

One Half-Billion Shareholders and Counting: Determinants of Individual Share Ownership around the World

Paul A. Grout*
William L. Megginson*
Anna Zalewska*

January 2010

Abstract

This study presents the first comprehensive compilation of the number of people around the world owning shares voluntarily. We document that at least 317 million people in 70 countries (24 developed and 46 emerging market nations) invest in equity of publically listed companies or mutual funds. Accounting for contributors of voluntary pension schemes investing in equity increases the number of shareholders to over 544 million. We also test for determinants of personal shareholdings and find that (i) the legal origin matters (common law countries have statistically significantly higher percentage of population investing in equity), (ii) GDP per capita also matters but its significance is driven by emerging markets (in particular those opened before 1985), and (iii) privatisation does not contribute to higher levels of shareholder participation in the medium- and long-run.

JEL codes: G18, G32, P14

Keywords: Government policy and regulation; Capital and ownership structure; Legal origin, International finance; Emerging markets

Acknowledgments:

We would like to thank Anastasia Petraki for her great assistance in collecting the data. Anna Zalewska would like to thank Leverhulme Trust for funding this research (grant F/00 351/T). We also would like to thank participants of seminars at the University of Bath, University of Bristol, Rutgers Business School and IMF for useful comments. In particular, we are grateful to Stijn Claessens and Antonio Estache for their suggestions on the earlier version of the paper.

* Centre for Market and Public Organisation and Department of Economics, University of Bristol, UK; phone: 00 44 117 928 8426, email: p.a.grout@bristol.ac.uk.

* Michael F. Price College of Business, University of Oklahoma, Norman, USA, phone: 00 405 3252058, email: wmegginson@ou.edu.

* Corresponding author: School of Management, University of Bath, UK; phone: 00 44 1225 384354, email: a.zalewska@bath.ac.uk.

1. Introduction

The last quarter-century has seen dramatic growth in capital market size and activity around the world. Between 1983 and the end of 2007, the capitalisation of the world stock markets grew by 1,800% and the volume of share trading has increased almost 100-fold, from \$1.22 trillion in 1983 to \$111.2 trillion during 2007. The number of countries with stock exchanges is now 142 compared to 58 in 1980 and currently 94% of the world population live in countries that have stock exchanges compared to 55% in the 1980s. Even after the worldwide decline in equity market values during 2008 and early 2009, stock market capitalization still equals two-thirds of total world GDP, estimated by the World Bank at around \$54 trillion.

The market capitalisation in each country and the value (or percentage) of traded securities that are owned by various groups of investors (e.g., institutional, individual, foreign, etc.) is relatively well recorded. In contrast, this is far from the case with regard to how many shareholders there are in total and how these are allocated between countries. Partly this is because almost universally there are no legal requirements to collect this data and partly because the data is extremely hard to collect. However, knowing the number of shareholders per country and understanding the major variables that explain differences between countries is important for many reasons. For example, the proportion of the population that own shares in a country is an interesting measure of market development which has not received attention due to lack of data; individual shareholders are more likely to be akin to noise traders than institutions and hence it gives some understanding of the differences in scale of noise traders between markets; it also provides an understanding of the number and international distribution of individuals and households whose wealth will be directly affected by stock market changes; furthermore the proportion of the population directly holding equity is likely to have implications for political preferences, market development and economic activity such as the prospective burden on governments to meet welfare objectives.

This study presents the first comprehensive compilation of the number of people around the world owning shares voluntarily. That is we account for individuals who hold equity of publicly listed companies or of investment funds if these invest in publically listed firms, and contribute to voluntary pension schemes that invest in equity. Compulsory contributors (e.g., via compulsory pension schemes) are excluded from this paper as they would over-represent

particular policies of local governments (e.g., introduction of compulsory pension schemes) and hence would provide a biased picture of the individual participation in stock markets.

The data has been hand-collected from a wide range of sources, e.g., individual stock exchanges, government statistical offices, and financial trade associations, some of which have not been publicly available before and calculations are then undertaken as necessary to maximize consistency. We have been able to collect direct share ownership data for 70 countries over the period 1980 – 2008. Including the countries (with populations above 100,000) that do not have stock markets this gives a maximum data set of 112 countries. The countries for which we have been able to collect direct share ownership data cover 100% of the population of countries that have developed stock markets and 75% of the total population of countries that have emerging stock markets. In total the capitalisation of the stock markets of the 70 countries for which we have data covers over 96% of the world stock market capitalisation.

Having the share-ownership statistics at hand we address the question of what factors determine how many people, or more precisely, what proportion of the population owns shares. Research on financial market development indicates that such factors as wealth, legal origin, trust are vital in determining, for example, how big and how liquid stock markets are. We analyse whether these factors matter in ensuring how many people invest their savings in equity. We find that GDP per capita in emerging markets and legal origin are consistently important. These results are very robust across different time periods and different definitions of ownership. In addition, we test for several factors that would proxy for business attitudes at a country level but do not find evidence that they can explain (in statistical sense) what proportion of country's population invests in equity.

Section 2 of the paper discusses and presents the detailed data on equity and fund ownership. Section 3.1 discusses a series of potentially important factors that may affect share-ownership ((i) market classification and development, (ii) GDP, (iii) privatisation, (iv) legal origins and endowments, and (v) the size of government. Section 3.2 provides regression analysis of the country cross section data on equity and fund ownership. Section 4 gives data on pension fund contributors and beneficiaries and Section 5 provides conclusions.

2. Data

While the aggregate value (or percentage) of traded securities that are owned by various groups of investors (e.g., institutional, individual, foreign, etc.) is relatively well recorded, this is far from the case when it comes to identifying how many individual (particularly retail) investors hold shares. Partly this is because almost universally there are no legal requirements to collect this data and partly because data are extremely hard to collect. In addition to the problem of scarcity of data, the data that exists are in diverse forms. Data are recorded in different formats in different countries and the methods of collecting the data differ even for the same country at different times. Some countries, due to the organisation of their exchanges, keep statistical records of the number of accounts registered by individuals (e.g., Japan). In others, the only way of accounting for shareholders is to survey people directly (e.g., UK). These different collection methods affect what is recorded. The individual account method gives a clear picture how many people hold individual shares but it does not provide information on other forms of equity investments, like, for example, investment funds. In contrast, some survey methods (usually individual questionnaire based) ask detailed questions about forms of equity investments (distinction between equity, funds, etc.) giving quite good evidence on the different types of holdings. However, this is not the case for all surveys. Some ask quite general questions and tend to aggregate the different forms of holdings when reported. Moreover, surveys typically ask about equity holdings at a household level, whereas individual accounts do not distinguish how many accounts come from the same household. Surveys usually only cover the adult population, but it is not uncommon for children to hold shares, whether by inheritance, conscious investment decision of the family or the result of policy design¹.

Data on individual share ownership are typically recorded in one of three forms: investors in shares of publically listed companies (which we call E-holders), mutual fund investors (which we call F-holders), and a cumulative number of equity or mutual fund investors (which we call EF-holders).²

¹ For example, the U.K. Labour government's £250 voucher, given to every British child at birth, can be converted into a bond/equity investment via a range of selected funds. Although not accounted for in the official statistics, a high proportion of children own shares and are entitled to cash the amount invested at their birth (£250), plus accrued investment returns when they are 18 years old.

² The USA is the only country that we know of which provides information on these three groups and accounts for other forms of equity holdings including optional pension fund investments in equity. Indeed, voluntarily pension

The starting point for the analysis is the 192 countries recognised by the UN. 141 of these countries have at least one stock exchange and 51 do not. However, several of these countries are extremely small and there are very few statistics available for them. Therefore, we exclude countries with population of less than 100,000 in 2007 unless the country jointly has a stock exchange with other countries and the population of the ‘joint’ countries is above 100,000. There are 10 countries excluded on this basis.³ In addition, there are two important stock exchanges that are in countries that are not UN recognised. These are Hong Kong and Taiwan and are included in our sample.⁴

The shareholding data used in the paper are hand-collected from a wide range of sources, e.g., individual stock exchanges, government statistical offices, and financial trade associations, and calculations are then undertaken as necessary to maximize consistency. Some of the data have not been publicly available before. Although there are some cross-country differences in data reporting (e.g., household or individual account level), unification of the statistics to account for E-holders and F-holders is relatively straightforward. In contrast, accounting for EF-holders raises a double counting problem. This is because few countries provide separate EF-holder data. Typically, the numbers of E-holders and the numbers of F-holders are quoted as separate statistics. In almost all cases we can be sure that some individuals will appear in both statistics. So if we add these together we are certainly double counting and hence overestimating the number of EF-holders in a country. Where the EF-holder statistic is not ready-available, to eliminate double counting, we always opt for the conservative route of quoting the highest number of the two rather than the sum. This means that we may significantly underestimate the true total number of EF-holders. However, we believe that the downward biased numbers are

related investments are a significant category of investment, which if accounted for in many countries will provide higher numbers of shareholders than if only ‘direct’ equity and mutual fund investments are taken into account. Obviously, compulsory pension schemes, particularly popular in emerging economies, will significantly increase the numbers of individuals’ with wealth linked to stock market performance. However, because in this paper we discuss voluntarily share-ownership we do not include compulsory pension schemes contributors in our data or discussion. We have collected data on voluntarily pension schemes, which is discussed in Section 4.

³ Excluded countries were: Andorra, Kiribati, Lichtenstein, Marshall Islands, Monaco, Nauru, Palau, San Marino, Seychelles, Tuvalu. Countries with population below 100,000 that have remained in the sample are Antigua and Barbuda, Dominica, and St. Kitts and Nevis that together with Granada, St. Lucia, and St. Vincent and the Grenadines trade share at the Eastern Caribbean Stock Exchange.

⁴ There are six more countries not recognized by the UN that have a stock market. These are Bermuda, Cayman Islands, Faroe Islands, Gibraltar, Jersey and Palestine. The first five countries have population below 100,000, hence, are not included in the sample. Statistics for Palestine are not available and, although its population is most likely to be in the range of a few millions, we exclude it from the sample.

better than the less reliable ones that could be obtained if underestimated and overestimated statistics were added together.

2.1 E-holders

We have been able to identify data on E-holders for 54 countries (23 with developed stock exchanges and 21 with emerging stock exchanges) over the period 1980-2008. The frequency of the data varies from country to country. A small number of developed markets offer yearly data for the last 15 years or so (Japan being the best documented offering data back to the 1980s), but for many countries the time series of shareholder numbers are much shorter (in part, of course, because many stock markets opened only recently) and there are missing observations. For 17 countries we found just one yearly observation. On average there are just over five observations per country.

Table 1 shows the most recent statistics for the 54 countries for which we have been able to collect E-holders information. Column 1 lists the countries for which the numbers of E-holders are available. Column 2 shows the percentage of the population owning shares in the calendar year for which the most recent statistic is available. Column 3 gives the number of individual shareholders used to calculate the percentage presented in Column 2. Column 4 shows the year for which the most recent statistic is available, and finally, the last column gives the source of the information.

Table 1 shows that that there are nearly 231 million individual shareholders in these 54 countries of whom 116 million live in countries with developed stock markets and the remaining 115 million live in countries with emerging stock markets. For reasons outlined earlier, these figures are strongly downward biased.

***** Insert Table 1 here *****

An alternative measure of interest is how many people in the world live in households which have some direct shareholding within the household. We could make a rough estimate of this figure by assuming a conversion rate of 3.2 relatives per individual (based on the statistic that an

average woman has 2.2 children) we would then multiply the number of individual shareholders by 4.2. This rough estimate gives the number of individuals living in households that directly own shares at nearly 1 billion.

2.2. F-holders

Considerably less countries report F-holder statistics than E-holder statistics. We have been able to collect data on the numbers of individuals investing in mutual funds for 39 countries, 15 of which have developed exchanges. For most countries this form of investment is relatively new so on average the available time series are much shorter. The longest time series (15 observations dating back to 1992) is available for France. For 15 countries we have found just one observation.

In 9 countries for which we have separate statistics for equity and mutual fund investors there are more F-holders than E-holders. For instance, in the USA in 2005 there were nearly 50mln people investing in mutual funds and only 37mln E-holders, and in Germany in 2008 there were 7.1mln F-holders in contrast with just 3.6mln E-holders. Higher numbers of investment fund investors are observed on emerging markets as well. For instant, in Brazil in 2007 there were only 0.46mln F-holders and 2.67mln F-holders, i.e., nearly 6 times as many people put money in mutual funds as invested ‘directly’ in equity.

Table 2 summarises our findings. It has the same structure as Table 1 and shows that well over 100mln people invest in mutual funds in these 39 countries.

***** Insert Table 2 here *****

2.3 EF-holders

There are few countries that report a joint statistic of how many people invest in equity or funds. Therefore, to estimate how many people are choosing to have some fraction of their wealth exposed to stock market fluctuations we have to turn to the statistics for E-holders and F-holders in most countries. As indicated earlier, if EF-statistics are not available for a particular

country, we take the larger of the number of E-holders or of the F-holders as the account of the number of individuals (fraction of the population) investing on a stock market.

Adopting this approach provides information about EF-holders for 70 countries. Of these 70 countries, 24 have developed stock exchanges and 46 with emerging stock markets. On average we have 5.6 annual statistics per country. There are only 18 countries (e.g., Mongolia, Barbados) for which we have just one observation.

Table 3 summarises the most recent statistics of EF-holders. Column 1 shows the name of the country and Column 2 and Column 3 give the percentage of population owning shares in the calendar year for which the most recent statistic is available and the number of individual shareholders used to calculate this percentage respectively. The type of share-ownership is denoted ‘E’ for equity holders, ‘F’ for fund investors, and ‘EF’ refers to numbers of investors in equity or investment funds where the figure is explicitly available and it is reported in Column 4. Column 5 shows the year for which the most recent statistic is available, and finally, the last column gives the source of the information. Table 3 shows that that there are at least 317 million EF-holders in these 70 countries, of whom nearly 168 million live in countries with developed stock markets and the remaining 149 million live in countries with emerging stock markets. As in the case of Table 1 and Table 2 figures presented, the in Table 3 are strongly downward biased.

***** Insert Table 3 here *****

3. Interpretation of the evidence.

The purpose of this section is to use the data outlined in Section 2 to provide an insight into what factors determine the percentage of a country’s population participating in capital markets. Section 3.1 discusses a series of potentially important factors that may affect share-ownership (e.g., market classification, GDP per capita, privatisation, legal origins and endowments, the size of government, etc.) and Section 3.2 provides regression analysis of the country cross section data. Because the data outlined in Table 3, i.e., EF-holder statistics, provides greater coverage of how many shareholders there are in individual countries, the data are used as a base of the

graphical and statistical analysis presented in Section 3.1.⁵ For the same reason these data are used as the base for the regression analysis. However, to check robustness of our findings, we (i) apply different methods of averaging to control for possible time variations in the numbers of shareholders and (ii) repeat the analysis using the data on E-holders statistics as the explanatory variable.

