
MARKET-BASED AND BANK-BASED FINANCIAL SYSTEMS
WORLDWIDE

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Abstract

The debate of market-based vs bank-based financial systems has been the topic of many articles. However, most of them narrowed down the debate to Anglo-Saxon countries like the US and the UK and some continental Europe countries like Germany. By only analysing a select group of countries which have had similar economic development, it would imply that financial structure has no impact on economic development. This was a big gap in the literature for quite some time, until Demirgüç-Kunt and Levine developed a conglomerate financial structure index based on 1997 data which allowed them to classify 55 countries worldwide as market-based or bank-based. Despite the impact this article had on subsequent literature on financial structure and development, no update was done to these classifications for almost 25 years. Therefore, this dissertation seeks to fill that gap in the literature by re-examining the global landscape of financial structure and development for data from 2021. It utilises Demirgüç-Kunt and Levine's 1999 methods with the relevant updates to reflect changes in the best practices of financial development analysis. A total of 60 countries were analysed in terms of financial development and structure and later classified as having market-based or bank-based financial systems. A comparison of present and past classifications and the reasons behind differences are also presented.

Our findings indicate that, on average, financial systems are more developed in higher income countries. Banks, non-bank financial intermediaries and stock markets are larger, more active and efficient in richer countries. Higher income countries tend to have larger and more efficient stock markets than the banking sector. Countries are prone to become market-based as their income per capita level rises. We also found that financial structure and financial development classifications persist over time. Lastly, changes in financial structure relative to 1997 are explained mainly by the development of stock markets, not so much by the development of banks.

Key words: Financial Systems, Financial Development, Financial Structure, Bank-based, Market-Based, Conglomerate Financial Structure Index

Sumário

O debate sobre os sistemas financeiros market-based vs bank-based é o tópico de vários artigos científicos. No entanto, a grande maioria destes artigos restringe o debate aos países Anglo-Saxónicos, como os Estados Unidos da América e o Reino Unido, e a alguns países da Europa continental, como a Alemanha. Ao analisar apenas um grupo restrito de países que experienciou um desenvolvimento económico semelhante, implica-se que a estrutura financeira dos países não tem importância. Esta foi uma lacuna na literatura durante algum tempo, até que Demirgüç-Kunt e Levine desenvolveram o índice conglomerado de estrutura financeira. Este índice utilizava dados de 1997 para classificar 55 países, de várias regiões do mundo, como market-based ou bank-based. Apesar do impacto que este artigo teve na literatura sobre o desenvolvimento e estrutura financeira que se seguiu, estas classificações não foram atualizadas em quase 25 anos. Como tal, esta dissertação procura preencher esta lacuna na literatura ao reexaminar o panorama global da estrutura e desenvolvimento financeiro, para dados de 2021. Utilizaram-se os métodos de Demirgüç-Kunt e Levine (1999) com as devidas atualizações que refletem mudanças na melhor forma de analisar desenvolvimento financeiro. Um total de 60 países foram analisados em termos de desenvolvimento e estrutura financeira e, posteriormente, classificados como tendo sistemas financeiros bank-based ou market-based. Uma comparação entre as classificações passadas e as presentes, se bem como as razões por detrás das diferenças, são também apresentadas.

Os resultados indicam que, em média, os sistemas financeiros são mais desenvolvidos em países de maior rendimento. Os bancos, intermediários financeiros não bancários e os mercados de capitais são maiores, mais ativos e mais eficientes em países mais ricos. Países mais ricos tendem a ter mercados de capitais maiores e mais eficientes comparativamente ao setor bancário. Adicionalmente, os países tendem a tornar-se market-based quando o seu rendimento per capita aumenta. Observamos ainda que as classificações de estrutura e desenvolvimento financeiro persistem ao longo do tempo. Por último, mudanças da estrutura financeira relativamente a 1997 são, maioritariamente, explicadas pelo desenvolvimento financeiro dos mercados de capitais e não tanto pelo desenvolvimento financeiro dos bancos.

