religion does determine the growth of mutual funds, the good news for professionals in the industry is that it does not inhibit its development. As models we report on suggest, even Muslim and Christian Orthodox countries, for long periods of their history opposed to the adoption of capitalism, seem to join in the club of countries where the mutual fund industry is growing rapidly.

Conclusions

This paper analyzed the determinants of mutual fund development and growth during the period from 1996 to 2007 in a cross-country setting. We started with a sample of 44 countries from around the world for which we have comparable data on domestic mutual fund industries reported by the Investment Company Institute. We excluded from the database the cases of Ireland, Lichtenstein and Luxembourg for insufficient data or because the indicators characterizing the size of their industries represent outliers in the sample.

The paper is based on a comprehensive database of indicators characterizing economic and social development, the size and characteristics of the rest of the financial system, the quality of regulations, political and judicial environment, as well as numerous variables coding for the socio-cultural characteristics of the population in each country. We selected a reduced number of variables highly correlated with the indicators of mutual fund development and growth on which we ran a high number of multivariate regressions. Several model specifications with significant coefficients were reported for each of the dependent variables we used in our paper. The goals of the analysis were to evaluate some of the results of similar previous studies over a longer period of time, to identify new factors with a significant impact on the development and growth of mutual funds, and to formulate new hypotheses and themes of research.

The fist dependent variable was NAV to GDP ratio. The regression results confirmed the significant influence of regulatory quality, socio-economic development, financial development and degree of openness of the country (relative to trade and financial flows). At the same time, results also indicated the weak negative impact of a Lamfalussy type regulatory framework on mutual fund development. Indicators coding for various socio-cultural values also provided some interesting results. Thus, trust in people does not exert a significant influence on mutual fund development. Financial satisfaction seems to be positively related to the development of funds

while a belief that money should play a less prominent role in the future is also positively related to mutual fund development. At the same time, the belief that money and legitimate gains should be based on work exerts a negative yet non-significant influence on the dependent variable. Combined with reports from ethnographic studies of the adoption of capitalist practices around the world, this suggests a potentially rewarding set of research questions.

While the second dependent variable on which we report the results of regressions (per capita NAV) confirms the robustness of results obtained for the first series of regressions, the third series of regressions performed for the average annual growth rate of national mutual fund industries provides some new results. These indicate that mutual funds have grown most rapidly in less developed countries where inflation was higher and real interest rates were lower. Results also indicate that the mutual fund industry grew more rapidly in countries with a lower quality of regulations (although development and regulatory quality are positively related) and in countries with higher proportions of Muslim and Christian Orthodox believers. The Lamfalussy-type regulations in the field of securities do not exert a significant influence on fund growth while attitudes about work as the legitimate foundation of money are negatively related to the growth of the growth of mutual funds. The results of the last set of regressions should be interpreted with caution. Given the low starting point (the low level of mutual fund development) of the countries with the highest growth rates, the absolute increase proves less spectacular than the rates of growth of the mutual fund industry.

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Annex 1: Description of dependent and explanatory variables wit the corresponding data sources.

DEPENDENT VARIABLES

Variable	Significance	Factor of development	Source of data
NAGDP	Net asset value of mutual fund industry as a ratio to GDP. Computed by the authors. Average for 1996-2007	Dependent Variable	Investment Company Institute, WDI-WB and IFS-IMF.
NAPOP	Net asset value of domestic mutual fund industry per capita. Computed by the authors. Average for 1996-2007	Dependent Variable	Investment Company Institute and IFS-IMF.
NASMK	Net asset value of domestic mutual fund industry as a ratio to stock market capitalization. Computed by the authors. Average for 1996-2007.	Dependent Variable	Investment Company Institute and Beck, Demirgüç-Kunt and Levine (2008)
NAGR	Net asset value annual growth rate. Computed by the authors. Average for 1996-2007	Dependent Variable	Investment Company Institute and European Fund and Asset Management Association