3.1. Factors

Market classification and development

The last twenty years have seen an enormous growth of stock markets around the world and this has played a role in enhancing the numbers of shareholders. Indeed, by far the majority of the world's stock exchanges are comparatively young. Figure 1 presents data on countries that currently have at least one stock exchange. For each country that has at least one stock exchange we take the date that its current oldest market opened and plot (i) the distribution of the opening of these exchanges across centuries (from 1600 to 2000) in Figure 1 (Panel A), (ii) on the decade level from the 20th century onwards in Figure 1 (Panel B), and (iii) on a yearly bases from 1980 onwards in Figure 1 (Panel C). Figure 1 shows a clear time trend across centuries. Since 1985 84 countries have opened stock markets, which contrasts with the pre 1980 statistic of 58 countries with stock markets (both developed and emerging). This means that currently there are almost two and half times as many countries with stock markets (142) than there were in 1980 (58). One has to be careful, however, when interpreting the data since for some countries the picture has not been one of continuous markets. A good example of the differences in interpretation is Poland. The Warsaw Stock Exchange opened in 1817. At that point Poland did not exist as a country having been finally partitioned by the neighbouring countries in 1795. Poland re-emerged in 1918 (after the WWI) but the exchange was closed in 1939. The currently existing stock exchange was opened in Warsaw in 1991 (following the collapse of communism) and Poland enters Figure 1 as an observation in the 1990s.⁶ Exchanges existed pre-1939 for several European transition economies, but were closed during or soon after the WWII. Hence, they will

⁵ For the four countries for which we have 2008 statistics of shareholders (i. e., Australia, Germany, Poland, and Switzerland) we use 2007 statistics as the GDP PPP pc for these countries was not available for 2008. This is done to maximize the number of observations in our analysis.

⁶ The official website of the Warsaw Stock Exchange lists 1991 as its opening date

enter our dataset as stock exchanges created after the collapse of communism in the late 1980s or 1990s.⁷

***** Insert Figure 1 here *****

Almost by definition, all these newly created exchanges are classed as ‘emerging’. This is consistent with the classification of the World Federation of Exchanges which recognises only 24 markets as developed. We follow this classification and brand all the markets that are not developed as emerging. Therefore, there are nearly 5 times as many countries with emerging stock markets (118) than countries with developed stock markets (24). However, not all these markets are recent in the way that the terminology emerging markets suggests. Some have long vintages (for example the Buenos Aires exchange was opened in 1854, the Sao Paolo exchange in 1890 and the Bombay exchange in 1875) but are still not classed as developed. We investigate whether there are differences between these markets and newer emerging markets and so we distinguish between (post 1985) emerging markets which we call *new emerging markets* and pre-1985 emerging markets which we call *old emerging markets*.

Most of the evidence of the share ownership data in the paper is presented as percentage of population in each country so it is interesting as background to address the relationship between world population and location of stock markets. Currently 94% of the world population live in countries that have stock exchanges, of which 80% live in countries with exchanges classed as emerging, and 14% in countries with exchanges classed as developed. This contrasts sharply with the corresponding statistics for the early 1980s when only 55% of the world’s population lived in countries having a domestic stock market. Over the same period (i.e., from the early 1980s till now) the percentage of the world’s population living in the countries with developed markets has hardly changed (around 15%), whereas the percentage of the world’s population living in countries with emerging markets has doubled.⁸

⁷ Each country is classified by the oldest operating stock exchange, i.e., it does not take into account previous stock exchanges that were closed for a substantial period of time. For example, Hungary had a stock exchange that closed in 1949. The Budapest Stock Exchange created in 1990, which puts Hungary in the group of 52 countries that opened a stock exchange in the 1990s. The figure does not account for multiple exchanges. For example, India belongs to the group that opened a stock exchange in the 19th century (the Bombay Stock Exchange was opened in 1875) although it opened one more stock market in 1993 (National Stock Exchange), which started share trading in 1994. See, Petraki and Zalewska, 2009, for a discussion of the growth of stock markets.

⁸ More discussion of the development of emerging markets can be found in (Zalewska, 2008, 2009).

Table 4 gives data of the EF-holder statistics according to market type. For countries within the sample (i.e., in Table 3) Table 4 provides aggregate numbers of shareholders in each of the three categories (developed/old emerging markets /new emerging markets). It also shows the total population of the countries in the sample in each of the categories and the percentage of stockholders as a percentage of the population. Addressing the pure numbers initially, Table 4 shows that within the sample the new emerging markets currently contribute nearly 100 million shareholders, amounting to almost a third of the world stockholders. This alone provides an indication of the origin of many of the new shareholders in the last twenty five years. The table shows that developed markets have much higher share ownership as percentage of population than emerging markets but that there is also a clear distinction between old and new emerging markets. It is the new not the old emerging markets where the stockholding percentages are higher (over twice as high for the new than for the old emerging markets).

***** Insert Table 4 here *****

Table 4 indicates that there is little relationship between the vintage of a market and the number of shareholders. Vintage alone appears to carry very limited information with regard to the percentage of individuals that own shares. The oldest markets are the developed markets and these on average have comparatively high percentage of shareholders. However, as we have indicated, the old emerging markets have the lowest average percentage, yet within this group there are some very old markets.

We close this subsection with a summary of data on the relationship between stock market characteristics often used as indicators of market development and the numbers of shareholders (note, the three categories of market are marked separately in the figures). A common measure of stock market development is market capitalisation relative to GDP. Figure 2 Panel A shows the percentage of population directly owning stock against the market capitalisation relative to GDP. These two measures are positively related, i.e., larger markets

relative to GDP are associated with deeper shareholder penetration in the population. In Section 3.2 we discuss the MC/GDP ratio and argue that controlling for legal origin makes more sense.

Figure 2 Panel B plots the absolute capitalisation of markets against absolute numbers of shareholders in the country. Finally, Figure 2 Panel C shows the percentage of population directly owning stock against ownership concentration figures that are downloaded from La Porta et al. (2006). Ownership concentration is commonly used in the legal origins literature, which we discuss later in this section. Figure 2 Panel C shows that the concentration of ownership defined by the largest non-state owners of the largest companies has no relationship with the penetration of share ownership in the population.

***** Insert Figure 2 here *****

GDP per capita

There is strong evidence from within country cross section analysis that individual stock ownership is positively associated with income for the few countries where there is sufficient data to conduct this exercise (see, for example, Bergstresser, D., and J. Poterba, 2004 and Campbell, 2006). For this reason it is interesting to see the country cross section relationship between GDP per capita and the percentage of population holding stock (across all markets and conditional on market type).

Figure 3 plots the number of shareholders as a percentage of total population against GDP PPP per capita calculated in international dollars for each year for which a shareholder statistic is used. It is clear that the marginal effect of wealth on the percentage of stockholders is positive in the cross section across all countries in the sample (0.342, significant at the 1% level). However, this effect differs according to type of market: -0.124 (not significant) for developed markets, and 0.480 (significant at 1%) for the emerging markets. Within the emerging markets group the emerging markets have the coefficient of 0.236 (not significant), and the emerging markets old 0.867 (significant at the 5% level) for old emerging markets. The explanatory power of the GDP per capita will be discussed in more detail in Section 3.2.

***** Insert Figure 3 here *****

The comparatively high GDP per capita and growth of GDP appear to be particularly important in explaining the relative development of the US stock market which is probably the most studied market in the world. In addition to E, F and EF-holders data the US is the only country in the world that provides statistics which include pension related investments as part of the statistics on individual equity investors. However, the frequency at which these statistics are provided is scattered. This is a good example of the general point that very few authorities are willing to expand resources to identify on a regular basis how many people actually own shares. Figure 4 shows the limited time series of data referring to the numbers of E-, F- and EF-holders that we were able to collect for the US market. It is clear that despite differences among quoted statistics they show a similar pattern - the number of shareholders increases over time. Moreover, the increase is substantial, the number of EF-holders has nearly doubled since the late 1980s. This is consistent with figures reported by others based on national surveys. For instance, Bergstresser and Poterba (2004) report that the percentage of households holding any type of equity has increased between 1989 and 2001 from 27.3% to 50%.⁹ According to Aizcorbe, Kennickell and Moore (2003), 51.9% of American households hold any type of equity in 2001. Alongside this increase in the number of households holding equity, the amount households allocated to equity has also changed. Bergstresser and Poterba (2004) report that between 1989 and 2001 an average American family increased the amount of money invested in equity as the proportion of the total financial assets from 40.4% to 71.6%. Campbell (2006) shows that the average fraction of equity investment in total household portfolios is roughly a monotonic function of wealth. He also shows that, roughly speaking, the proportion of people owning equity in each percentile of wealth distribution is equal to this percentile, i.e., 10% people will hold equity in the lower 10% group of wealth distribution, 20% will hold shares in the second deciles, etc. Indeed, equity was the only group of assets characterised by such a linear pattern.

***** Insert Figure 4 *****

⁹ 'Any type of equity' includes pension investments, therefore are higher than our statistics. We discuss the pension linked investments in Section 4.

As well as GDP per capita the inequality of GDP may matter. However, Figure 5 shows that there is no simple systematic relationship between the Gini coefficient of income and the numbers of shareholders whether at the cross-country level or within each of the three groups.

***** Insert Figure 5 here *****

Privatization

The global wave of privatisation has transferred an enormous amount of assets from state to private hands. The cumulative total value of assets transferred from the public to the private sector has been estimated to be over \$1.50 trillion by the end of 2008 (Privatization Barometer). The market value of privatized companies in 2006 was 18.2% of global stock market value and 38.6% of the non-U.S. total value.¹⁰ Within developed economies, privatized companies account for a significant fraction of the stock markets (e.g., at least 13.1% in Germany and 11.7% in Australia). In many OECD countries (France, Italy, Spain, Portugal) privatized companies are by far the biggest on the market, and almost 90% of the world's largest public stock offerings have been share issue privatizations. Privatization and liberalization have been seen as a means of improving incentives, reducing political control, bolstering public finances, and improving the financial and operating efficiency of divested firms. Evidence suggests privatization is generally, although not universally, associated with improved efficiency (Megginson and Netter, 2001) and is more likely the higher the level of sovereign debt (Bortolotti et al., 2003).

Of course, new share issuances do not necessarily imply increased numbers of new shareholders, since stock offerings can be, and historically have been, distributed mostly to investors who already own some shares. However, most privatisations have had a specific objective of increasing the ownership base. There are theoretical justifications and empirical evidence for widening share ownership as part of a privatization policy. Using judicious underpricing, privatization sales to the general public can be used to shift political preferences to

¹⁰ Personal calculation of the author, based on 2006 FT 500 List of the World's Most Valuable companies.

the right (Biais and Perotti, 2002). Indeed it has been shown that privatization discounts are greater than discounts in standard initial public offerings (Dewenter and Malatesta, 1997; Jones, et al., 1999) and it is conservative coalitions that are more likely to privatise (Bortolotti, et al., 2003). Expropriation and government intervention is also a central concern for the markets and the financial risk premium assigned by investors to privatised companies is extremely sensitive to policy changes (Grout and Zalewska, 2006a). Widening share ownership by providing free shares can be both profitable overall (Schmidt, 2000), and can reduce expropriation and other political risk (Perotti and van Oijen, 2001).

The UK led the privatisation wave amongst developed countries and provides a good case study of the effects of privatisation of stock ownership and the longer run consequences. Figure 6 shows the numbers of individual stock holders in the UK as a percentage of the population for the years when data exists. The privatisation of 50.2% of British Telecommunications at the end of 1984 raised £4.1bn and was the first very large privatisation (at the time six times bigger than any previous issue on the London Stock Exchange). Concerns that the issue was too large led to the campaign to persuade non-shareholders to invest (the number of individual shareholders in the UK had been declining for many years). This aspect of the offering was enormously successful. The issue was 5 times oversubscribed and prices doubled in the first day. This privatisation alone was mainly responsible for the more than doubling of the number of individual stock holders between 1984 and 1986 (the privatisation was in December 1984 and is not represented in our 1984 figures in Figure 6). There were other privatisations between December 1984 and December 1989 and the number of stock holders remained roughly constant between these dates. In December 1989 the water industry was privatised (10 regional companies) and in December 1990 the regional electricity distribution industry was privatised (12 regional companies). These privatisations created a spike in ownership numbers after which the number of shareholders declined again. After a change in the Building Society Act, seven very large building societies (non-profit lenders) demutualised in the UK between 1997 and 2000 with several of the largest becoming publicly listed banks. In these cases all deposit holders and borrowers were given shares or cash. There were over 7.6 million individuals given shares in one case alone (Halifax). In one year, 1997, £36bn (6% of consumers annual expenditure) was handed in shares and cash to individuals as a result of demutualisation. This created a new wave of individual shareholders and as a result a second spike in 1997 to 2000. Since this point

individual stock ownership has again declined. Halifax estimated that over 5 million of its shareholders had sold all their stock within the four months of the listing. The unravelling of shareholder numbers appears to be a common theme in privatisations.

***** Insert Figure 6 here *****

The Japanese situation contrasts with the UK's. Japan is one of the very few countries in the world for which share-ownership statistics have been recorded annually for the last few decades. Figure 7 shows that the proportion of the Japanese population owning shares has doubled since 1980, and, with the most current statistics exceeding 30%, it is over twice as high as in the US. It is also interesting that the proportion of people holding shares has been growing more-or-less steadily since 1986, i.e., that seems to coincide with privatisation offerings of shares of the Japan Tobacco and Salt Corporation, and of the Nippon Telegraph and Telephone Public Corporation (NTT). The growth of share-holders was quite fast through the late 1980s driven, at least partly, by the follow up offerings of the NTT shares (1986, 1987, 1989) as well as privatisation of the Japan Airlines (1987). The privatisation of the Japanese National Railroads in October 1993 and the subsequent offering of shares of JR East Japan do not seem to impact greatly on the increase of shareowners in Japan, but the 1990 were rather difficult years for the Japanese economy so a slowdown in the growth of shareowners is not surprising. Having said that, the proportion of Japanese population owning shares has been increasing steadily since the late 1990s, despite the burst of the e-commerce bubble and the subsequent decline in share prices on the world stock exchanges (including the Tokyo Stock Exchange). Sales of shares of NTT in 1998 and 1999 were well received by the public and might have contributed towards the creation of this new trend. The privatisation of postal services in October 2007, although outside the collected data set, is likely to have further impacted on how many people are willing to include equity holdings in their portfolios.

***** Insert Figure 7 here *****

In contrast with the UK, the Japanese privatisation programme has been rather slow and gradual, i.e., only a few companies were privatised and the reduction of the state control was only partial with the government retaining big stakes in the privatised companies. However, if one of the aims of the privatisation programme was to broaden share-ownership, it appears to have worked better in Japan than in the UK where as already indicated the numbers of shareholders has been more volatile.

Major privatisations create many new individual stock holders but unless there is a regular flow of fresh privatisations the numbers then wane overtime. It is important to distinguish between different relationships between privatisation and the stock markets.

In the context of developed markets the government has typically privatised major utilities and state owned enterprises that for historic reasons (frequently associated with war efforts) have had a close association with the state (airlines, car manufacturers, etc.). In these cases individual share holding has been an active choice on the part of the individual, albeit with significant financial incentives that made purchase by state nationals at the time of privatisation a valuable one-sided bet. In some privatisations shares were given free but this was mainly to employees of privatised companies. This latter process should be seen as part of a wider policy of employee share holding which has become popular in recent years and in some broader sense share ownership as part of the incentivisation of employees and management.