Palavras Chave: Sistemas Financeiros, Desenvolvimento Financeiro, Estrutura Financeira, Bank-based, Market-Based, Índice Conglomerado de Estrutura Financeira

List of Abbreviations

CSV - Costly State Verification

GDP – Gross Domestic Product

OLS – Ordinary Least Squares

UK – United Kingdom

UN – United Nations

US – United States of America

WDI – World Development Indicators

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1. Introduction

There is extensive academic literature surrounding the market-based vs bank-based financial structure debate, mainly about the merits and flaws of each one. This discussion is often focused on Anglo-Saxon countries such as the US and UK and Continental Europe countries such as Germany. The Anglo-Saxon countries are the example of market-based countries where the equity markets take centre stage in investment financing, capital allocation, risk management and corporate control functions. The Continental Europe countries are usually the example of bank-based financial systems where banks and other financial intermediaries are the main players performing the functions mentioned above.

The literature usually focuses on which of these systems performs these functions better but rarely discusses which countries have a market-based or bank-based system. Therefore, any conclusions economists reach are only useful to the few countries which are classified. US, UK, Germany and Japan, for example. Additionally, since these countries had very similar economic development, the implication would be that financial structure is unimportant (Demirgüç-Kunt and Levine, 1999). The lack of a cross-section analysis for a large number of countries was, for quite some time, a big gap in the literature until, in 1999 Demirgüç-Kunt and Levine provided classifications for a total of 58 countries based on a comprehensive set of measures of financial development based on data up until 1997. Demirgüç-Kunt and Levine, as well as some other authors who actively contribute to this branch of the literature, maintained a so-called Financial Structure Data Base via the World Bank, providing data for some of the ratios used in their 1999 article until 2017. However, no update was done to countries' classifications for almost 25 years. Therefore, this dissertation seeks to fill that gap in the literature by re-examining the global landscape of financial structure and development. Some of our analysis will be based on Demirgüç-Kunt and Levine's 1999 methodology with the relevant updates to reflect changes in the best practices of financial development analysis. This dissertation will not delve into which system is arguably best but provides a compilation of the literature's conclusions regarding the merits of each system as well as the main drivers of the current financial structure.

Summarily, the main themes approached in this dissertation are:

- Economic development and bank, non-bank and stock market development
- Economic development and bank-based vs market-based systems
- Country classifications in terms of financial structure and financial development

- Classification changes with time and their key drivers
- Main characteristics of bank-based and market-based systems and their foundations

Demirgüç-Kunt and Levine's methodology is based on constructing a conglomerate financial structure index based on measures of financial development. These measures encompass multiple facets of financial development such as size, activity and efficiency. Countries with higher financial development of their banks relative to equity markets will be classified as bank-based. In contrast, countries with more developed stock markets relative to the banking sector will be classified as market-based. A major problem surrounding this type of classification is that countries may be classified as bank-based not because they have well-developed banks by international standards but because their equity markets are so underdeveloped. The same applies to countries that may be classified as market-based whilst having underdeveloped stock markets because their banks are even more poorly developed relative to their stock markets. Grouping such countries with countries that have well-developed financial systems would tarnish the meaning of such classifications. As such, a further division was done by dividing the countries with developed financial systems from those with underdeveloped ones. As a result, we will, in the end, have four groups: Underdeveloped Bank-Based, Underdeveloped Market-Based, Developed Bank-Based and Developed Market-Based. We will also compare the classifications obtained in 1999 for 1997 data with the ones we obtained for 2021 data. We analyse differences by country and the main financial development changes in the banking sector and equity markets that drove a change in classification. Lastly, we analyse the persistence of classifications over time to assess if they are truly significant and indicative of deep financial structure and development transformation.

The rest of this dissertation is organised in the following way. Section 2 presents a wide array of data about financial systems, analyses countries' financial development and patterns across income groups. Section 3 explores the level of financial development of the banking sector relative to that of stock markets and the main differences across countries. It also presents the conglomerate financial structure index, country classifications, classification differences across time and the major factors behind them. Section 4 delves into each system's main advantages and disadvantages according to the literature and the main legal, regulatory and policy characteristics of bank-based and market-based countries.