EXPLANATORY AND AUXILIARY VARIABLES

Variable	Significance	Factor of development	Source of data
NAV	The absolute size of the mutual fund industry in each country analyzed. Measured as net asset value in million USD. The average for the period 1996-2007 is used in the multivariate regressions.		Investment Company Institute (ICI); European Fund and Asset Management Association; national associations of asset managers
GDP	The Gross Domestic Product measured in USD taken from the World Development Indicators Database of the World Bank and from the International Financial Statistics Database of the IMF. Measured in USD. Average for 1996-2007.		World Development Indicators (WDI) Database, the World Bank, and International Financial Statistics database, IMF
POP	Number of inhabitants in each country. Million inhabitants. Average for 1996-2007.	Population size	International Financial Statistics (IFS), IMF
SMKC	Stock market capitalization as a ratio to GDP. Average for 1996-2007	Capital market development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
DFC	Dummy variable for financial crises. 1 if the country was affected by a systemic banking crisis, currency crisis, or debt crisis during the period from 1996 to 2007; 0 if no crisis.	Financial crises / Financial environment	Laeven and Valencia, "Systemic Banking Crises: A New Database", 2008
CPI	Corruption Perception Index published by Transparency International. CPI Score: 1 – very high corruption; 10 – no corruption. Average for 1996-2007	Political corruption / Quality of government	Transparency International
VACC	Voice and Accountability indicator measuring participation in the election of government, freedom of expression, freedom of association, and a free media by citizens. Scale: -2.5 to 2.5; higher value means better outcome. Average for 1996-2007	Political environment	Kaufmann et al., "Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007", 2008
PSAV	Political Stability and Absence of	Political environment	Kaufmann et al.,

	Violence measuring perceptions about the possibility that government will be overthrown or changed. Scale: -2.5 to 2.5; higher value means better outcome. Average for 1996-2007		"Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007", 2008
GEFF	Government Effectiveness measures the quality of public policies and of the civil service. Scale: -2.5 to 2.5; higher value means better outcome. Average for 1996-2007	Political environment	Kaufmann et al., "Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007", 2008
REGQ	Regulatory Quality measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Scale: -2.5 to 2.5; higher value means better outcome. Average for 1996-2007	Regulatory quality	Kaufmann et al., "Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007", 2008
RLAW	Rule of Law measures perceptions of the rules of society, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Scale: -2.5 to 2.5; higher value means better outcome. Average for 1996-2007	Regulatory quality	Kaufmann et al., "Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007", 2008
CCOR	Control of Corruption measures perceptions of the extent to which public power is exerted for private gain; petty and grand forms of corruption; "capture" of the state by elites and private interests. Scale: -2.5 to 2.5; higher value means better outcome. Average for 1996-2007	Political corruption / Quality of government	Kaufmann et al., "Governance Matters VII: Aggregate and Individual Governance Indicators 1996-2007", 2008
LIQLR	Ratio of liquid liabilities in the economy to GDP. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
BDEP	Ratio of bank deposits in the economy to GDP. Average for 1996-2007	Banking system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
FSDEP	Ratio of financial system deposits in the economy to GDP. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
LIQL	Amount of liquid liabilities in the economy. Measured in 2000 million USD. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
BOHC	Ratio of bank overhead costs to total assets. Average for 1996-2007	Banking system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
LIPV	Ratio of life insurance premiums in the economy to GDP. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008

NLIPV	Ratio of non-life insurance premiums in the economy to GDP. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
SMTVT	Ratio of stock market total value traded to GDP. Average for 1996-2007	Capital market development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
SMTOV	Stock market turnover ratio. Average for 1996-2007	Capital market development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
LISTC	Number of listed companies on the local capital market. Average for 1996-2007	Capital market development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
PVBDK	Ratio of private bond market capitalization to GDP. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
PBBDK	Ratio of public bond market capitalization to GDP. Average for 1996-2007	Financial system development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
INTDBT	Ratio of international debt issues to GDP. Average for 1996-2007	Degree of financial openness	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
LNRBKN	Ratio of loans from non-resident banks (net) to GDP. Average for 1996-2007	Degree of financial openness	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
LNRBKN	Ratio of loans from non-resident banks (amount outstanding) to GDP. Average for 1996-2007	Degree of financial openness	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
OFFBDK	Ratio of offshore bank deposits to domestic bank deposits. Average for 1996-2007	Degree of financial openness	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
REMIT	Ratio of remittance inflows to GDP. Average for 1996-2007	Economic development	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure"; updated in November 2008
STKTOV	Ratio of total value of stocks traded to GDP. Average for 1996-2007	Capital market development	World Development Indicators (WDI) Indicators, the World Bank
INTUS	Ratio of internet users per 100 people. Average for 1996-2007	Social development	World Development Indicators (WDI) Indicators, the World Bank