In contrast to the position of the developed markets, in many other countries stock markets had to be created as part of the privatisation process (e.g., Hungary, Poland, Russia). Hence, the unprecedented growth of stock markets on the 1990s is strongly linked with the collapse of communism. Indeed, 28 out of 52 countries that opened stock exchanges in the 1990s are countries that totally (e.g., Poland, Hungary, Slovenia) or partly (China, Vietnam) undertook market reforms to replace a central plan by a free-market system. For many emerging markets, particularly in transition economies, privatized assets are still almost the only assets publicly listed on local stock markets. Czechoslovakia and Russia are good examples. Privatised companies accounted for around 80% of industrial output in Russia immediately after privatisation and 90% in Czechoslovakia.¹¹ In these countries the stock markets were created primarily to service the privatisation process. This massive asset transfer was accompanied by a comparable increase in the shareholder base. In Czechoslovakia 90% of the working population

¹¹ Before its split into the Czech Republic and Slovakia.

held shares as a results of privatisation in the early 1990s, but by 2005 28.99% of the Czech Republic held shares and 2.4% in Slovakia. In Russia, although the privatisation transfer was affected by numerous cases of corruption, the new shareholders represented approx 40 million or 28% of the working population (Djankov and Murrell, 2002). In the countries where stock markets were created as part of the privatisation process shareholding was in some sense ‘imposed’ on individuals. To be more precise it was the option of shareholding that was imposed since frequently individuals were not given shares directly but were given vouchers that were convertible but transferable before conversion. This ‘imposition’ of ownership tends to be associated with more rapid declines of the privatisation-induced ownership. Note, that in the UK it was in the context of demutualisation that the induced-share holding declined most rapidly.

Legal origins

The legal origins approach to financial development argues that there are significant differences between countries in terms of investor protection and that there is a systematic relationship between investor protection and legal origin/tradition (common law countries offering far more investor protection than civil law countries). This view is particularly associated with La Porta, Lopez-de-Silanes, Shleifer and Vishny who in a series of papers (e.g., La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997, 1998, 1999), La Porta, Lopez-de-Silanes, and Shleifer (2008)) argue that the development of financial institutions (including stock markets) is strongly determined by the legal origin of the country they operate in.

Table 5 provides statistics on the average percentage of individual shareholders relative to population in subgroups cut by legal origin and market type. The numbers in brackets give the percentage of countries in the sample falling in each particular category. This shows that there is a substantial difference between the numbers of shareholders in common law and civil law countries in the case of the developed markets and new emerging markets, but that this difference disappears in the group of the old emerging markets.

***** Insert Table 5 here *****

An alternative explanation for market development, endowment theory, links financial development with geographical characteristics (e.g., a geographically hostile environment resulted in a grab-and-run attitude by colonisers, and hence less concern for protection of private property, than accommodating geographical conditions which favoured the development of property rights). Beck, Demirguic-Kunt, and Levin (2003) find empirical support for both the law and finance theory, and the endowment theory but argue that the latter provides a better explanation of the cross section disparity in data. The geographical endowment argument is heavily based on the role of colonisation in stock market development and is less relevant to deal with the general issue of the penetration of stock ownership in the population. Figure 8 shows settler mortality as stated in Beck, Demirguic-Kunt, and Levin (2003) against shareholding as percentage of population for those countries where there is settler mortality data. For these countries low shareholder penetration in the population appears to have little relationship with settler mortality although most of countries with shareholder penetration above 10% all have low settler mortality.

***** Insert Figure 8 here *****

The size of government

As a broad approximation, governments that have a large share of GDP undertake more economic activity for citizens than governments that have a small share of GDP. Where governments provide less for citizens then citizens may need to build up more wealth to self-provide for activities that will be provided by governments in other countries. So there may be a negative relationship between the size of government and share ownership as a percentage of population. Of course, there is no unique theoretical relationship. For example, the relationship may go the other way to the one suggested above, e.g., if a governments takes a large share of GDP for activities that citizens would not choose to do, this could leave less wealth to be invested generally and hence less in shares. So it is likely to matter what governments are choosing to do and not do.

An area that seems to have particular relevance for share ownership is the stance of governments to the provision of income for old age, notably in the light of demographic changes.

It has become difficult for countries to retain the pay-as-you-go model in the face of (i) the current and predicted demographic changes and (ii) rising expectations of current citizens of the appropriate provision in of income for old age. This has become a central concern of governments globally. It is now ten years since the IMF estimated that public pension funds relative to GDP must increase significantly by 2030—for example, doubling in Germany—if benefits are to stay constant in real terms (Chand and Jaeger, 1996). Not surprisingly, pension reform is now a leading policy issue. Governments have been forced to reconsider their role as welfare provider, notably as the principal provider for citizens in their old age, and individuals are now charged with providing for their some or all of their own retirement and for downturns in circumstances. This movement is almost universal (Chan-Lau, 2004; Disney 2000; Lindbeck and Persson, 2003; Poterba, 2004).

In developed economies the impact on stock ownership arising from private pension provision is exacerbated by higher levels of wealth, and hence higher expectations of provision in old age, which has led to unprecedented growth in mutual and pension fund holdings. In the United States in 1998, more than 20% of the adult population were E-holders, 49% of all households were EF-holders (this figures rises to over 90% for households with income over \$100k), and 84% held stock through any mechanism. The growth can be gauged from the fact that 44% of all households held mutual funds in 1998 compared to a figure of less than 6% in 1980 (all references, Poterba, 2001). There has also been considerable growth in retail market participation, particularly for new issues.¹² This process sucks into the market more wealthy investors who previously may have restricted their saving to mutual and pension funds.

The growth in pension funds has also been strong in developing markets. The World Bank has promoted the policy of replacing pay-as-you-go with private (managed) structures (the so-called second and third tiers). In both developing countries and transition economies this has resulted in a dramatic increase of people investing indirectly in stock markets (Roldos, 2004; Vittas, 2000). For example, in Latin America alone, the number of investors exceeds 40 million and in Poland, the number of investors already exceeds 65% of the working population (where

¹² The scale of this process in the United States can be gauged from the Google initial public offering in 2004, which has been seen as a watershed. The company (valued in May 2009 at almost 129 billion dollars) chose to bypass the banking support process and the associated large investors. Instead it set the initial public offering price, and raised around two billion dollars, through the retail market in part using information derived from internet bids. Although the process of bypassing the banking support operations was deemed premature and not an unmitigated success, the ability to place such a large offering straight into the U.S. retail market showed the extent that this market has grown in the last twenty years and signals the scope for future growth.

there were none in 1989).¹³ Although the demographic changes and government responses have particularly significant implications for pension funds there may also be implications for the number of EF-holders.

***** Insert Figure 9 here *****

Figure 9 plots the percentage of the population owning shares against a standard measure of government size (share of government of GDP). There is a relationship, in that small government size is on average associated with higher percentage of the population owning shares, although there is a substantial difference between the developed and emerging markets.

3.2. Regression analysis

Section 3.1 introduced several factors commonly used in the literature on financial market development and discussed their relationship to the numbers of shareholders as a percentage of the country's population. This section presents results of our econometric analysis.

To address the question of whether the factors discussed in 3.1 are relevant to the proportion of the population owning shares we run a series of regressions using three definitions of the proportion of people owning shares. The main regressions (Table 6) use the most recently available statistics for EF holders. In addition, as a robustness check, we use the average of the available statistics over the past ten years, i.e., for the period 1998-2007 (Table 7), and also run the regressions on the subset of E-holders (Table 8).

The independent variables used in the regressions are:

- GDP PPP pc – GDP in Purchasing Power Parity per capita calculated in international dollars, these are downloaded from the World Bank's data base;

¹³ Compulsory pension schemes are excluded from our analysis because we focus on voluntarily equity investments.

- GINI – inequality in the year for which the most recent shareholder statistic is available. If this is not available, the statistic closest in time prior to the date of the shareholder statistics’ year is used. For the six countries unified by the Eastern Caribbean Stock Exchange the GINI coefficient for St. Lucia is used as there are no Gini coefficients available for the other five countries. The data are taken from the World Bank data base;
- Age – denotes the years of operation of the oldest existing stock exchange in a country (defined as the year equity trading started) till the year the most recent shareholding statistic is available; own calculations
- Emerging markets – is a dummy equal to one for emerging markets (old and new) and zero otherwise;
- Old emerging markets – is a dummy equal to one for old emerging markets (markets created before 1985) and zero otherwise;
- New emerging markets – is a dummy equal to one for new emerging markets (created after 1985) and zero otherwise;
- E dummy – is a dummy equal to one where E-holder statistics are used, and zero otherwise;
- F dummy – is a dummy equal to one where F-holder statistics are used, and zero otherwise;
- Common law – is a dummy equal to one for common law countries and zero otherwise; the classification is downloaded from Andrei Shleifer’s website.
- Government size – is the government share of GDP as given in the Penn World Tables 6.2 (Year 2004);
- Transition economies – is a dummy equal to one if a country is a transition economy and zero otherwise;
- Political stability - measures perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism. It is a statistical compilation of responses on the quality of governance given by a large number of enterprises, citizen and expert survey respondents, and varies between -2.5(bad) and 2.5(good). The variable is one of the World Bank governance indicators.

If the most recent shareholder statistics are used as the dependent variable, the same year GDP PPP pc is used. The Government size variable is a bit more problematic as it is not available beyond 2004. Therefore, the countries with shareholder observations from 2004 onwards are matched to the 2004 Government size statistics.¹⁴ When the average available shareholder statistics over the period 1998-2007 are used as the dependent variable, the GDP PPP pc and the Government size statistics are also averaged over the whole period 1998-2007.¹⁵ The GINI coefficient is not averaged as there were insufficient data points to apply effective averaging.

The regression results we present are only a subset of regressions we have run. We have looked at a wide range of variables that could be seen as a proxy for the development of the business environment, legal structures, corruption and development of society, e.g., various World Bank development indicators. We were unable to confirm that any have statistically significant explanatory power for the questions we address. Therefore, we do not present these results.

We also considered MC to GDP ratio as an explanatory variable. However, following the literature (e.g. see La Porta et. al., 2008), the relative size of stock markets is correlated with the legal origin of the country it operates in. Therefore, we had to choose between MC to GDP ratio and a Common law dummy. The regressions with the Common law dummy had greater explanatory power. To save the space we do not present these alternative specifications, although they can be obtained from the authors on request.

Regression results using the most recent statistics of the number EF-holders as a percentage of population as the dependent variable are presented in Table 6. We have 65 not 70 observations as we treat the six countries that trade shares on the Eastern Caribbean Stock Exchange as one observation point.

Starting from regression I in Table 6 we see that wealth as measured by GDP PPP pc is a highly statistically significant factor in explaining the percentage of the population owning shares (each additional \$1000 increases the proportion of shareholders by 0.34%) and when taken alone explains over 19% of the variability of the data. Controlling for the inequality of the

¹⁴ For several emerging economies the 2003 statistics must be used because these are the most recent available one.

¹⁵ We also averaged the GDP PPP pc statistics over only these years from the 1998-2007 period for which the shareholder statistics are available. Since the results are very similar to those obtained for averaging over the whole period, they are not presented in the paper, but can be obtained from the authors on request.

income distribution (regressions II) does not help much (the coefficient is insignificant although R squared increases). Similarly, the age of the equity markets does not contribute in explaining the scale of penetration of equity holding (regressions III).

While GDP PPP per capita is important in explaining the penetration of equity holding it is useful to see if this is true for all stock markets or whether this is driven by the relationship for particular types of markets. Hence in regressions IV we introduce a dummy for emerging markets and an interactive term between the dummy and GDP PPP per capita. We find that GDP PPP per capita is no longer significant but the emerging market dummy and the interactive term are. The coefficient on the emerging market dummy is negative, indicating that the emerging markets have less shareholders as a percentage of population than the developed markets but the interactive term is positive indicating that the higher the GDP per capita within emerging markets then the greater is share-ownership as a percentage of GPP. This finding is consistent with the discussion presented in Section 3.1 (Figure 3). To further identify what is happening within the group of emerging markets we introduce separate dummies for old and new emerging markets and two interactive terms with GDP per capita (regression V). We find that both dummies are significant and negative however only the interactive term with old emerging markets is significant (at 1%) although both coefficients of the interactive terms are positive. Again the generic importance and significance of the GDP PPP pc in explaining shareholding variations across countries does not persist once we distinguish between emerging and developed markets. Therefore, the specification of regression V is chosen as the base for the following regressions.

We find, in line with earlier research on determinants of stock market development (e.g., La Porta et al., 1997, 1998, 1999; Beck et al., 2003), that the Common law dummy, or more specifically, whether a country has a law system based on the common law principle matters. The common law dummy is positive and highly significant (at 1% in all regressions) and its inclusion increases the explanatory power of the model (from regression V to VI) by 11.5%.

The next regression addresses whether the results depend on whether the share-ownership data for a country is derived using data for E holders alone or not. The dummy for countries with E-holders data (regression VII) is not significant. Regression VIII repeats this exercise using dummies for E-holders and F-holders. Again these are not significant.

Privatisation programmes were frequently designed to increase the shareholder base and so we use two dummies that might capture any effect of this type. Regression IX adds a transition dummy but this is insignificant. Interestingly it is also negative. Government size will also be negatively related to the scale of privatisation so regression X considers the size of government variable but again this is not significant. Finally, we include the political stability variable but this is not significant.

As a robustness check Tables 7 and 8 repeat these regressions using the average data set and using data based on E-holders alone, respectively. All the main findings are confirmed in both these specifications. One difference is that the interactive term for new emerging markets is occasionally significant (at 10% level). The transition dummy is positive in Table 7 and negative in Table 8. Indeed, all regressions based on averaging provide a positive coefficient on the transition dummy and all regressions based on the most recent data provide a negative coefficient (although none of these are significant).¹⁶

This effect can be explained by the fact that it is the transition economies as a group that have experienced the largest decline in the numbers of shareholders. Using averages takes the data further back in time and hence closer to the period when the markets were introduced. In several transition countries privatisation of state owned enterprises created vast numbers of shareholders in the early–mid 1990s. This ‘imposition’ of shares did not, however, succeed in maintaining high penetration levels through time, as many people liquidated their equity stakes. The shareholdings had declined to such an extent that not only is privatisation not significant in the statistical sense, but the coefficient is actually negative both in tables 6 and 8.

4. Pension investors are equity holders too

So far we have discussed three categories of shareholders: equity, funds or joint equity and funds investors. However, there is a potentially much broader group of investors with bigger proportions of wealth invested in equity markets. These are the pension fund contributors and current pensioners whose significant proportions of life-long saving have been invested on stock

¹⁶ We repeated averaging for the E-holders data set but do not present the results to save the space. The results were qualitatively identical to those presented in the paper.

markets via pension funds. Although pension fund behaviour has received attention, there is far less evidence available globally on pension fund contributors and the current pensioners holding pension funds. These investors are even more passive than the groups discussed in the previous sections. They are not the primary focus of the paper but are relevant in the context of the general analysis of shareholders around the world. Typically, pension contributors and pensioners (later jointly referred to as pension fund members) have very limited impact on asset allocation of their portfolios, and are also locked onto their investments much longer than those who invest in mutual funds. Their investments are often several-decade long commitments with regular monthly injections of new investment money (monthly contributions). This relationship often does not end when people retire, although monthly contributions will stop at retirement. This long-term horizon of pension plan contributors means that they are exposed to stock market fluctuations but they do not really contribute to the price formation process and liquidity of the capital markets.