2. Financial Systems' Characteristics Across Income Per Capita Groups

Financial systems development, measured by the size, activity and efficiency of equity markets, banks and non-bank intermediaries varies widely across countries. Nonetheless, significant conclusions and patterns emerge from this data. This section uses the most recent data available for 60 countries to highlight patterns between financial structure and economic development (measured by the GDP per Capita). The analysis focuses on data from 2021 mainly collected from the world bank database, the IMF International Financial Statistics and reports from national regulatory bodies and exchanges. Demirgüç-Kunt and Levine, in 1999, also used data from the world bank and have maintained the World Bank Financial Structure Data Base, which has data for most of the ratios they used but only until 2017. Since we could gather more recent data for individual series up to 2021, we opted to do so and construct the ratios ourselves. In order to compare our results with those of Demirgüç-Kunt and Levine (1999) we used the same countries they did and the same base variables, with some exceptions. Since no recent stock market data was available for Bolivia, we had to remove this country from the sample. We also had to eliminate Canada because data available pertaining to the banking sector is severely outdated. Lastly, we also eliminated Venezuela, which has an overall lack of data and the few it has is considered untrustworthy. One data series that we would have liked to include was the ratio of Foreign Assets to Total Bank Assets. However, too many countries did not have recent data for this banking sector indicator, so we forwent it.

2.1. Financial Intermediaries

Four measures were used to analyse the development of the financial intermediaries. Firstly, Liquid Liabilities to GDP is the ratio of liquid liabilities of bank and non-bank financial intermediaries to GDP. It is considered a good indicator of the absolute size of financial intermediaries relative to the size of the economy and is also the broadest. Secondly, Deposit Money Bank Assets to GDP is used to measure the size of the banking sector relative to the size of the economy and is the ratio of the domestic assets of deposit money banks divided by the GDP. Thirdly, Private Credit by Deposit Money Banks and Other Financial Institutions to GDP equals the ratio of credits and other claims issued by deposit money banks and other financial institutions to the private sector, instead of governments and public

enterprises, divided by GDP. This indicator is used to measure the activity of the banking sector, whereas the two previous indicators measured size. Lastly, we have Private Credit by Other Financial Institutions to GDP which focuses on insurance companies and private pension funds. It is the ratio of these institutions' non-bank claims on the private sector to the GDP. Despite this segmentation being interesting, the data for this indicator is not available for all the countries being analysed.

Afterwards, we divided the countries into income groups. In 1999, Levine utilised the 1997 World Development Indicators classification to divide countries roughly into quartiles. Those with low, lower middle, upper middle and high income. We also used the classification done by the World Development Indicators, however, countries no longer fall into quartiles. There is not a single country that is still classified as having a low income. Half the countries are now measured as high income countries whilst the other half is equal parts lower middle and upper middle. In other words, there are 30 high income countries, 15 upper middle income and 15 lower middle income countries. We also conducted the same analysis with the countries manually divided into quartiles. The results are shown in Figure B1 and B2 in Appendix II. Then we computed the average of each indicator for each group. Table A1, in Appendix I, shows the individual countries' data. In Figure A1, we can observe a clear pattern for higher income countries to have higher Liquid Liabilities to GDP, Bank Assets to GDP and Private Credit by Other Financial Institutions to GDP. This means that richer countries per capita tend to have bigger and more active banks and other financial intermediaries. These patterns are statistically significant and the correlation between these indicators and the GDP per capita are all statistically significant at the 1% level, as shown in Table A2. Regarding specific countries, Hong Kong, Japan, Switzerland, Korea, Singapore and Australia have relatively large and active banking sectors. Whereas Zimbabwe, Nigeria, Argentina, Ghana, Mexico, Indonesia and Uruguay have comparatively small and inactive banking sectors.

Subsequently, we analysed the role of Central Banks in credit allocation by comparing their assets to the GDP (Table A1). In the past, there was a negative correlation between these since richer countries did not require direct intervention from central banks to drive credit issuance. However, the existence of said negative correlation no longer holds. As it can be seen in Table A2, the correlation between Central Bank Assets to GDP is not statistically significant meaning that the null hypothesis, that there is indeed a correlation between the two, is rejected. This is most likely due to the non-conventional monetary policies, such

as Quantitative Easing, that characterised the second decade of the 21st century. Central Banks saw their balance sheets increase significantly in value and this has likely thwarted the relationship between countries' income and Central Bank involvement in credit allocation.