GINIWB	GINI index of social inequality. Average for 1996-2007	Social development	World Development Indicators (WDI) Indicators, the World Bank
GDPCAP	Ratio of GDP per capita (ct. 2000 US$). Average for 1996-2007	Economic development	World Development Indicators (WDI) Indicators, the World Bank
DAYNWS	Ratio of daily newspapers per 1,000 people. Average for 1996-2007	Social development	World Development Indicators (WDI) Indicators, the World Bank
FDIINF	Ratio of the net inflows of foreign direct investments to GDP. Average for 1996-2007	Degree of financial openness	World Development Indicators (WDI) Indicators, the World Bank
FDIOUT	Ratio of the net outflows of foreign direct investments to GDP. Average for 1996-2007	Degree of financial openness	World Development Indicators (WDI) Indicators, the World Bank
EXPGDP	Ratio of exports of goods and services to GDP. Average for 1996-2007	Degree of financial openness	World Development Indicators (WDI) Indicators, the World Bank
IMPGDP	Ratio of imports of goods and services to GDP. Average for 1996-2007	Degree of financial openness	World Development Indicators (WDI) Indicators, the World Bank
OPNGDP	Ratio of the total of exports and imports to GDP. Average for 1996-2007	Degree of financial openness	World Development Indicators (WDI) Indicators, the World Bank
RINTR	Average real interest rates for the period 1996-2007. Computed by the authors.	Economic environment	World Development Indicators (WDI) Indicators, the World Bank
INFCPI	Average inflation measured from the consumer price index for the period 1996-2007. Computed by the authors.	Economic environment	World Development Indicators (WDI) Indicators, the World Bank
RGN	Variable coding for the region of the world to which the country belongs: 1- Americas; 2 - Europe; 3 – Asia and the Pacific; 4 - Africa.	Geography	ICI Classification
LLSV99	Variable coding for the legal origin of the countries under survey following LLSV99: 1 - French; 2 - German; 3 - Scandinavian; 4 - British.	Legal system	La Porta et al., “Law and Finance”, 1998 (LLSV99)
STRTYR	Start year for mutual fund industry in the countries in the database.	Industry Age	Khorana et al., “Explaining the size of the mutual fund industry around the world”, 2005
INDAGE	Age of mutual fund industry in each country as of 2007. Computed by the authors.	Industry Age	Khorana et al., “Explaining the size of the mutual fund industry around the world”, 2005
BKCCTR	Indicator of bank sector concentration measuring the fraction of assets held by the top three banks in the system.	Banking system development	Demirgüç-Kunt et al., “Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation”, 2004
LEGUK	Dummy variable indicting the British legal origin (1) of the country.	Legal system	La Porta et al., “Law and Finance”, 1998
LEGFR	Dummy variable indicting the French legal origin (1) of the country.	Legal system	La Porta et al., “Law and Finance”, 1998
LEGGE	Dummy variable indicting the German legal origin (1) of the country.	Legal system	La Porta et al., “Law and Finance”, 1998
LEGSK	Dummy variable indicting the Scandinavian legal origin (1) of the country.	Legal system	La Porta et al., “Law and Finance”, 1998
DLSSY	Lamfalussy Dummy indicating the	Regulatory quality	Lamfalussy League Table.

	inclusion of the country in the group having adopted the EU regulatory framework regarding capital markets and mutual funds. Variable created by the authors		Transposition of Lamfalussy Directives.
PPTRUST	Ratio of affirmative responses to question "A165.- Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" from the World Values Survey. Average results for 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
FRCHOIC	Index measuring the freedom of choice perceived by respondents to the World Values Survey: 1 – no freedom at all; 10 – a great deal of freedom. Average results for 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
FINSAT	Index of satisfaction with the financial situation of the household: 1 – dissatisfied; 10 – satisfied. Average results for 1994-1999 and 1999-2004 waves of the survey	Economic development	World Values Survey Databank
WKMNY	Ratio of respondents agreeing that it is humiliating to receive money without having to work for it. Average results for 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
FUTMNY	Ratio of respondents agreeing that less emphasis on money and material possessions in the future is a good thing. Average results for 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
CONFJST	Ratio of respondents having confidence in the justice system. Average results for 1994-1999 and 1999-2004 waves of the survey	Quality of government	World Values Survey Databank
CONFGOV	Ratio of respondents having confidence in the government. Average results for 1994-1999 and 1999-2004 waves of the survey	Quality of government	World Values Survey Databank
HDI	Human development Index. Average computed by the authors from series for years 1995, 2000, 2002	Social development	The UNDP Human Development Report
ICRGPRR	Political Risk Rating measured by the International Country Risk Group. Index defined on 12 variables covering political and social attributes of risk and stability. Based on a scale of 100 with high values being related to low risk. Average from the series for 1996, 2002, and 2007	Political environment	The PRS Group International Country Risk Guide 2009
AVGSCH	Average school years by the people in the countries under survey. Data was published in the year 2000	Social development	Barro and Lee, "International Data on Educational Attainment: Updates and Implications", 2000
DEPINSE	Dummy variable for the presence of deposit insurance schemes in the countries under survey: 1 – explicit; 0 – implicit.	Banking system development	Demirguc-Kunt et al., "Deposit Insurance Around the World: A Comprehensive Database", 2005