Accounting for pension fund members (PFM) is even more difficult than accounting for E-, F- and EF-holders for the several reasons. First, even for countries where statistics of pension schemes' contributors or members and numbers of individuals investing in shares and/or investment funds are available, it is impossible to assess the magnitude of the potential overlap. Second, pension fund statistics come directly from individual schemes, and as such are typically based on a particular scheme and ignore other schemes. Even if several schemes are recorded no information about a possible overlap of contributors is available. Simple reference to the number of registered accounts does not help since an individual can open several accounts with different employers during their working life which will lead to double-counting of the numbers of indirect shareholders.¹⁷ Moreover, some data sources refer to active contributors only, whereas others to total members, i.e., those active and those who have already started to cash their pensions. Some of the recently created pension schemes only have active contributors (i.e., no one is yet entitled to receive a pension), but for the more mature schemes the number of total members can be much higher than the numbers of the active ones. The number of contributors/members does not take into account the partner of the contributor/member, many of

¹⁷ For example, the official statistics for Australia reported by the Australian Prudent Regulation Authority state that in 2006 29.1 million Australians had superannuation fund accounts. This, however, means that 142.7% of the Australian population had superannuation fund accounts in 2006.

whom will have legal rights under the scheme. In countries where the level of female participation in the labour force is low, this will result in a strong downward bias in our statistics.

To deal with these obstacles we adopt a conservative strategy and report statistics that come from one form of pension scheme even if statistics from several sources are available. Table 9 reports the summary of our search for voluntary equity market investors. For each country included in the table the reported number of shareholders is equal to the maximum of the number presented in Table 3 and the number of voluntary pension scheme contributors or members we found. Therefore, Table 9 includes 13 more countries (i.e., 83 in total) than Table 3 and for 10 other countries it contains data with higher statistics than those presented in Table 3.

The format of Table 9 is similar to the format of Table 3, but Column 4 includes two additional specifications: the numbers of contributors (i.e., pension active members, PAM) and the numbers of participants (i.e., pension fund members PFM). It shows that in total there are over one-half billion people voluntary investing in shares of publicly listed companies. As explained above, this figure grossly understates the true number of shareholders.

It is important to note that it is likely that the number of PFM will grow much faster than the number of EF-holders in the coming years. This is because pension reforms have only recently been implemented in many countries. This is the case for the most populous countries in the world, China and India. Although the Chinese pension reforms have only recently been introduced (the Chinese pension funds started to invest in equity in 2003), the country already contributes over 36% to the statistics quoted in Table 12.¹⁸

The regression results replicated on the bigger data set of Table 10 are very similar to those presented so far, therefore we present just a selection of them. The high level of statistical significance of the Common law dummy is confirmed (1%). Also as in the previous regressions the significance of the GDP PP per capita variable disappears once we control for the type of market. The interactive term between the Old emerging markets dummy and the GDP PPP per capita is consistently significant and the interactive term between the New emerging markets dummy and the GDP PPP per capita is also occasionally significant at the 10% level.

¹⁸ It is widely held criticized of China's pension system that it is mostly designed to cover employees in urban areas, especially employees in state-owned enterprises. However, up to 70% percent of the total labour force (584 million of the population in 2007) worked in the rural sector. In 2007, only 3.92 million famers in rural areas obtained the basic pension (China Ministry of Labour and Social Security, 2007)

The only difference between the previous regressions and the one presented in Table 10 is that the Table 10 specification uses an extra dummy (P dummy) to control for these countries for which the pension fund data are used. The coefficient estimated for the dummy is always positive and statistically significant at, at least, 5% level.

5. Summary and Conclusions

This study presents the first comprehensive compilation of the number of people around the world who own equity directly investing in shares of publicly listed companies, mutual funds and indirectly via pension funds they contribute to. We document that at least 317 million people in 70 countries (24 developed and 46 emerging market nations) own stock directly and over 544 million people in 83 countries invest in equity if contributions to voluntary pension schemes are included. We also document that although the developed stock exchanges account for about 70% of the world capitalisation, they contribute to about 40% of the population of shareholders.

The regression analyses of the determinants of personal shareholdings shows four main findings that appear to be robust. One is that GDP per capita matters in determining shareholding in the population but this is driven by the impact of GDP differences in emerging markets (particularly in the old emerging markets). This factor alone can explain over 19% of the cross country differences using the data set of countries with stock markets. Differences in GDP per capita do not seem to matter in developed markets.

The impact of legal origin on the number of shareholders as percentage of population is very strong; the coefficients estimated for the common law dummy are significant (almost always at the 1% level) in all regressions using all data sets specifications.

Privatisation is not significant. A transition dummy is positive in averaged data sets but negative when the most recent data is used. The reason for this is that the averaging process moves the time of the data closer to the period when the stock markets were introduced in transition countries, i.e., closer to the period when the large number of individual shareholders were created. This highlights the rapid decline of share ownership in transition countries.

Finally, other variables such as size of government, political stability, Gini coefficient, and age of market are not significant.

References:

- Aizcorbe, A.M., A.B. Kennickell and K.B. Moore, 2003, Recent Changes in U.S. Family Finances: Evidence from the 1998 and 2001 Survey of Consumer Finances, *Federal Reserve Bulletin*, January, 1-32.
- Beck, T., R. Levine and N. Loayza, 2000, Finance and Sources of Growth, *Journal of Financial Economics* 58, 261-300.
- Beck, T., A. Demirguc-Kunt, R. Levine, 2003, Law, Endowment and Finance, *Journal of Financial Economics* 70, 137-181.
- Bergstresser, D., and J. Poterba, 2004, Asset Allocation and Asset Location: Household Evidence from the Survey of Consumer Finances, *Journal of Public Economics* 88, 1893-1915.
- Bortolotti, B., M. Fantini, and D. Siniscalco, 2003, Privatisation Around the World: Evidence from Panel Data, *Journal of Public Economics* 88, 305-332.
- Campbell, J.Y., 2006, Household Finance, *Journal of Finance* 61, 1553-1604.
- Chand, S.K., and A. Jaeger, 1996, aging Popuations and Public Pension Schemes, *IMF Occasional Papers* 147, International Monetary Fund, Washington D.C.
- Chan-Lau, J.A., 2004, Pension Funds and Emerging Markets, *International Monetary Fund Working Paper*, 04/181.
- Demmogrüc-Kunt, A. and R. Levine, 1995, Stock Market Development and Financial Intermediaries: Stylised Facts, *World Bank WP* 1462.
- Demmogrüc-Kunt, A. and R. Levine, Finance and Inequality, *World Bank WP* 4967.
- Dewenter, K.L. and P.H. Malatesta, 1997, Public Offerings of State-Owned Enterprises: An International Comparison, *Journal of Finance* 52(4), 1659-79.
- Disney, R., 2000, Crises in Public Pension Programs in OECD: What are the Reform Options? *Economic Journal* 110, F1-F23.
- Djankov, S. and P. Murrell, 2002, Enterprise Restructuring in Transition: A Quantitative Survey, *Journal of Economic Literature* 40, 739-792.
- Grout, P.A., 1984, Investment and Wages in the Absence of Binding Contracts: A Nash Bargaining Approach, *Econometrica* 52(2), 449-460.
- Grout, P.A., 1988, Employee Share Ownership and Privatisation: Some Theoretical Issues, *Economic Journal* 98C, 97-104.
- Grout, P.A., 1991, Popular Capitalism, in M. Bishop, J.A. Kay and C. Mayer (eds.) *Privatisation and Economic Performance*, Oxford University Press.
- Grout, P.A., and A. Zalewska, 2006a, The Impact of Regulation on Market Risk, *Journal of Financial Economics* 80(1), 149-184.
- Grout, P.A., and A. Zalewska, 2006b, Corporate Governance, Stock Options and Managerial Portfolio Behavior, *CMPO University of Bristol*, mimeo.
- Holtzmann, R., and J.E. Stiglitz, 2000, New Ideas about Old Age Security: Toward Sustainable Pension Systems in the Twenty-First Century, *World Bank*, Washington D.C.
- Jensen, M. C., 1993, The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems, *Journal of Finance* 48, 831-880.

- Jensen, M.C., and K.J. Murphy, 2004, Remuneration: Where We've Been, How We Got Here, What Are the Problems, and How to Fix Them, *Harvard Business School NOM Research Papers* 04-28.
- Kang, J-K., and R.M. Stulz, 1997, Why is there a home bias? An Analysis of Foreign Portfolio Equity Ownership in Japan, *Journal of Financial Economics*, 46, 2-28.
- Kaplan, S.N., and A. Schoar, 2005, Private Equity Performance: Returns, Persistence, and Capital Flows, *Journal Finance* 60(4), 1791 – 1823
- Khan, R., R. Dharwadkarand, and P. Brandes, 2005. Institutional Ownership and CEO Compensation: A Longitudinal Examination, *Journal of Business Research* 58, 1078-1088.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, 1999, Corporate Ownership Around the World, *Journal of Finance* 54(2), 471-517.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny, 1997, Legal Determinants of External Finance, *Journal of Finance* 52, 1131-1150.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny, 1998, Law and Finance, *Journal of Finance* 106(6), 1113-1155.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny, 2000, Agency Problems and Dividend Policies Around the World, *Journal of Finance* 55(1), 1-33.
- La Porta R., F. Lopez-de-Silanes, and A. Shleifer, 2006, What Works in Securities Laws? *Journal of Finance* 61(1), 1-32.
- La Porta R., F. Lopez-de-Silanes, and A. Shleifer, 2008, The Economic Consequences of Legal Origin, *Journal of Economic Literature* 46(2), 285-332.
- Lindbeck, A., and M. Persson, 2003, The Gain from Pension Reform, *Journal of Economic Literature* 41, 74-112.
- Maug, E., 1998, Large Shareholders as Monitors: Is There a Trade-Off between Liquidity and Control?, *Journal of Finance* 53(1), 65-98.
- Meggison W.L. and J.M. Netter, 2001, From State to Market: A Survey of Empirical Studies on Privatisation, *Journal of Economic Literature* 39, 321-389.
- Meggison, W.L., 2005, *The Financial Economics of Privatization*. Oxford University Press, New York.
- Merrien, FX., 2001, The World Bank's New Social Policies: Pensions, *UNESCO, International Social Sciences Journal* 53, 537-550.
- Meulbroek L., 2000, Does Risk Matter? Corporate Insider Transactions in Internet-Based Firms, *Harvard Business School Working Paper* 00-062.
- Mueller, D.C., 2006, The Anglo-Saxon Approach to Corporate Governance and its Applicability to Emerging Markets, *Corporate Governance – An International Review* 14(4), 207-219.
- Mueller, H. M. and R. Inderst, 2005, Keeping the Board in the Dark: CEO Compensation and Entrenchment, available at SSRN: <http://ssrn.com/abstract=811744>
- Oyer P., and S. Schaefer, 2005, Why Do Some Firms Give Stock Options to All Employees? An Empirical Examination of Alternative Theories, *Journal of Financial Economics* 76, 99-113.
- Pagano, M., and P. Volpin, 2001, The Political Economy of Corporate Governance, *CEPR WP* 2682.
- Parrino, R., R.W. Sias, and L.T. Starks, 2003, Voting with the Feet: Institutional Ownership Changes around forced OECD Turnover, *Journal of Financial Economics* 68, 3-46.

- Perrotti E.C., and P. van Oijen, 2001, Privatisation, Political Risk and Stock Market Development in Emerging Economies, *Journal of International Money and Finance* 20(1), 43-69.
- Petraki, A. and A. Zalewska, 2009, The Growth Prospects of New and Old Emerging Markets, G.N. Gregoriou (Ed.) *Emerging Markets: Performance, Analysis and Innovation*, Chapman Hall/Taylor and Francis, 1-20.
- Poterba, J.M., 2001, The Rise of the “Equity Culture:” U.S. Stockownership Patterns, 1989 – 1998.
- Poterba, J.M., 2003, Employer Stock and 401(k) Plans, *American Economic Review Papers and Proceedings* 93(2), 398-404.
- Poterba, J.M., 2004, The Impact of Population Aging on Financial Markets, *NBER WP* 10851.
- Roland, G. and T. Verdier, 1994, Privatization in Eastern Europe: Irreversibility and Critical Mass Effect, *Journal of Public Economics* 54(2), 161-183.
- Roldos, J.E., 2004, Pension Reform, Investment Restriction, and Capital Markets, *IMF Policy Discussion Paper* 2004/4.
- Shleifer, A., and R.W. Vishny, 1997, A Survey of Corporate Governance, *Journal of Finance* 52, 737-783.
- Singh, A., 1996, Pension Reform, the Stock Market, Capital Formation and Economic Growth: A Critical Commentary on the World Bank’s Proposals, *CEPA WP* 2.
- Schmidt, K.M., 2000, The Political Economy of Mass Privatisation and the Risk of Expropriation, *European Economic Review* 44, 393-421.
- Stiglitz, J., 1998, The Role of International Financial Institutions in the Current Global Economy, World Bank (www.worldbank.org/html/extdr/extme/jssp022798.htm).
- Stiglitz, J., 1999, Whither Reform? Ten Years of the Transition, *World Bank*, Annual Bank Conference on Development Economics.
- Vittas, D., 2000, Pension Reform and Capital Market Development: “Feasibility” and “Impact” Preconditions, *World Bank Policy Research Working Paper* 2414.
- Yermack, 1995, Do Corporations Award CEO Stock Options Effectively? *Journal of Financial Economics* 39, 237-269.
- World Bank, 1994, *Averting the Old Age Crisis: Policy to Protect the Old and Promote Growth*, New York, Oxford University Press.
- World Development Report 2000-2001*, 2000, World Bank, Washington D.C.
- Zalewska, A., 2006, Is Locking Domestic Funds on a Local Market Beneficial? Evidence from the Polish Pension Reforms, *Emerging Markets Review* 7, 339-360.
- Zalewska, A., 2008, Emerging Markets – Is Today the Best Predictor of Tomorrow, *Journal of Financial Transformation* 22, 14-17.