Now looking into the efficiency of financial intermediaries, we selected two measures. Firstly, the Overhead Costs are the ratio between a bank's overhead costs to its total assets. Higher values of this ratio are indicative of less efficient banks. This relationship is not consensual in the literature since it could be argued that higher overhead costs result from productivity-enhancing investments, which even reflect a more competitive environment. As such, we also considered the Net Interest Margin, which is the difference between a bank's interest income and interest expenses as a percentage of total assets. Again, a higher value for this indicator is a sign of lower efficiency. Table A1 exhibits the values for each country and Figure A1 displays the negative correlation between these efficiency indicators and a country's income. Put differently, the positive relationship between income and bank efficiency. Both the correlation between GDP per capita and Overhead Costs and the correlation between GDP per capita and Net Interest Margin are statistically significant at the 1% level (Table A2).

Next, we analysed the Banking Concentration Index, which divides the assets of the three largest banks by the total banking sector assets. Interestingly, despite finding that higher income countries have more efficient banks, we also find that higher income countries tend to have a more concentrated banking sector. This would suggest that, in spite of the low level of bank efficiency lower income countries have, their banks tend to be fragmented instead of concentrated (Table A1, Figure A1). The correlation between the Banking Concentration Index and the GDP per capita is statistically significant at the 1% level (Table A2).

In Table A1, we also report the Public Share in Commercial Bank Assets, but the correlation between it and the GDP per capita is not statistically significant.

2.2 Equity Markets

In the same way we analysed the financial intermediaries, we will also look into the equity markets characteristics. As a measure of size, we utilise the Market Capitalisation to GDP, which is the ratio of the value of domestic equities to GDP. As a measure of market activity, we use Total Value Traded as a Share of GDP which is the ratio of the total value of the shares traded in the domestic equity market divided by the GDP. This is a frequent measure of activity and liquidity since it compares trading to economic activity. Lastly, as a measure

of market efficiency we utilise the Turnover Ratio, which divides the total value of the shares traded in the domestic equity market by the market capitalisation of said domestic exchanges. Figure A2 illustrates the positive relationship between these three indicators and countries' income per capita. In other words, the equity markets' size, activity and efficiency tends to rise with income. Table A2 shows that the correlation between Market Capitalisation to GDP with the GDP per capita is 0,459 with a p-value of 0,001. The correlation between Total Value Traded to GDP with GDP per capita is statistically significant at the 5% level.

When looking at individual countries, Hong Kong, the United States, the United Kingdom, Switzerland, Japan, Korea and Sweden emerge as having very well-developed equity markets. On the other hand, countries like Ghana, Cyprus, Trinidad and Tobago, Panama, Costa Rica, Uruguay and Kenya have severely underdeveloped equity markets. Then there are countries like Barbados and Jamaica whose equity market are not that small but see too little activity.

2.3. Non-Bank Financial Intermediaries

Here we look at the characteristics of non-bank financial institutions, specifically pension funds and insurance companies. We use Pension Funds Assets to GDP and Insurance Company Assets to GDP to measure the size of Pension Funds and Insurance companies, respectively. Both these non-bank financial intermediaries tend to be larger for higher income per capita countries. We also measured the Life Insurance Penetration which is the ratio of life insurance premiums to GDP and measures the level of activity of insurance companies. This indicator is five times as higher for high-income countries than for lower middle countries. This difference is significantly lower than when Levine conducted a similar study of non-bank intermediaries, at the time the difference was ten-fold, indicating that the change in the WDI income group is well founded in financial system structural changes. Figure A3 depicts the positive relationship between these three indicators with the level of income per capita.

2.4 Overall Development

Lastly, we will analyse the overall financial system. In other words, the focus is not on the financial intermediaries or the stock markets but on the countries' financial systems as a whole. Five ratios are used for such purpose. Firstly, we look into the overall size of the financial system. To do so, we sum the value of the Domestic Assets of Deposit Money

Banks with that of the Stock Market Capitalisation and divide it by the GDP. The correlation between the overall size of financial systems with the GDP per capita is positive, at around 0,32, which means that the richer the country, the larger the overall financial system tends to be (Figure A4). This relationship is significant at the 5% level (Table A4).