DEPINSFC	Dummy variable for the presence of foreign currency deposit insurance schemes in the countries under survey: 1 – yes; 0 – no.	Banking system development	Demirguc-Kunt et al., "Deposit Insurance Around the World: A Comprehensive Database", 2005
DEPINSIB	Dummy variable for the presence of inter-bank deposits insurance schemes in the countries under survey: 1 – yes; 0 – no.	Banking system development	Demirguc-Kunt et al., "Deposit Insurance Around the World: A Comprehensive Database", 2005
DEPCOINS	Dummy variable for the presence of deposit insurance schemes based on coinsurance in the countries under survey: 1 – yes; 0 – no.	Banking system development	Demirguc-Kunt et al., "Deposit Insurance Around the World: A Comprehensive Database", 2005
DEPINSIV	Dummy variable for the type of deposit insurance schemes in the countries under survey: 1 – payment per depositor; 0 – payment per deposit.	Banking system development	Demirguc-Kunt et al., "Deposit Insurance Around the World: A Comprehensive Database", 2005
DEPINSPR	Dummy variable for the permanent funding of the deposit insurance schemes in the countries under survey: 1 – funded; 0 – unfunded.	Banking system development	Demirguc-Kunt et al., "Deposit Insurance Around the World: A Comprehensive Database", 2005
MSLM	Percentage of the population declaring themselves Muslim. Based on data from the 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
OTDX	Percentage of the population declaring themselves Christian Orthodox. Based on data from the 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
PRST	Percentage of the population declaring themselves Protestant. Based on data from the 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
RCAT	Percentage of the population declaring themselves Roman Catholic. Based on data from the 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank
OTHR	Percentage of the population declaring themselves of other religion than the four mentioned above. Based on data from the 1994-1999 and 1999-2004 waves of the survey	Human socio-cultural values	World Values Survey Databank

Annex 2: Net Asset Values of national mutual fund industries for the period 1996-2007. Source: The Investment Company Institute.

	Net Assets Values (million US$)											
	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Americas												
Argentina	1,869	5,247	6,930	6,990	7,425	3,751	1,021	1,916	2,355	3,626	6,153	6,789
Brazil	103,786	108,606	118,687	117,758	148,538	148,189	96,729	171,596	220,586	302,927	418,771	615,365
Canada	154,529	197,985	213,451	269,825	279,511	267,863	248,979	338,369	413,772	490,518	566,298	698,397
Chile	2,934	4,549	2,910	4,091	4,597	5,090	6,705	8,552	12,588	13,969	17,700	24,444
Costa Rica					919	1,577	1,738	2,754	1,053	804	1,018	1,203
Mexico				19,468	18,488	31,723	30,759	31,953	35,157	47,253	62,614	75,428
United States	3,525,801	4,468,201	5,525,209	6,846,339	6,964,634	6,974,913	6,390,358	7,414,401	8,106,939	8,904,824	10,412,458	12,021,027
Europe												
Austria	39,543	44,930	57,447	56,254	56,549	55,211	66,877	87,982	103,709	109,002	128,236	138,709
Belgium	29,247	33,658	56,339	65,461	70,313	68,661	74,983	98,724	118,373	115,314	137,291	149,842
Czech Republic		361	556	1,473	1,990	1,778	3,297	4,083	4,860	5,331	6,490	7,595
Denmark	9,338	13,037	19,450	27,545	32,485	33,831	40,153	49,533	64,799	75,199	95,620	105,225
Finland	2,510	3,534	5,695	10,318	12,698	12,933	16,516	25,601	37,658	45,415	67,804	81,136
France	534,145	495,774	626,154	656,132	721,973	713,378	845,147	1,148,446	1,370,954	1,362,671	1,769,258	1,989,690
Germany	137,860	146,888	195,701	237,312	238,029	213,662	209,168	276,319	295,997	296,787	340,325	372,072
Greece	15,788	25,759	32,194	36,397	29,154	23,888	26,621	38,394	43,106	32,011	27,604	29,807