Table 1. Proportion of country population and corresponding absolute numbers of individuals investing in shares of publicly listed companies in 54 countries.

| Country | Percent of population | Number of Individual | Year | Principal source of share ownership data |
|----------------|-----------------------|----------------------|------|---|
| Argentina | 0.37 | 141,255 | 2006 | Bolsa de Comercio de Buenos Aires ¹⁹ |
| Australia | 19.51 | 4,100,000 | 2008 | Australian Stock Exchange ²⁰ |
| Austria | 2.96 | 243,271 | 2005 | Eurobarometer (European Commission) ²¹ |
| Belgium | 7.23 | 754,749 | 2005 | Eurobarometer (European Commission) ²¹ |
| Bolivia | 0.16 | 12,961 | 1999 | World Bank Survey Data, 1999 |
| Brazil | 0.24 | 456,557 | 2007 | Australian Stock Exchange ²² |
| Chile | 4.24 | 636,474 | 1999 | International Federation of Stock Exchanges ²³ |
| China | 5.51 | 71,612,000 | 2005 | Shenzhen and Shanghai Stock Exchanges ²⁴ |
| Cyprus | 6.08 | 50,806 | 2005 | Eurobarometer (European Commission) ²¹ |
| Czech Republic | 1.28 | 130,986 | 2005 | Eurobarometer (European Commission) ²¹ |
| Denmark | 13.39 | 724,594 | 2005 | Eurobarometer (European Commission) ²¹ |
| Estonia | 1.75 | 23,516 | 2005 | Eurobarometer (European Commission) ²¹ |
| Finland | 13.73 | 721,579 | 2006 | Finnish Foundation for Share Promotion ²⁵ |
| France | 10.97 | 6,700,000 | 2006 | Deutsches Aktieninstitut ²⁶ |
| Germany | 4.32 | 3,553,000 | 2008 | Deutsches Aktieninstitut ²⁶ |
| Ghana | 1.5 | 345,000 | 2006 | http://www.myzongo.com/Foreigners-hold-75-percent-of.html |
| Greece | 8.36 | 934,170 | 2007 | Athens Stock Exchange ²⁷ |
| Guatemala | 0.1 | 11,785 | 2000 | World Bank Survey Data, 2000 |
| Hong Kong | 29.14 | 2,099,448 | 2007 | Hong Kong Exchanges and Clearing Ltd. ²⁸ |
| Hungary | 0.40 | 40,020 | 2005 | Eurobarometer (European Commission) ²¹ |
| India | 0.69 | 7,000,000 | 2000 | Society for Capital Market Research & Development ²⁹ |
| Iran | 5.02 | 3,282,934 | 1999 | International Federation of Stock Exchanges ⁷ |
| Ireland | 3.44 | 141,340 | 2005 | Eurobarometer (European Commission) ²¹ |
| Italy | 2.39 | 1,396,062 | 2005 | Eurobarometer (European Commission) ²¹ |
| Japan | 30.75 | 39,284,500 | 2006 | Tokyo Stock Exchange ³⁰ |
| Kenya | 0.37 | 110,000 | 1998 | Nairobi Stock Exchange ³¹ |
| Korea | 9.3 | 4,441,000 | 2007 | Korea Stock Exchange ³² |
| Latvia | 0.70 | 16,160 | 2005 | Eurobarometer (European Commission) ²¹ |
| Lithuania | 0.81 | 27,694 | 2005 | Eurobarometer (European Commission) ²¹ |
| Luxembourg | 7.01 | 32,526 | 2005 | Eurobarometer (European Commission) ²¹ |
| Malaysia | 6.27 | 1,422,928 | 1999 | International Federation of Stock Exchanges ²³ |
| Malta | 12.57 | 50,900 | 2006 | Borza Malta ³³ |
| Mauritius | 2.56 | 32,000 | 2007 | Central Depository and Settlement Co, Mauritius ³⁴ |
| Mongolia | 2.51 | 60,000 | 1995 | http://www.indiana.edu/~mongsoc/mong/survey95.htm |
| Netherlands | 17.05 | 2,780,889 | 2005 | Statistics Netherland, Voorburg/Heerlen |
| New Zealand | 17.10 | 723,304 | 2007 | New Zealand Exchange Ltd. ³⁵ |
| Norway | 7.3 | 340,821 | 2006 | Deutsches Aktieninstitut ²⁷ |
| Pakistan | 0.005 | 7,000 | 2004 | |
| Poland | 2.7 | 1,029,000 | 2008 | Warsaw Stock Exchange ³⁶ |
| Portugal | 1.50 | 157,540 | 2005 | Eurobarometer (European Commission) ¹⁶ |
| Russia | 0.14 | 204,000 | 2006 | Personal contact |
| Saudi Arabia | 38.2 | 10,743,440 | 2007 | Saudi Stock Exchange (personal contact) |
| Singapore | 11.97 | 473,915 | 1999 | International Federation of Stock Exchanges ²⁵ |

¹⁹ Ramiro Tosi, Lic. En Economía, Capital Market Specialist, Instituto Argentino de Mercado de Capitales (I.A.M.C.), Mercado de Valores de Buenos Aires, "Como somos los Argentinos a la Hora de Invertir", 2006, Investigación y Desarrollo, Bolsa de Comercio de Buenos Aires

²⁰ "2008 Australian Share Ownership Study" (http://www.asx.com.au/about/pdf/2008_australian_share_ownership_study.pdf), Australian Securities Exchange, 2009

²¹ "Special Eurobarometer 230: Public Opinion in Europe on Financial Services," summarized in Table 3 of Patrick Honohan, "Household Financial Assets in the Process of Development," (http://www.wider.unu.edu/publications/working-papers/research-papers/2006/en_GB/rp2006-91/) Research Paper No. 2006/91, United Nations University-World Institute for Development Research, Helsinki, August 2006

²² Presented in "International Share Ownership (Comparison of Share Ownership)" (http://www.asx.com.au/resources/pdf/international_share_ownership_summary_05.pdf), Australian Securities Exchange, Sept. 2005

²³ "1999 Shareownership Survey; A report to the FIBV Investor Education Workshop Stockholm, 20-21 November 2000", International Federation of Stock Exchanges, sent via e-mail by Mr. Lorenzo Gallai, Secretary of WFE

²⁴ "Market Statistics" [Shenzhen] (http://www.szse.cn/main/en/Catalog_1849.aspx) and Shanghai Stock Exchange Factbook 2005 (http://www.sse.com.cn/en_us/cs/about/factbook/factbook_us2005.pdf)

²⁵ "Survey of Household Saving and Investment Patterns 1990-2003," presented in "International Share Ownership (Comparison of Share Ownership)" (http://www.asx.com.au/resources/pdf/international_share_ownership_summary_05.pdf), Australian Securities Exchange, September 2005

²⁶ "Fact book 2007," (http://www.dai.de/internet/dai/dai-2-0.nsf/dai_statistiken.htm), Deutsches Aktieninstitut, 2007

²⁷ Axia Numbers, Monthly Statistical Bulletin, November 2007, Athens Stock Exchange, (http://www.athenstock.com/popup/Pages/Axia_Numbers/AxiaNumbers_Apothetirio_Arxeia.asp)

²⁸ "Retail Investor Survey 2005," (<http://www.hkex.com.hk/research/RIS05.htm>), Hong Kong Exchanges, June 2006

²⁹ "Indian Household Investor Survey- 2004", Society of Capital Market Research & Development, June 2005

³⁰ "2006 Shareownership Survey": <http://www.tse.or.jp/english/market/data/shareownership/english2006.pdf>, 2007

³¹ <http://www.mbenidi.co.za/exch/3/p0005.htm>

³² Korea Exchange, Shareholdings in "Stocks Statistics", (<http://eng.krx.co.kr/index.html>)

³³ <http://www.borzamalta.com.mt/Offlist/individual%20investors.pdf> Borza Malta, 2007

³⁴ Vipin Mahabirsingh, Managing Director, Central Depository and Settlement Co Ltd (CDS), Mauritius

³⁵ NZX and ABN AMRO Craigs Study, Link: http://www.nzx.com/aboutus/news/press/2005/research_15jul

³⁶ "Factbook 2007", Warsaw Stock Exchange,

(http://www.gpw.pl/gpw.asp?cel=e_informacje&k=3&i=/publications/publications&skv=1)

| | | | | |
|------------------------|-------|--------------------|------|--|
| Slovakia | 1.21 | 65,262 | 2005 | Eurobarometer (European Commission) ²¹ |
| Slovenia | 8.49 | 169,512 | 2005 | Eurobarometer (European Commission) ²¹ |
| Spain | 2.22 | 954,348 | 2005 | Eurobarometer (European Commission) ²¹ |
| Sri Lanka | 1.53 | 285,644 | 1999 | International Federation of Stock Exchanges ²⁵ |
| Sweden | 19.7 | 1,780,530 | 2006 | Deutsches Aktieninstitut ³⁷ |
| Switzerland | 16.24 | 1,218,280 | 2008 | Swiss Banking Institute, University of Zurich ³⁷ |
| Taiwan | 34.78 | 7,920,000 | 2006 | Taiwan Stock Exchange ³⁸ |
| Turkey | 5.9 | 4,303,000 | 2005 | Central Registry Agency Inc. of Turkey ³⁹ |
| United Kingdom | 15.09 | 9,800,000 | 1992 | Deutsches Aktieninstitut ²⁷ |
| United States | 12.6 | 37,280,000 | 2005 | Investment Company Institute and Securities Industry Association ⁴⁰ |
| Zambia | 0.25 | 29,000 | 2000 | Zambia Stock Exchange (private contact) |
| Total investors | | 230,855,700 | | |

³⁷ "Aktienbesitz in der Schweiz 2008," Swiss Banking Institute of University Zurich, (<http://www.isb.uzh.ch/publikationen/equity.php>)

³⁸ Taiwan Stock Exchange, Research & Development Department (contact with Mr. Kevin Hsiu)

³⁹ "Investor Profile in Turkey (as of 31.12.2005)", (http://www.tspakb.org.tr/veribankasi/yatirimci_profil_051231.xls), The Association of Capital Market Intermediary Institutions of Turkey, 2007

⁴⁰ Presented in Table 1198, "Household Ownership of Equities: 2002 and 2005," *The 2006 Statistical Abstract of the United States*, U.S. Census Bureau, Washington, DC. Another link: http://www.ici.org/pdf/rpt_05_equity_owners.pdf

Table 2. Proportion of country population and corresponding absolute numbers of individuals investing in mutual funds in 34 countries.

| Country | Percent of population | Number of Individuals | Year | Source |
|------------------------|-----------------------|-----------------------|------|--|
| Argentina | 0.16 | 59,728 | 2005 | Bolsa de Comercio de Buenos Aires ¹⁹ |
| Australia | 3.81 | 800,000 | 2008 | Australian Stock Exchange ²⁰ |
| Austria | 2.54 | 208,518 | 2005 | Eurobarometer (European Commission) ²¹ |
| Barbados | 9.09 | 26,543 | 2005 | OICV-IOSCO ⁴¹ |
| Belgium | 5.95 | 621,558 | 2005 | Eurobarometer (European Commission) ²¹ |
| Bosnia and Herzegovina | 6.87 | 269,027 | 2005 | OICV-IOSCO ⁴¹ |
| Brazil | 1.39 | 2,666,868 | 2007 | Australian Stock Exchange ⁴² |
| Chile | 2.27 | 376,900 | 2008 | Mutual Fund Administrators Association of Chile ⁴³ |
| China | 0.27 | 3,477,300 | 2005 | Shenzhen and Shanghai Stock Exchanges ⁴⁴ |
| Colombia | 0.07 | 33,158 | 2005 | OICV-IOSCO ⁴¹ |
| Czech Republic | 1.28 | 130,986 | 2005 | Eurobarometer (European Commission) ²¹ |
| Denmark | 3.69 | 199,888 | 2005 | Eurobarometer (European Commission) ²¹ |
| Estonia | 0.44 | 5,879 | 2005 | Eurobarometer (European Commission) ²¹ |
| France | 3.77 | 2,300,000 | 2006 | Deutsches Aktieninstitut ²⁶ |
| Germany | 8.66 | 7,129,000 | 2008 | Deutsches Aktieninstitut ²⁶ |
| Hong Kong | 7.58 | 510,000 | 2001 | Hong Kong Exchanges and Clearing Ltd. ⁴⁵ |
| Hungary | 0.40 | 40,020 | 2005 | Eurobarometer (European Commission) ²¹ |
| India | 1.15 | 12,672,618 | 2004 | Society for Capital Market Research & Development ⁴⁶ |
| Ireland | 1.38 | 56,536 | 2005 | Eurobarometer (European Commission) ²¹ |
| Italy | 7.98 | 4,667,894 | 2004 | Borsa Italiana ⁴⁷ |
| Korea | 10.54 | 4,989,418 | 2005 | Korea Stock Exchange ³² |
| Lithuania | 0.40 | 13,847 | 2005 | Eurobarometer (European Commission) ²¹ |
| Luxembourg | 6.23 | 28,912 | 2005 | Eurobarometer (European Commission) ²¹ |
| Malaysia | 39.2 | 10,239,650 | 2005 | OICV-IOSCO ⁴¹ |
| Mauritius | 2.87 | 35,670 | 2007 | Central Depository and Settlement Co, Mauritius ³⁴ |
| Morocco | 0.04 | 12,453 | 2005 | OICV-IOSCO ⁴¹ |
| Norway | 26.9 | 1,208,714 | 2000 | Deutsches Aktieninstitut ²⁶ |
| Pakistan | 0.03 | 46,475 | 2003 | |
| Portugal | 0.37 | 39,385 | 2005 | Eurobarometer (European Commission) ²¹ |
| Romania | 0.05 | 11,903 | 2005 | OICV-IOSCO ⁴¹ |
| Slovakia | 1.21 | 65,262 | 2005 | Eurobarometer (European Commission) ²¹ |
| Slovenia | 2.83 | 56,504 | 2005 | Eurobarometer (European Commission) ²¹ |
| South Africa | 2.63 | 1,275,513 | 2005 | OICV-IOSCO ⁴¹ |
| Spain | 1.85 | 795,290 | 2005 | Eurobarometer (European Commission) ²¹ |
| Switzerland | 1.20 | 89,509 | 2006 | Swiss Banking Institute, University of Zurich ⁴⁸ |
| Taiwan | 5.28 | 1,197,099 | 2006 | Taiwan Stock Exchange ³⁸ |
| Thailand | 0.61 | 375,891 | 2005 | OICV-IOSCO ⁴¹ |
| Turkey | 0.05 | 37,176 | 2005 | Central Registry Agency Inc. of Turkey ³⁹ |
| United States | 16.82 | 49,760,000 | 2005 | Investment Company Institute and Securities Industry Association ⁴⁰ |
| Total investors | | 106,531,092 | | |

⁴¹ OICV-IOSCO Study, "Collective Investment Schemes in Emerging Markets", July 2006,

(<http://www.iosco.org/library/pubdocs/pdf/IOSCOPD222.pdf>)

⁴² Presented in "International Share Ownership (Comparison of Share Ownership)"

(http://www.asx.com.au/resources/pdf/international_share_ownership_summary_05.pdf), Australian Securities Exchange, September 2005

⁴³ Asociacion de Administradoras de Fondos Mutuos de Chile (http://www.aafm.cl/site/index.php?option=com_docman&Itemid=33)

⁴⁴ "Market Statistics" [Shenzhen] (http://www.szse.cn/main/en/Catalog_1849.aspx) and Shanghai Stock Exchange Factbook 2005 (http://www.sse.com.cn/en_us/cs/about/factbook/factbook_us2005.pdf)

⁴⁵ "Retail Investor Survey 2005," (<http://www.hkex.com.hk/research/RIS05.htm>), Hong Kong Exchanges, June 2006

⁴⁶ "Indian Household Investor Survey- 2004", Society of Capital Market Research & Development, June 2005

⁴⁷ "The Demand for Italian Shares and Retail Investors"

(http://www.borsaitaliana.it/documenti/statistiche/mediatitano/fatticifre/2004/cap1116896.en_pdf.htm)

⁴⁸ "Equity Ownership in Switzerland 2006," Swiss Banking Institute of University Zurich,

(http://www.isb.uzh.ch/publikationen/equityOwnership/ISB_EquityOwnership_in_Switzerland_2006_English.pdf)