Hungary		713	1,476	1,725	1,953	2,260	3,992	3,936	4,966	6,068	8,523	12,577
Ireland	7,735	22,729	50,337	95,135	137,024	191,840	250,116	360,425	467,620	546,242	855,011	951,371
Italy	129,992	209,410	439,701	478,530	424,014	359,879	378,259	478,734	511,733	450,514	452,798	419,687
Liechtenstein							3,847	8,936	12,543	13,970	17,315	25,103
Luxembourg	338,236	390,623	508,441	661,084	747,117	758,720	803,869	1,104,112	1,396,131	1,635,785	2,188,278	2,685,065
Netherlands	67,147	70,373	87,996	102,492	93,580	79,165	84,211	93,573	102,134	94,357	108,560	113,921
Norway	9,930	13,058	11,148	15,107	16,228	14,752	15,471	21,994	29,907	40,122	54,065	74,709
Poland	475	541	517	762	1,546	2,970	5,468	8,576	12,014	17,652	28,957	45,542
Portugal	17,079	15,472	23,299	20,574	16,588	16,618	19,969	26,985	30,514	28,801	31,214	29,732
Romania					8	10	27	29	72	109	247	390
Russia	6	41	29	177	177	297	372	851	1,347	2,417	5,659	7,175
Slovakia								1,061	2,168	3,035	3,171	4,762
Slovenia											2,484	4,219
Spain	144,134	177,192	238,917	207,603	172,438	159,899	179,133	255,344	317,538	316,864	367,918	396,534
Sweden	34,981	45,452	54,923	83,250	78,085	65,538	57,992	87,746	107,064	119,059	176,943	194,955
Switzerland	48,166	53,444	69,151	82,512	83,059	75,973	82,622	90,772	94,407	116,669	159,515	176,282
Turkey							6,002	14,157	18,112	21,761	15,463	22,609
United Kingdom	201,304	235,683	277,551	375,199	361,008	316,702	288,887	396,523	492,726	547,103	755,156	944,536
Asia and Pacific												
Australia	44,124	42,909	47,761		341,955	334,016	356,304	518,411	635,073	700,068	864,254	1,192,992
China												434,063

Hong Kong	41,017	58,456	98,767	182,265	195,924	170,073	164,322	255,811	343,638	460,517	631,055	818,421
India	9,717	9,353	8,685	13,065	13,507	15,284	20,364	29,800	32,846	40,546	58,219	108,582
Japan	420,103	311,335	376,533	502,752	431,996	343,907	303,191	349,148	399,462	470,044	578,883	713,998
Korea, Rep. of		N/A	165,028	167,177	110,613	119,439	149,544	121,663	177,417	198,994	251,930	329,979
New Zealand	7,686	7,519	7,250	8,502	7,802	6,564	7,505	9,641	11,171	10,332	12,892	14,924
Pakistan											2,164	4,956
Philippines				117	108	211	474	792	952	1,449	1,544	2,090
Taiwan	8,351	12,365	20,310	31,153	32,074	49,742	62,153	76,205	77,328	57,301	55,571	58,323
Africa												
South Africa	9,354	12,688	12,160	18,235	16,921	14,561	20,983	34,460	54,006	65,594	78,026	95,221

Annex 3: Multivariate regressions results. Bold figures correspond to models whose parameters are significant at 15% or less for all three dependent variables. Figures in bold and italics correspond to models whose coefficients are significant at 15% or for at least one dependent variable. Regular figures correspond to models whose coefficients are not significant or only vaguely significant but that still provide some indications of the relations between variables. Regression coefficients are reported on top rows while p-values are reported underneath each coefficient.

Equation number	***1***	***2***	***3***	***4***	***5***	***6***	7	8	***9***	***10***	***11***	12	***13***
NAGDP (dependent)													
C	***0.018494***	***-0.033776***	***0.081011***	**-0.055105**	***-0.041352***	**-0.000264**	0.242543	-0.148888	***1.226611***	***-0.051808***	***0.040849***	0.077584	***-0.02641***
	0.7831	***0.5314***	***0.2264***	**0.5567**	***0.5953***	**0.9966**	0.3516	0.3451	***0.0517***	***0.4918***	***0.5109***	0.2837	***0.7195***
GDP													
POP													
SMKC		***0.260535***											
		0											
DFC													
CPI													
REGQ	***0.127042***	***0.101689***	***0.27017***	**0.18197**	***0.185082***	**0.208475**	0.119559	0.151129	***0.46251***	***0.138368***	***0.140951***		
	0.1532	***0.0576***	***0.0001***	**0.0082**		**0.0004**	0.1526	0.0014	***0.0014***	***0.0469***	***0.0353***		
FSDEP					***0.004***					***0.258045***			***0.248394***
										0.0147			***0.0323***
SMKC													
REMIT													
GDPCAP	***7.58E-06***											1.35E-05	***7.16E-06***
	0.1418											0.0004	***0.0988***
FDIOUT											***0.023897***		
											0.0173		

OPNGDP					***0.001558***								
					0.0614								
RINTR													
INFCPI													
INDAGE				**0.003422**									
				0.1269									
LEGUK						**0.260968**							
						0.0044							
DLSSY			***-0.163796***									-0.07056	
			0.0524									0.3814	
PPTRUST													
FRCHOIC													
FINSAT													
WKMNY							-0.276768						
							0.4469						
FUTMNY								0.366921					
								0.1815					
HDI													
ICRGPRR									***-0.0182***				
									0.0589				
MSLM													
OTDX													
PRST													
RCAT													

OTHR													
Adjusted R-squared	***0.284281***	***0.549637***	***0.315088***	**0.28742**	***0.31009***	**0.39213**	0.283204	0.34686	***0.311425***	***0.346332***	***0.349759***	0.258872	***0.323397***
N	40	40	40	38	40	40	31	33	***40***	***39***	***40***	40	***39***

Equation number	14	***15***	***16***	17	18	***19***	***20***	***21***	***22***	***23***	***24***	25
NAGDP (dependent)												
C	0.08666	***-0.1857***	***-0.09491***	-0.00891	0.057691	***-0.04328***	***-0.2581***	***-0.04328***	***-0.03583***	***-0.25957***	***-0.22978***	0.30084
	0.6701	***0.1882***	***0.2278***	0.9074	0.409	***0.4189***	***0.0983***	***0.4189***	***0.497***	***0.0669***	***0.0986***	0.256
GDP												
POP												
SMKC								***0.223467***				
								0.0003				
DFC												
CPI												
REGQ					0.192459	***0.111476***	***0.095687***	***0.111476***				0.143948
					0.0466	***0.0368***	***0.0464***	***0.0368***				0.0959
FSDEP												
SMKC						***0.223467***	***0.165786***		***0.219904***	***0.128682***		
						0.0003	***0.0227***		***0.0006***	***0.053***		
REMIT												
GDPCAP	1.10E-05	***1.12E-05***	***1.20E-05***	1.41E-05	5.55E-06				***6.28E-06***	***8.48E-06***	***1.09E-05***	
	0.0077	***0***	***0.0005***	0.0002	0.2814				***0.0489***	***0.0026***	***0***	
FDIOUT												
OPNGDP			***0.002078***									
			0.0067									
RINTR				0.798441								
				0.172								
INFCPI												
INDAGE												

LEGUK						***0.122082***		***0.122082***	***0.128378***		***0.114708***	
						0.1393		***0.1393***	***0.1255***		***0.073***	
DLSSY					-0.142076							-0.08378
					0.0989							0.2525
PPTRUST												
FRCHOIC												
FINSAT												
WKMNY	-0.08083											-0.33275
	0.7815											0.363
FUTMNY		***0.38093***					***0.454348***			***0.432851***	***0.426165***	
		0.1152					***0.0815***			***0.0644***	***0.0706***	
HDI												
ICRGPRR												
MSLM												
OTDX												
PRST												
RCAT												
OTHR												
Adjusted R-squared	0.403534	***0.480764***	***0.381069***	0.280859	0.318698	***0.564759***	***0.436737***	***0.564759***	***0.558834***	***0.528975***	***0.520139***	0.292478
N	31	***33***	***40***	40	41	***40***	***33***	***40***	***40***	***33***	***33***	31

Equation number	***1***	***2***	***3***	***4***	5	***6***	7	8	9	**10**	**11**	**12**	***13***	14
NAPOP (dependent)														
C	***-2783.097***	***789.4977***	***-3516.4***	***-505.5289***	-1588.202	***-3278.7***	-8735.252	8196.673	-5388.428	**-1654.998**	**-3202.466**	**-2571.388**	***30645.69***	-27.6929
	0.0629	***0.6726***	***0.1012***	***0.7714***	0.3852	***0.1379***	0.1851	0.2733	0.2435	**0.352**	**0.2359**	**0.8656**	***0.0896***	0.9883
GDP														
POP														
SMKC														
DFC														
CPI														
REGQ	***2936.914***	***8163.475***	***4084.466***	***4059.988***	2140.239	***5360.491***	3585.648	2769.72	4268.891	**6239.078**	**5397.323**	**6643.184**	***12941.66***	
	0.044	***0***	***0.0368***	***0.031***	0.3706	***0.003***	0.0638	0.2444	0.0019	**0.0002**	**0.0063**	**0.0385**	***0.0019***	
FSDEP			***8068.551***											
			0.007											
SMKC	***7960.284***													
	0													
REMIT														
GDPCAP					0.353068									0.461066
					0.014									0
FDIOUT				***751.8864***										
				0.0082										
OPNGDP						***52.45149***								
						0.0261								
RINTR														
INFCPI														
INDAGE											**100.4546**			