Table 3. Proportion of country population and corresponding numbers of individuals investing in shares of publicly listed companies and/or mutual funds in 70 countries. The type of share-ownership is denoted 'E' for equity holders, 'F' for funds investors, and 'EF' refers to numbers of investors in equity or investment funds.

| Country | Percent of population ion | Number of individuals | Type of ownership | Year | Source |
|---|---------------------------|-----------------------|-------------------|------|---|
| Argentina | 0.52 | 194,728 | EF | 2005 | Bolsa de Comercio de Buenos Aires ¹⁹ |
| Australia | 31.88 | 6,700,000 | EF | 2008 | Australian Stock Exchange ²⁰ |
| Austria | 2.96 | 243,271 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Bangladesh | 0.46 | 728,498 | EF | 2007 | Dhaka Stock Exchange ⁴⁹ |
| Barbados | 9.09 | 26,543 | F | 2005 | OICV-IOSCO ⁴¹ |
| Belgium | 7.23 | 754,749 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Bolivia | 0.16 | 12,961 | E | 1999 | World Bank, Survey Data, 1999 |
| Bosnia and Herzegovina | 6.87 | 269,027 | F | 2005 | OICV-IOSCO ⁴¹ |
| Brazil | 1.62 | 3,123,425 | EF | 2007 | Australian Stock Exchange ²² |
| Canada | 37.52 | 12,396,020 | EF | 2004 | Toronto Stock Exchange ⁵⁰ |
| Chile | 4.24 | 636,474 | E | 1999 | International Federation of Stock Exchanges ²³ |
| China | 5.9 | 76,700,000 | EF | 2005 | Shenzhen and Shanghai Stock Exchanges ⁴⁴ |
| Colombia | 0.07 | 33,158 | F | 2005 | OICV-IOSCO ⁴¹ |
| Cyprus | 6.08 | 50,806 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Czech Republic | 1.28 | 130,986 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Denmark | 23.47 | 1,270,218 | EF | 2005 | Deutsches Aktieninstitut ²⁶ |
| Antigua and Barbuda, Dominica, Grenada, St. Kitts, St. Lucia, St. Vincent | 1.26 | 7,483 | EF | 2007 | Eastern Caribbean Securities Exchange ⁵¹ |
| Estonia | 1.75 | 23,516 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Finland | 14.5 | 761,674 | EF | 2006 | Finnish Foundation for Share Promotion ²⁵ |
| France | 14.7 | 9,000,000 | EF | 2006 | Deutsches Aktieninstitut ²⁶ |
| Germany | 11.32 | 9,317,000 | EF | 2008 | Deutsches Aktieninstitut ²⁶ |
| Ghana | 1.5 | 345,000 | E | 2006 | http://www.myzongo.com/Foreigners-hold-75-percent-of.html |
| Greece | 8.36 | 934,170 | E | 2007 | Athens Stock Exchange ²⁷ |
| Guatemala | 0.1 | 11,785 | E | 2000 | World Bank, Survey Data, 2000 |
| Hong Kong | 22.98 | 1,618,000 | E | 2005 | Hong Kong Exchanges and Clearing Ltd. ²⁸ |
| Hungary | 0.40 | 40,020 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| India | 2.00 | 21,794,832 | EF | 2004 | Society for Capital Market Research & Development ²⁹ |
| Iran | 5.02 | 3,282,934 | E | 1999 | International Federation of Stock Exchanges ²⁵ |
| Ireland | 3.44 | 141,340 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Italy | 7.98 | 4,667,894 | F | 2004 | Borsa Italiana ⁴⁷ |
| Japan | 30.75 | 39,284,500 | E | 2006 | Tokyo Stock Exchange ³⁰ |
| Kenya | 0.37 | 110,000 | E | 1998 | Nairobi Stock Exchange ³¹ |
| Korea | 9.3 | 4,441,000 | E | 2007 | Korea Stock Exchange ³² |
| Latvia | 0.70 | 16,160 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Lithuania | 0.81 | 27,694 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Luxembourg | 7.01 | 32,526 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Malaysia | 39.2 | 10,239,650 | F | 2005 | OICV-IOSCO ⁴¹ |
| Malta | 12.57 | 50,900 | E | 2006 | Borza Malta ³³ |
| Mauritius | 2.56 | 32,000 | E | 2007 | Central Depository and Settlement Co, Mauritius ³⁴ |
| Mongolia | 2.51 | 60,000 | E | 1995 | http://www.indiana.edu/~mongsoc/mong/survey95.htm |
| Morocco | 0.04 | 12,453 | F | 2005 | OICV-IOSCO ⁴¹ |
| Netherlands | 17.05 | 2,780,889 | E | 2005 | Statistics Netherland, Voorburg/Heerlen |
| New Zealand | 28.1 | 1,161,810 | EF | 2005 | New Zealand Exchange Ltd. ³⁵ |
| Norway | 7.3 | 340,821 | E | 2006 | Deutsches Aktieninstitut ²⁶ |
| Pakistan | 0.03 | 46,475 | F | 2003 | Personal contact |
| Poland | 2.7 | 1,029,000 | E | 2008 | Warsaw Stock Exchange ³⁶ |
| Portugal | 1.50 | 157,540 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Romania | 0.05 | 11,903 | F | 2005 | OICV-IOSCO ⁴¹ |
| Russia | 0.14 | 204,000 | E | 2006 | Personal contact |
| Saudi Arabia | 38.2 | 10,743,440 | E | 2007 | Saudi Stock Exchange |
| Singapore | 11.97 | 473,915 | E | 1999 | International Federation of Stock Exchanges ²³ |
| Slovakia | 1.21 | 65,262 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Slovenia | 8.49 | 169,512 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| South Africa | 2.63 | 1,275,513 | F | 2005 | OICV-IOSCO ⁴¹ |
| Spain | 2.22 | 954,348 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Sri Lanka | 1.53 | 285,644 | E | 1999 | International Federation of Stock Exchanges ²³ |
| Sweden | 19.7 | 1,780,530 | E | 2006 | Deutsches Aktieninstitut ²⁶ |
| Switzerland | 17.06 | 1,279,194 | EF | 2008 | Swiss Banking Institute, University of Zurich ⁴⁸ |
| Taiwan | 34.78 | 7,920,000 | E | 2006 | Taiwan Stock Exchange ³⁸ |
| Thailand | 0.61 | 375,891 | F | 2005 | OICV-IOSCO ⁴¹ |
| Turkey | 5.9 | 4,303,000 | E | 2005 | Central Registry Agency Inc. of Turkey ³⁹ |
| United Kingdom | 15.09 | 9,060,260 | EF | 2005 | United Kingdom Shareholders Association ⁵² |
| United States | 21.2 | 62,880,000 | EF | 2005 | Investment Company Institute and Securities Industry Association ⁴⁰ |
| Vietnam | 0.27 | 229,521 | EF | 2007 | Hanoi Securities Trading Centre ³³ |
| Zambia | 0.25 | 29,000 | E | 2000 | Personal contact |
| Total investors | | 317,080,863 | | | |

⁴⁹ Md Afzalur Rahaman, Executive, R&D, Information Department, Dhaka Stock Exchange Ltd.

⁵⁰ Sylvain Gauthier, Coordonnateur d'Information, Corporate Communications Coordinator, TSX Group

⁵¹ Ms Alecia Pemberton, Eastern Caribbean Securities Exchange (serves the following countries: Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines)

⁵² "UK Stock Market Statistics", (http://www.uksa.org.uk/uk_stock_market.htm), August 2005

⁵³ Xuan Nhu, Hanoi Securities Trading Centre (data as of June 2007)

Table 4. The summary statistics of EF-holders in 70 countries.

| | Population | | Shareholders | |
|---|---------------|---------------|------------------------|---------------------------|
| | World | Sample | Numbers of individuals | % of the group population |
| Developed markets | 895,262,300 | 895,262,300 | 167,990,669 | 18.8% |
| Old emerging markets | 2,787,418,900 | 2,026,008,400 | 51,217,741 | 2.5% |
| New emerging markets | 2,424,360,012 | 1,863,073,512 | 97,872,453 | 5.3% |
| Total of countries with stock exchanges | 6,107,041,212 | 4,784,344,212 | 317,080,863 | 6.6% |

Figure 1. The time distribution of the oldest operating stock exchange at a country level in the sample of 138 countries that currently have a stock exchange. Panel A shows the distribution at a century level from the 17th till the 20th century. Panel B gives the distribution at a decade level from 1900 onwards, and Panel C shows the distribution on a yearly bases from 1980 onwards.

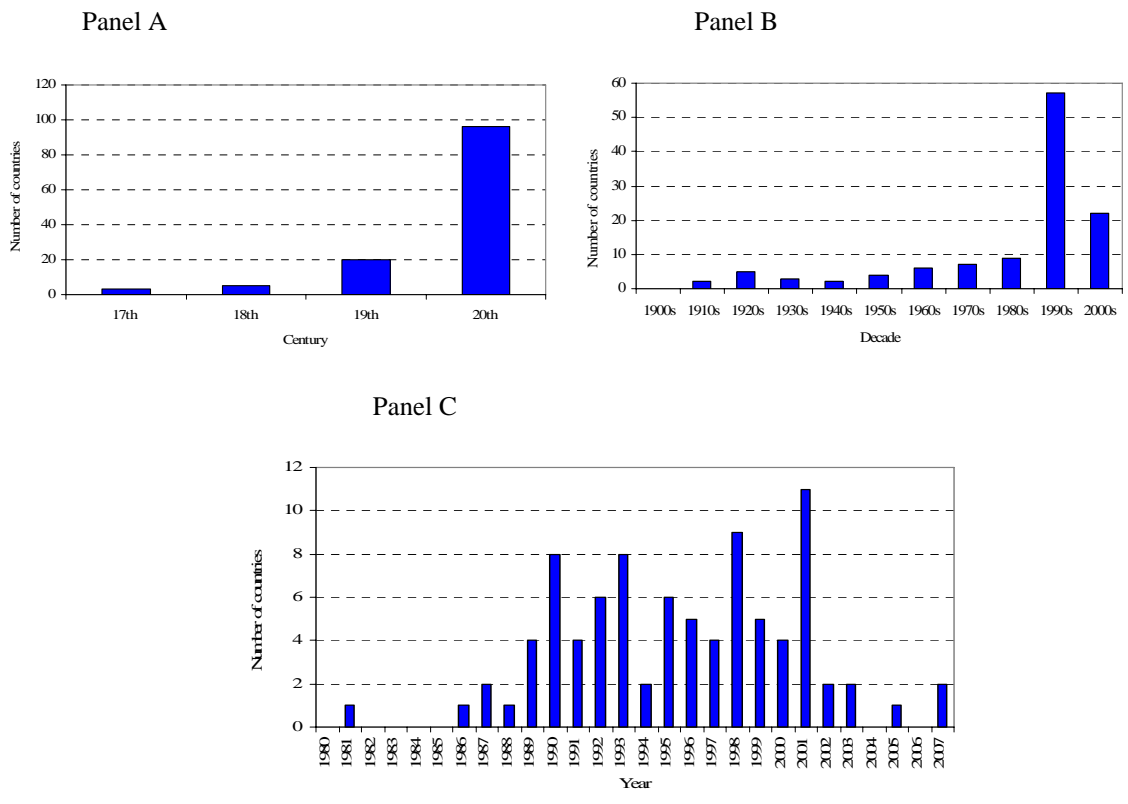


Figure 2. Shareholders versus stock market development measures: market capitalisation to GDP (Panel A), market capitalisation (Panel B), and ownership concentration ratio (Panel C). Panels A and C use the percentage of country's population owning shares as the reference variable, and Panel B uses the nominal numbers of individuals.

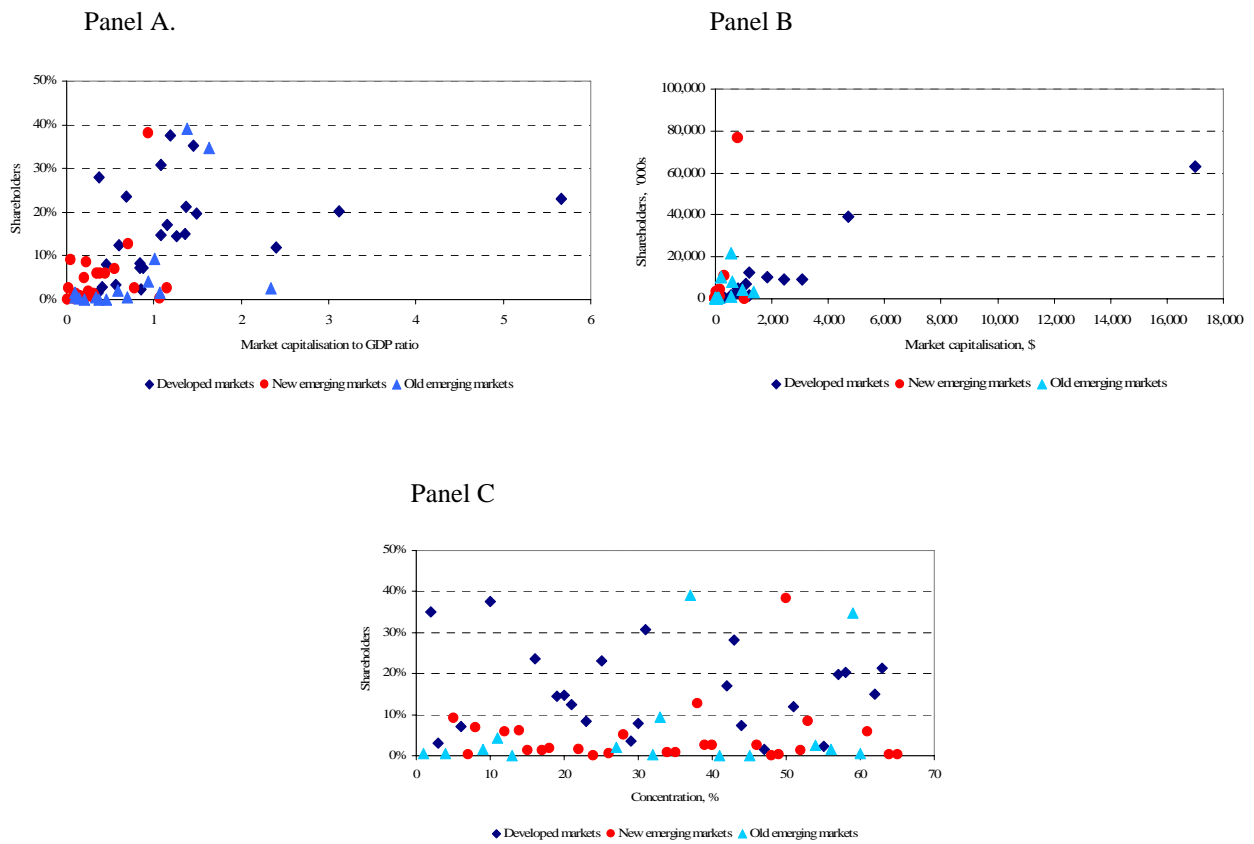


Figure 3. The EF-holders as a percentage of population versus GDP PPP per capita expressed in thousands of international dollars. The figure includes 24 countries with developed stock markets, 15 countries with old emerging stock markets (opened before 1985) and 26 countries with new emerging stock markets (opened after 1985). The six countries trading on the Caribbean Stock Exchange are treated as one observation.