											0.1175			
LEGUK										**7353.393**				
										0.005				
DLSSY		***-5290.933***												-2636.57
		0.0272												0.2173
PPTRUST														
FRCHOIC														
FINSAT							1771.409							
							0.1781							
WKMNY								-11789.96						
								0.261						
FUTMNY									10177.99					
									0.2035					
HDI												**2721.01**		
												0.8916		
ICRGPRR													***-477.891***	
													0.0838	
MSLM														
OTDX														
PRST														
RCAT														
OTHR														
Adjusted R-squared	***0.603394***	***0.351489***	***0.38964***	***0.387755***	0.371741	***0.352704***	0.347087	0.300619	0.328702	**0.402415**	**0.303077**	**0.272556**	***0.31701***	0.384022
N	***40***	***40***	***39***	***40***	40	***40***	39	31	33	**40**	**38**	**39**	***40***	40

Equation number	***15***	16	***17***	***18***	19	***20***	21	***22***	23	***24***	25	***26***	27
NAPOP (dependent)													
C	***-3136.49***	-2023.89	***-6383.8***	***-5642.76***	-1819.68	***-445.958***	-3014.01	***-8159.2***	-3014.01	***-3459.38***	-7661.57	***-7783.83***	10544.85
	0.1175	0.6943	***0.0777***	***0.0067***	0.3845	***0.8118***	0.0443	***0.0812***	0.0443	***0.0137***	0.041	***0.0251***	0.1568
GDP													
POP													
SMKC													
DFC													
CPI													
REGQ						***4046.548***	3174.671	***2862.281***	3174.671				3752.085
						0.1163	0.0299	***0.0462***	0.0299				0.119
FSDEP	***6353.558***												
	0.0405												
SMKC							7059.81	***4206.093***	7059.81	***6222.259***	2225.803		
							0.0001	***0.0503***	0.0001	***0.0002***	0.1944		
REMIT													
GDPCAP	***0.299155***	0.401095	***0.367841***	***0.411958***	0.459465	***0.293801***				***0.25354***	0.321279	***0.35925***	
	0.0121	0.0003	***0***	***0***	0	***0.0382***				***0.0027***	0.0001	***0***	
FDIOUT													
OPNGDP				***65.73009***									
				0.001									
RINTR					10333.9								
					0.5112								
INFCPI													
INDAGE													

LEGUK							2965.683		2965.683	***3482.144***		***3643.426***	-3374.4
							0.1872		0.1872	***0.1045***		***0.0222***	0.1033
DLSSY						***-4140.27***							
						0.0751							
PPTRUST													
FRCHOIC													
FINSAT													
WKMNY		1180.832											-14045
		0.8728											0.1734
FUTMNY			***9293.235***					***12396.07***			10191.32	***10730.03***	
			0.1288					***0.1102***			0.0955	***0.0631***	
HDI													
ICRGPRR													
MSLM													
OTDX													
PRST													
RCAT													
OTHR													
Adjusted R-squared	***0.422012***	0.545322	***0.597679***	***0.522763***	0.36534	***0.409396***	0.611866	***0.392852***	0.611866	***0.655959***	0.607675	***0.653535***	0.3438
N	***39***	31	***33***	***40***	40	***40***	40	***33***	40	***40***	33	***33***	31

Equation number	1	2	3	4	5	6	7	8	9	10	11
NAGR (dependent)											
C	**0.646932**	0.570027	0.584198	0.555037	0.607623	0.579451	**0.492069**	**0.646696**	**0.480759**	**0.736046**	**1.584888**
	0	0	0	0	0	0	**0**	**0**	**0**	**0**	**0**
GDP											
POP	**-0.000397**										
	0.1083										
SMKC		0.028603									
		0.6596									
DFC											
CPI											
REGQ	**-0.334622**	-0.307731	-0.272995	-0.322639	-0.265244	-0.329777	**-0.338685**	**-0.31293**	**-0.238717**	**-0.255982**	**-0.106193**
	0	0.0001	0.0046	0	0.0007	0	**0**	**0**	**0.0015**	**0.0002**	**0.2371**
FSDEP					-0.079425						
					0.4556						
SMKC											
REMIT											
GDPCAP			-1.55E-06								
			0.7622								
FDIOUT						0.009726					
						0.3453					
OPNGDP							**0.001624**				
							0.0491				
RINTR								**-0.952366**			
								0.085			
INFCPI									**0.78581**		
									0.1508		
INDAGE										**-0.004348**	