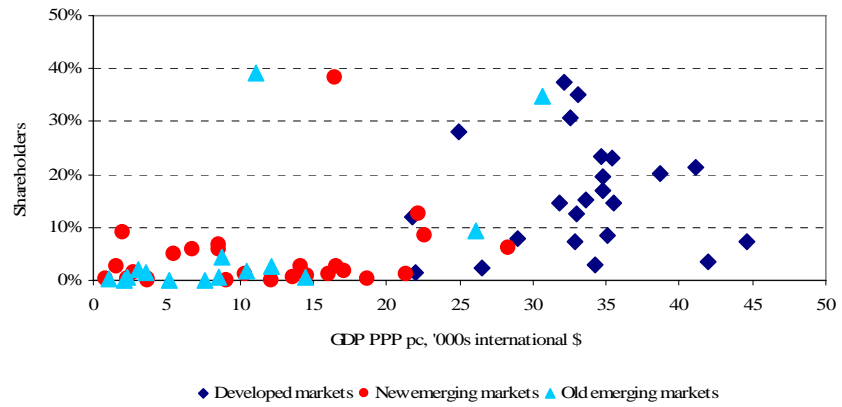


Figure 4. Shareholders as a percentage of population, USA.

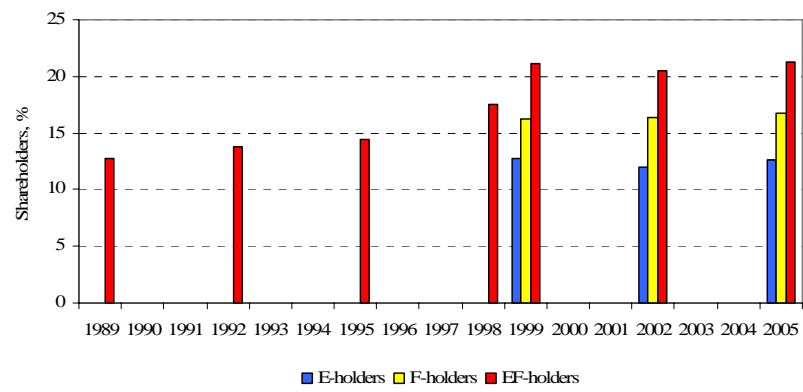


Figure 5. The EF-holders as the proportion of population versus a Gini coefficient. The Gini statistics are taken from the World Bank data base.

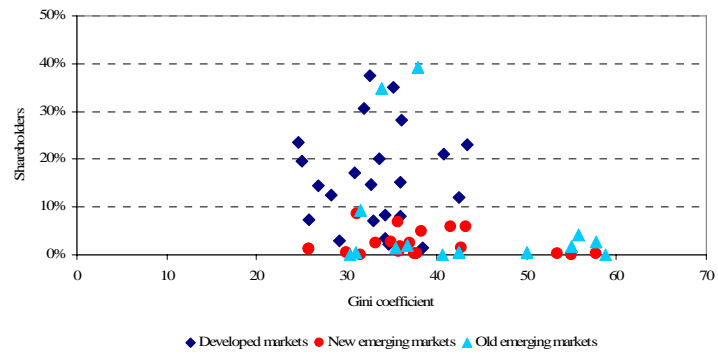


Figure 6. Available statistics on the proportion of the UK population holding shares in the period 1980-2005. Source: United Kingdom Shareholders Association.

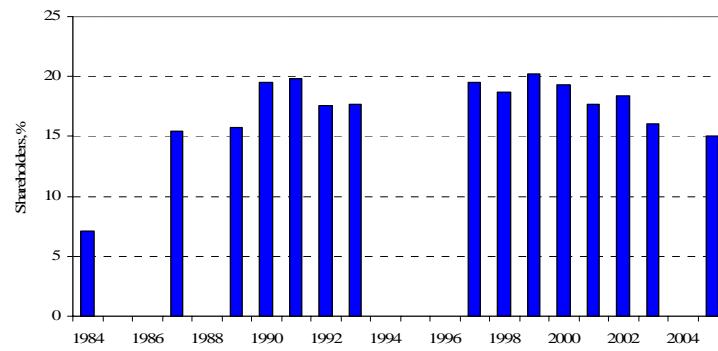


Figure 7. Share-ownership as a percentage of population, Japan. Source: Tokyo Stock Exchange

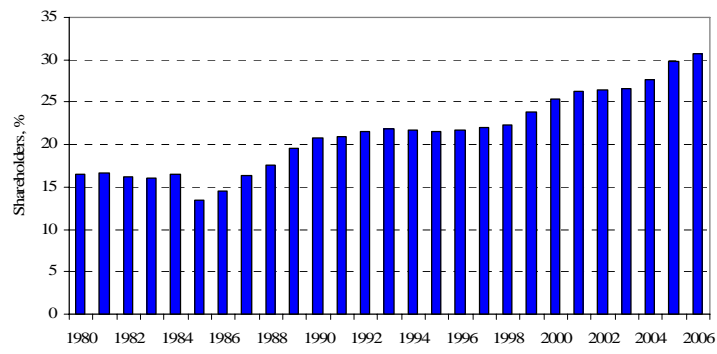


Table 5. The average percentage of population holding shares. The distinction for common and civil origin is based on La Porta et. al. (2008). The statistics in brackets show the percentage of countries of the sample in each category.

| | Common law origin | Civil law origin |
|----------------------|--------------------|--------------------|
| Developed markets | 21.93% (12.31%) | 12.34% (24.62%) |
| Old emerging markets | 5.85% (12.31%) | 7.22% (10.77%) |
| New emerging markets | 9.40% (9.23%) | 2.96% (30.77%) |

Figure 8. The number of shareholders as a percentage of population versus settler mortality as quoted by Beck et al. (2003)

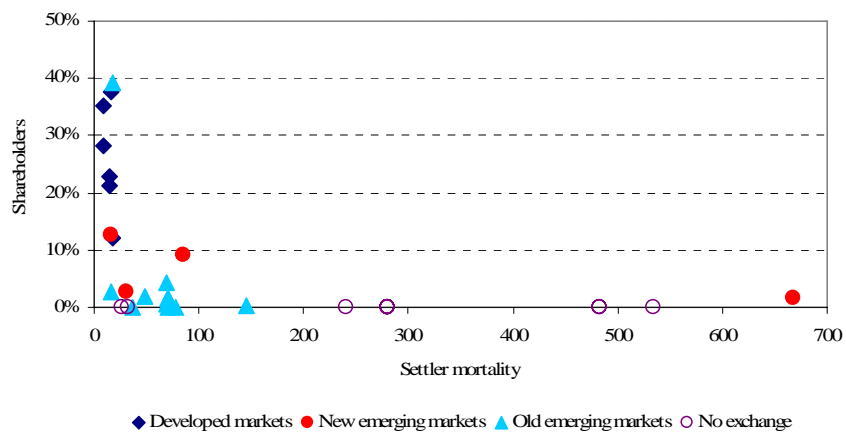


Figure 9. The EF-holders as the percentage of population versus government size. The government size statistics are taken from the Penn World Tables 6.2.

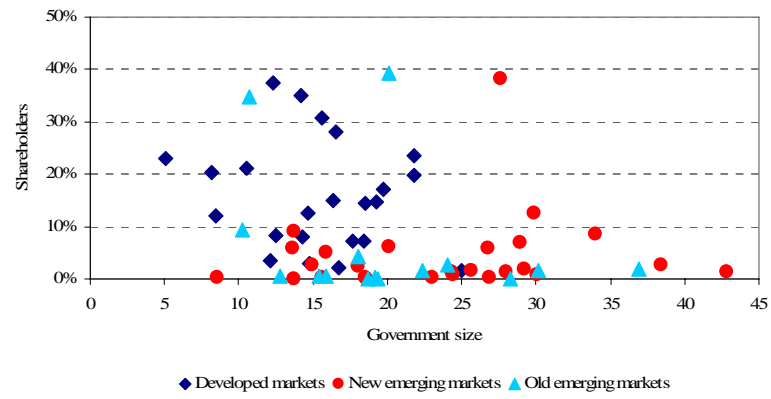


Table 6. Regression results when the most recent percentage of population holding shares or funds at a country level is used as a dependent variable. The independent variables are listed in the first column. T-statistics are quoted in brackets. *** - 1% statistical significance, ** - 5% statistical significance, and * - 10% statistical significance

| | I | II | III | IV | V | VI | VII | VIII | IX | X | XI |
|----------------------------------|---------------------|---------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| Constant | 2.247 (1.078) | 3.531 (0.484) | 1.372 (0.437) | 19.88*** (2.797) | 19.88*** (2.833) | 15.06** (2.286) | 16.606** (2.533) | 16.732** (2.510) | 14.739* (1.927) | 15.247** (2.291) | 17.23*** (2.369) |
| GDP PPP pc | 0.342*** (4.025) | 0.347*** (3.688) | 0.345** (2.180) | -0.124 (-0.635) | -0.124 (-0.643) | -0.068 (-0.381) | -0.043 (-0.243) | -0.043 (-0.242) | -0.066 (-0.362) | -0.070 (-0.391) | -0.130 (-0.668) |
| GINI | | -0.052 (-0.317) | | | | | | | | | |
| Age | | | 0.022 (0.474) | | | | | | | | |
| Age*GDP PPP pc | | | 0.000 (-0.299) | | | | | | | | |
| Emerging markets | | | | -19.91*** (-2.636) | | | | | | | |
| Emerging markets*GDP PPP pc | | | | 0.604** (2.214) | | | | | | | |
| Old emerging markets | | | | | -21.92** (-2.752) | -24.47*** (-3.330) | -24.93*** (-3.441) | -24.74*** (-3.332) | -24.55*** (-3.285) | -24.37*** (-3.290) | -27.42*** (-3.0190) |
| New Emerging markets | | | | | -18.147** (-2.328) | -15.867** (-2.209) | -14.769** (-2.078) | -14.69** (-2.043) | -15.84** (-2.182) | -15.559** (-2.137) | -19.37** (-2.304) |
| Old emerging markets* GDP PPP pc | | | | | 0.993*** (2.829) | 1.222*** (3.717) | 1.259*** (3.878) | 1.256*** (3.827) | 1.228*** (3.627) | 1.213*** (3.653) | 1.301*** (3.458) |
| New emerging markets*GDP PPP pc | | | | | 0.360 (1.149) | 0.353 (1.226) | 0.397 (1.396) | 0.396 (1.378) | 0.344 (1.126) | 0.382 (1.275) | 0.470 (1.364) |
| Legal origin | | | | | | 8.552*** (3.468) | 7.930*** (3.226) | 7.927*** (3.197) | 8.580*** (3.419) | 8.218*** (3.122) | 9.631*** (3.547) |
| E dummy | | | | | | | -4.093 (-1.661) | -4.265 (-1.560) | | | |
| F dummy | | | | | | | | -0.579 (-0.151) | | | |
| Government size | | | | | | | | | 0.015 (0.085) | | |
| Transition economies | | | | | | | | | | -1.457 (-0.383) | |
| Political stability | | | | | | | | | | | 0.187 (0.077) |
| Observations | 65 | 61 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 59 |
| R-squared | 20.5% | 25.1% | 21.0% | 28.6% | 32.7% | 44.3% | 46.8% | 46.9% | 44.3% | 44.4% | 44.9% |
| Adjusted R-squared | 19.2% | 22.6% | 17.1% | 25.1% | 27.0% | 38.5% | 40.3% | 39.3% | 37.4% | 37.6% | 37.3% |

Table 7. Regression results when the average percentage of population holding shares or funds at a country level is used as a dependent variable. The independent variables are listed in the first column. The averaging of PPP-pc and of Government size are taken over 1998-2007 period. T-statistics are quoted in brackets. *** - 1% statistical significance, ** - 5% statistical significance, and * - 10% statistical significance

| | I | II | III | IV | V | VI | VII | VIII | IX | X | XI |
|----------------------------------|---------------------|---------------------|--------------------|----------------------|----------------------|----------------------|-----------------------|----------------------|-----------------------|-----------------------|----------------------|
| Constant | 2.926 (1.268) | 10.187 (1.287) | 2.752 (0.795) | 18.73** (2.334) | 18.73** (2.310) | 15.62** (1.968) | 16.65** (2.085) | 16.92** (2.090) | 7.387 (0.785) | 15.13* (1.902) | 14.96* (1.841) |
| GDP PPP pc | 0.432*** (4.070) | 0.392*** (3.374) | 0.457** (2.342) | -0.064 (-0.260) | -0.064 (-0.257) | -0.037 (-0.153) | -0.011 (-0.045) | -0.010 (-0.039) | 0.027 (0.112) | -0.033 (-0.134) | -0.054 (-0.219) |
| GINI | | -0.184 (-1.038) | | | | | | | | | |
| Age | | | 0.001 (0.025) | | | | | | | | |
| Age*GDP PPP pc | | | 0.000 (-0.089) | | | | | | | | |
| Emerging markets | | | | -20.10** (-2.349) | | | | | | | |
| Emerging markets*GDP PPP pc | | | | 0.917** (2.587) | | | | | | | |
| Old emerging markets | | | | | -22.04** (-2.372) | -25.15** (-2.776) | -25.41*** (-2.807) | -24.85** (-2.674) | -27.02*** (-2.995) | -25.65*** (-2.826) | -23.02** (-2.250) |
| New Emerging markets | | | | | -18.75** (-2.073) | -16.81* (-1.918) | -15.63* (-1.772) | -15.51* (-1.742) | -15.71* (-1.810) | -18.09** (-2.044) | -15.71* (-1.720) |
| Old emerging markets* GDP PPP pc | | | | | 1.201** (2.452) | 1.48*** (3.034) | 1.515*** (3.105) | 1.503*** (3.047) | 1.653*** (3.349) | 1.523*** (3.112) | 1.390*** (2.637) |
| New emerging markets*GDP PPP pc | | | | | 0.759* (1.841) | 0.694* (1.742) | 0.707* (1.774) | 0.714* (1.775) | 0.494 (1.196) | 0.630 (1.560) | 0.639 (1.527) |
| Legal origin | | | | | | 6.751** (2.329) | 6.237** (2.124) | 6.226** (2.103) | 7.972*** (2.689) | 7.827** (2.532) | 6.786** (2.324) |
| E dummy | | | | | | | -3.081 (-1.059) | -3.534 (-1.085) | | | |
| F dummy | | | | | | | | -1.461 (-0.320) | | | |
| Government size | | | | | | | | | 0.358 (1.582) | | |
| Transition economies | | | | | | | | | | 4.321 (1.002) | |
| Political stability | | | | | | | | | | | 1.190 (0.459) |
| Observations | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| R-squared | 20.8% | 25.5% | 20.9% | 28.8% | 29.7% | 35.7% | 36.9% | 37.0% | 38.4% | 36.8% | 35.9% |
| Adjusted R-squared | 19.6% | 23.0% | 17.0% | 25.3% | 23.7% | 29.0% | 29.2% | 28.0% | 30.8% | 29.0% | 28.0% |

Table 8. Regression results when the most recent percentage of population holding shares at a country level is used as a dependent variable. The independent variables are listed in the first column. T-statistics are quoted in brackets. *** - 1% statistical significance, ** - 5% statistical significance, and * - 10% statistical significance

| | I | II | III | IV | V | VI | VII | VIII | IX |
|----------------------------------|---------------------|---------------------|--------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Constant | 2.114 (1.007) | 0.382 (0.056) | 2.097 (0.683) | 13.16** (2.212) | 13.16** (2.227) | 8.782 (1.558) | 5.807 (0.789) | 9.235* (1.632) | 11.494* (1.663) |
| GDP PPP pc | 0.274*** (3.430) | 0.295*** (3.575) | 0.305** (2.192) | -0.027 (-0.166) | -0.027 (-0.167) | 0.030 (0.200) | 0.053 (0.342) | 0.024 (0.160) | -0.002 (-0.013) |
| GINI | | 0.018 (0.115) | | | | | | | |
| Age | | | -0.003 (-0.074) | | | | | | |
| Age*GDP PPP pc | | | 0.000 (-0.090) | | | | | | |
| Emerging markets | | | | -14.15** (-2.177) | | | | | |
| Emerging markets*GDP PPP pc | | | | 0.523** (2.171) | | | | | |
| Old emerging markets | | | | | -16.29** (-2.292) | -19.18*** (-2.895) | -20.16*** (-2.945) | -18.88*** (-2.844) | -25.59*** (-2.695) |
| New Emerging markets | | | | | -11.97* (-1.746) | -9.260 (-1.450) | -8.807 (-1.362) | -8.452 (-1.311) | -14.43* (-1.714) |
| Old emerging markets* GDP PPP pc | | | | | 0.840*** (2.676) | 1.088*** (3.618) | 1.160*** (3.589) | 1.062*** (3.516) | 1.275*** (3.434) |
| New emerging markets*GDP PPP pc | | | | | 0.300 (1.056) | 0.257 (0.977) | 0.187 (0.6510) | 0.322 (1.187) | 0.455 (1.314) |
| Legal origin | | | | | | 7.844*** (3.064) | 8.332*** (3.099) | 7.033** (2.609) | 8.907*** (2.810) |
| Government size | | | | | | | 0.132 (0.635) | | |
| Transition economies | | | | | | | | -3.553 (-0.969) | |
| Political stability | | | | | | | | | -1.561 (-0.525) |
| Observations | 54 | 51 | 54 | 54 | 54 | 54 | 54 | 54 | 46 |
| R-squared | 18.5% | 25.7% | 18.8% | 26.1% | 30.0% | 41.6% | 42.1% | 42.8% | 41.5% |
| Adjusted R-squared | 16.9% | 22.6% | 14.0% | 21.6% | 22.7% | 34.2% | 33.3% | 34.1% | 30.7% |

Table 9. Proportion of country population and corresponding absolute numbers of individuals investing in equity, mutual funds or optional pension schemes investing in equity in 83 countries (E: equity, F: funds, EF: equity or funds, PAM: pension fund active members, PFM: pension fund members)

| Country | Percent of population | Number of Individuals | Ownership type | Year | Source |
|---|-----------------------|-----------------------|----------------|------|---|
| Algeria | 14.19 | 4,400,000 | PAM | 2002 | World Bank ⁵⁴ |
| Argentina | 0.52 | 194,728 | EF | 2005 | Bolsa de Comercio de Buenos Aires ¹⁹ |
| Australia | 31.88 | 6,700,000 | EF | 2008 | Australian Stock Exchange ³⁰ |
| Austria | 2.96 | 243,271 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Bahamas | 13.14 | 42,500 | PAM | 2005 | The Central Bank of the Bahamas ⁵⁵ |
| Bahrain | 13.89 | 94,500 | PAM | 2002 | World Bank ⁵⁴ |
| Bangladesh | 0.46 | 728,498 | EF | 2007 | Dhaka Stock Exchange ⁴⁹ |
| Barbados | 9.09 | 26,543 | F | 2005 | OICV-IOSCO ⁴¹ |
| Belgium | 7.23 | 754,749 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Bolivia | 0.16 | 12,961 | E | 1999 | World Bank Survey Data, 1999 |
| Bosnia and Herzegovina | 6.87 | 269,027 | F | 2005 | OICV-IOSCO ⁴¹ |
| Brazil | 1.62 | 3,123,425 | EF | 2007 | Australian Stock Exchange ³² |
| Canada | 37.52 | 12,396,020 | EF | 2004 | Toronto Stock Exchange ⁵⁰ |
| Chile | 4.24 | 636,474 | E | 1999 | International Federation of Stock Exchanges ²³ |
| China | 15.29 | 201,070,000 | PAM | 2005 | World Bank ⁵⁴ |
| Colombia | 0.07 | 33,158 | F | 2005 | OICV-IOSCO ⁴¹ |
| Cyprus | 6.08 | 50,806 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Czech Republic | 35.3 | 3,619,428 | PFM | 2006 | Eurostat ⁵⁶ |
| Denmark | 23.47 | 1,270,218 | EF | 2005 | Eurobarometer (European Commission) ²¹ |
| Antigua and Barbuda, Dominica, Grenada, St. Kitts, St. Lucia, St. Vincent | 1.26 | 7,483 | EF | 2007 | Eastern Caribbean Securities Exchange ⁵¹ |
| Egypt | 26.23 | 17,860,000 | PAM | 2002 | World Bank ⁵⁴ |
| Estonia | 1.75 | 23,516 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Fiji | 39.73 | 331,050 | PAM | 2006 | Fiji Provident National Fund ⁵⁷ |
| Finland | 14.5 | 761,674 | EF | 2006 | Finnish Foundation for Share Promotion ²⁵ |
| France | 14.7 | 9,000,000 | EF | 2006 | Deutsches Aktieninstitut ²⁶ |
| Germany | 18.54 | 15,300,000 | PFM | 2003 | OECD ⁵⁸ |
| Ghana | 1.5 | 345,000 | E | 2006 | http://www.myzongo.com/Foreigners-hold-75-percent-of.html |
| Greece | 8.36 | 934,170 | E | 2007 | Athens Stock Exchange ²⁷ |
| Guatemala | 0.1 | 11,785 | E | 2000 | World Bank Survey Data, 2000 |
| Hong Kong | 22.98 | 1,618,000 | E | 2005 | Hong Kong Exchanges and Clearing Ltd. ²⁸ |
| Hungary | 0.40 | 40,020 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| India | 2.00 | 21,794,832 | EF | 2004 | Society for Capital Market Research & Development ²⁹ |
| Iran | 11.6 | 7,668,000 | PAM | 2000 | World Bank ⁵⁴ |
| Iraq | 4.08 | 1,121,000 | AM | 2004 | World Bank ⁵⁴ |
| Ireland | 12.9 | 542,362 | PFM | 2006 | Irish Association of Pension Funds ⁵⁹ |
| Italy | 7.98 | 4,667,894 | F | 2004 | Borsa Italiana ⁴⁷ |
| Japan | 30.75 | 39,284,500 | E | 2006 | Tokyo Stock Exchange ³⁰ |
| Jordan | 11.38 | 661,651 | PAM | 2006 | Jordan Social Security Corporation ⁶⁰ |
| Kenya | 7.93 | 2,900,000 | PFM | 2006 | World Bank ⁵⁴ |
| Korea | 9.3 | 4,441,000 | E | 2007 | Korea Stock Exchange ³² |
| Latvia | 0.70 | 16,160 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Lebanon | 10.36 | 406,000 | PAM | 2003 | World Bank ⁵⁴ |
| Lithuania | 0.81 | 27,694 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Luxembourg | 7.01 | 32,526 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Malaysia | 39.2 | 10,239,650 | F | 2005 | OICV-IOSCO ⁴¹ |
| Malta | 12.57 | 50,900 | E | 2006 | Borża Malta ³³ |
| Mauritius | 2.56 | 32,000 | E | 2007 | Central Depository and Settlement Co, Mauritius ³⁴ |
| Mongolia | 2.51 | 60,000 | E | 1995 | http://www.indiana.edu/~mongsoc/mong/survey95.htm |
| Morocco | 7.92 | 2,337,000 | PAM | 2002 | World Bank ⁵⁴ |
| Netherlands | 17.05 | 2,780,889 | E | 2005 | Statistics Netherland, Voorburg/Heerlen |
| New Zealand | 28.1 | 1,161,810 | EF | 2005 | New Zealand Exchange Ltd. ³⁵ |
| Norway | 7.3 | 340,821 | E | 2006 | Deutsches Aktieninstitut ²⁶ |
| Oman | 4.5 | 114,311 | PAM | 2006 | Public Authority for Social Insurance ⁶¹ |
| Pakistan | 0.03 | 46,475 | F | 2003 | Personal contact |
| Panama | 6.19 | 206,952 | PFM | 2007 | International Federation of Pension Fund Administrators ⁶² |
| Peru | 14.35 | 4,101,060 | TM | 2007 | International Federation of Pension Fund Administrators ⁶² |
| Poland | 2.7 | 1,029,000 | E | 2008 | Warsaw Stock Exchange ³⁶ |

⁵⁴ World Bank http://info.worldbank.org/etools/docs/library/152894/mena_223-224.pdf

⁵⁵ "Survey of Private Pension Plans in The Bahamas (2005)", Published in the *Quarterly Economic Review*, Vol. 16, No. 2, June 2007, <http://www.centralbankbahamas.com/publications.php?cmd=view&id=15982>

⁵⁶ Eurostat Statistics (active members)

http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136195,0_45572097&_dad=portal&_schema=PORTAL

⁵⁷ Fiji National Provident Fund Statistics, <http://www.fnpf.com.fj/page.asp?frmPageID=16#70>

⁵⁸ A. Oster, "Risk-based pension supervision – German Approach", Presentation at OECD/OPS Conference on Private Pensions in Latin America, Santiago, Chile, 2006, <http://www.oecd.org/dataoecd/43/52/36344245.PDF>

⁵⁹ Ms Deirdre Kelly, Executive Officer, Information Services, The Pensions Board, IAPF

⁶⁰ SSC, "Social Security in Numbers, Special Edition 2002-2006",

http://www.ssc.gov.jo/uploads/E_by_numbers_2006.pdf

⁶¹ Public Authority for Social Insurance Employees Statistics, http://www.taminat.com/english/stats_ins_emp_ann.jsp

⁶² FIAP Statistics and Annual Reports http://www.fiap.cl/prontus_fiap/site/edic/base/port/series.html

| | | | | | |
|------------------------|-------|--------------------|--------|------|--|
| Portugal | 3.82 | 404,108 | PFM | 2006 | Eurostat ⁵⁶ |
| Romania | 0.05 | 11,903 | F | 2005 | OICV-IOSCO ⁴¹ |
| Russia | 0.14 | 204,000 | E | 2006 | Personal contact |
| Saudi Arabia | 37.23 | 9,000,000 | E | 2006 | Saudi Stock Exchange (private contact) |
| Singapore | 11.97 | 473,915 | E | 1999 | International Federation of Stock Exchanges ²³ |
| Slovakia | 1.21 | 65,262 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Slovenia | 8.49 | 169,512 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| South Africa | 20.71 | 9,853,055 | PFM | 2004 | Financial Services Board ⁶³ |
| Spain | 2.22 | 954,348 | E | 2005 | Eurobarometer (European Commission) ²¹ |
| Sri Lanka | 1.53 | 285,644 | E | 1999 | International Federation of Stock Exchanges ²³ |
| Sweden | 19.7 | 1,780,530 | E | 2006 | Deutsches Aktieninstitut ²⁶ |
| Switzerland | 20.22 | 1,508,062 | EF | 2006 | Swiss Banking Institute, University of Zurich ⁴⁸ |
| Taiwan | 34.78 | 7,920,000 | E | 2006 | Taiwan Stock Exchange ³⁸ |
| Thailand | 1.68 | 1,050,000 | PAM | 2006 | Government Pension Fund ⁶⁴ |
| Turkey | 5.9 | 4,303,000 | E | 2005 | Central Registry Agency Inc. of Turkey ³⁹ |
| United Kingdom | 45.5 | 27,500,000 | PFM | 2006 | Office for National Statistics ⁶⁵ |
| United States | 30.79 | 91,000,000 | EF&PFM | 2005 | Investment Company Institute and Securities Industry Association ⁴⁰ |
| Venezuela | 0.04 | 11,703 | PFM | 2007 | International Federation of Pension Fund Administrators ⁵³ |
| Vietnam | 0.27 | 229,521 | EF | 2007 | Hanoi Securities Trading Centre ⁵³ |
| Zambia | 0.25 | 29,000 | E | 2000 | Zambia Stock Exchange (Personal contact) |
| Total investors | | 544,717,054 | | | |

⁶³ FSB, Registrar of Pension Funds, Forty-Sixth Annual Report, 2004, <http://www.fsb.co.za/index.htm>

⁶⁴ GPF Website <http://www3.gpf.or.th/english/portfolio.jsp>

⁶⁵ "Occupational Pension Schemes Annual Report", No. 14, 2006, http://www.statistics.gov.uk/downloads/theme_population/Occ-pension-2006/OPSS_Annual_Report_2006.pdf

Table 10. Regression results when the most recent percentage of population investing in equity, mutual funds or pension funds investing in equity is used as a dependent variable. The independent variables are listed in the first column. T-statistics are quoted in brackets. *** - 1% statistical significance, ** - 5% statistical significance, and * - 10% statistical significance

| | I | II | III | IV | V | VI | VII |
|-----------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Constant | 6.481*** (3.025) | 21.26** (2.550) | 17.438** (2.162) | 15.70** (2.015) | 15.60* (1.812) | 14.95* (1.927) | 17.59** (2.076) |
| PPP-pc | 0.308*** (3.312) | -0.095 (-0.414) | -0.060 (-0.273) | -0.051 (-0.240) | -0.050 (-0.234) | -0.044 (-0.212) | -0.133 (-0.584) |
| Old emerging markets | | -15.19* (-1.652) | -16.43* (-1.870) | -19.29** (-2.264) | -19.32** (-2.232) | -19.74** (-2.329) | -19.35** (-1.970) |
| New emerging markets | | -19.35** (-2.121) | -17.14** (-1.962) | -17.13** (-2.039) | -17.13** (-2.023) | -18.08** (-2.157) | -18.13* (-1.869) |
| Old emerging markets*PPP-pc | | 0.678* (1.647) | 0.841** (2.118) | 0.984** (2.551) | 0.986** (2.496) | 1.022*** (2.659) | 0.963** (2.301) |
| New emerging markets*PPP-pc | | 0.637* (1.823) | 0.573* (1.715) | 0.547* (1.702) | 0.545* (1.640) | 0.452 (1.381) | 0.529 (1.375) |
| Common law | | | 7.780*** (2.835) | 7.719*** (2.924) | 7.725*** (2.894) | 8.906*** (3.220) | 8.478*** (3.023) |
| P dummy | | | | 6.939** (2.579) | 6.942** (2.559) | 7.565*** (2.788) | 6.843** (2.361) |
| Government size | | | | | 0.004 (0.026) | | |
| Transition | | | | | | 5.580 (1.358) | |
| Political stability | | | | | | | 1.425 (0.628) |
| Observations | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| R-squared | 12.8% | 19.6% | 27.9% | 34.2% | 34.2% | 36.0% | 33.7% |
| Adjusted R-squared | 11.6% | 14.0% | 21.7% | 27.6% | 26.5% | 28.4% | 25.3% |