										0.0358	
LEGUK											
DLSSY				0.101738							
				0.2238							
PPTRUST											
FRCHOIC											
FINSAT											**-0.202137**
											0.0017
WKMNY											
FUTMNY											
HDI											
ICRGPRR											
MSLM											
OTDX											
PRST											
RCAT											
Adjusted R-squared	**0.408601**	0.367523	0.364403	0.390023	0.372914	0.378955	**0.430352**	**0.415017**	**0.39997**	**0.471249**	**0.581122**
N	**38**	39	38	39	38	38	**38**	**39**	**39**	**37**	**28**

Equation number	12	13	14	15	16	***17***	**18**	**19**	**20**	**21**	**22**
NAGR (dependent)											
C	1.157292	0.516081	0.558622	0.502305	0.477638	***0.582489***	**0.52461**	**0.518143**	**0.643251**	**0.442196**	**0.443504**
	0.0713	0	0.1098	0.0872	0	***0***	**0**	**0**	**0**	**0**	**0**
GDP											
POP											
SMKC											
DFC											
CPI											
REGQ	-0.17318						**-0.25324**	**-0.25438**	**-0.29224**		
	0.2301						**0.0004**	**0.0002**	**0**		
FSDEP											
SMKC											
REMIT											
GDPCAP		-1.28E-05	-1.45E-05	-1.69E-05	-1.31E-05	***-1.43E-05***				**-1.08E-05**	**-1.05E-05**
		0.0023	0.0317	0.0011	0.0018	***0.0007***				**0.006**	**0.0087**
FDIOUT											
OPNGDP					0.000409						
					0.6465						
RINTR						***-0.992337***					
						0.1223					
INFCPI											
INDAGE											

LEGUK											
DLSSY		-0.021975									
		0.8093									
PPTRUST											
FRCHOIC											
FINSAT											
WKMNY			-0.076599								
			0.8763								
FUTMNY				0.121582							
				0.8003							
HDI											
ICRGPRR	-0.00898										
	0.3559										
MSLM							**0.283291**				**0.449044**
							0.1558				**0.0326**
OTDX								**0.310203**		**0.412681**	
								0.0616		**0.0226**	
PRST											
RCAT									**-0.13997**		
									0.1476		
Adjusted R-squared	0.379144	0.199443	0.223618	0.268126	0.202963	***0.251696***	**0.39913**	**0.42365**	**0.400535**	**0.310176**	**0.297468**
N	39	38	30	32	38	***38***	**39**	**39**	**39**	**38**	**38**

Equation number	**23**	24	**25**	26	27	28	29	30	31	32	**33**
NAGR (dependent)											
C	**0.668891**	0.555373	**1.168116**	0.566349	0.495264	0.500855	0.57774	0.473033	0.569112	0.7995	0.90696
	0	0	**0.007**	0	0.074	0	0.0596	0.1175	0	0.0406	0.0214
GDP											
POP											
SMKC											
DFC											
CPI											
REGQ		-0.321721	**-0.300695**	-0.30305	-0.31521				-0.29478	-0.40349	-0.3623
		0.0027	**0.0222**	0.0001	0.0006				0	0.0026	0.0055
FSDEP											
SMKC				0.017312	-0.08121	-0.016235	-0.130976				
				0.8141	0.5017	0.8514	0.3368				
REMIT											
GDPCAP	**-1.51E-05**	-6.01E-08	**-9.65E-06**			-1.25E-05	-1.42E-05	-1.71E-05			
	0.0002	0.9909	**0.1325**			0.0104	0.0146	0.0012			
FDIOUT											
OPNGDP											
RINTR											
INFCPI											
INDAGE											

LEGUK				0.037471		0.056228		0.067389	0.049142		
				0.7337		0.6586		0.6097	0.6128		
DLSSY		0.101331								0.149345	
		0.2617								0.1553	
PPTRUST											
FRCHOIC											
FINSAT											
WKMNY			**-0.844186**							-0.4098	-0.51121
			0.1357							0.4305	0.3321
FUTMNY					0.271484		0.068442	0.152181			
					0.5413		0.8876	0.7565			
HDI											
ICRGPRR											
MSLM											
OTDX											
PRST											
RCAT	**-0.265273**										
	0.0182										
Adjusted R-squared	**0.317809**	0.369848	**0.34319**	0.351631	0.405923	0.179313	0.266985	0.249135	0.368629	0.336899	0.308851
N	**38**	39	**30**	39	32	38	32	32	39	30	30