Afterwards, we use four different indicators to measure overall financial system development. To do so, we combine banking and equity markets development measures. As measures of stock market development, we use the Turnover Ratio and the Total Value Traded to GDP. The higher the value for these indicators, the more developed and efficient the equity markets are. Demirgüç-Kunt and Levine (1999) argue that the Total Value Traded to GDP should be favoured as a measure of financial development since it compares trading to the size of the economy whereas the Turnover Ratio compares trading to the market size. Given that we are “seeking to measure the ease of trading ownership of a country’s firms, Total Value Traded to GDP measures this more directly”. Nevertheless, Table A3, Table A4 and Figure A4 display the data for both cases. Considering that we are measuring overall financial system development and not just equity markets’ we must also point out the banking development indicators chosen. Those are the Overhead Costs and Net Interest Margin. In this case the higher the value the less developed the banking sector is. Due to this, we construct our overall development indicators as the ratio of the stock market indicators to the banking ones. The higher the value of these ratios, the higher the development. Remember that the numerator increases in value for higher equity market development and the denominator decreases in value for higher banking sector development.

In Figure A4 we can see the relationship between the level of development of the overall financial systems and the level of income per capita. The higher the country’s income the higher the level of development and overall efficiency tends to be. We can see that high income countries are, on average, 5 to 20 times as efficient as lower middle income countries, depending on the indicator used. The correlations between these indicators of overall efficiency and the GDP per capita are all statistically significant at the 10% level. Furthermore, the Total Value Traded to Net Interest Margin and the Turnover Ratio to Net Interest Margin are also statistically significant at a 5% level (Table A4).

When looking at countries individually, it is observable that some countries have a considerably higher efficiency of their overall financial systems than their peers. These countries are: Hong Kong, Japan, the United Kingdom, the United States, Korea, Sweden, Finland, Australia and Switzerland.

3. Bank-Based vs Market-Based: Comparison and Categorisation

In the previous section we focused on the characteristics of the financial systems and their relationship with the level of income per capita of countries. We concluded that higher income countries have larger, more active and more efficient financial intermediaries and equity markets. In this section, we are no longer looking at the financial systems as a whole but instead comparing the banking sector against the stock markets. Then we classify countries as having either a market- or bank-based financial system using data from the countries analysed in the previous section and Demirgüç-Kunt and Levine's conglomerate index of financial structure methodology. Additionally, we classify countries as having developed or underdeveloped financial systems. This is an important step, to differentiate bank-based countries with very well-developed banking sectors from bank-based countries with underdeveloped banking sectors by international standards. The same applies to countries classified as market-based. We want to separate the countries that despite having underdeveloped equity markets are classified as market-based due to even more underdeveloped banking sectors, from those that are market-based and have developed financial systems overall.

For example, Germany and Bangladesh are both classified as Bank-Based countries. However, there is no doubt that German banks and non-bank intermediaries perform far better than those of Bangladesh. Not only are Bangladeshi banks underdeveloped, but they may also be unable to execute the functions expected of banks from a bank-based system. Simply classifying both countries as bank-based, as if they were the same, would be of little significance. This is also true for countries classified as market-based, for example, Hong Kong and Zimbabwe. Zimbabwe's equity markets do not provide financial services with the quality and range expected of a market-based economy. Therefore, it should not be put in the same bag with a country such as Hong Kong.

3.1 Size

Firstly, we will analyse the relative size of the banking sector compared to the equity markets. For that purpose, we will use the ratio of the value of the Deposit Money Bank Assets to the Market Capitalisation. In this case, we had to Winsorize the data since, given how small the market capitalisation of some countries is as a percentage of GDP (E.g. Trinidad and Tobago's Market Capitalisation is 0,08%), the ratio can have extreme values that distort the analysis. The Winsorization parameters were the 5th and 95th percentile, as suggested in a paper Levine coauthored also related to financial development (Čihák et al., 2012).

Figure A5 illustrates the relationship between the ratio and the income group. As it can be seen, the higher the income per capita level the smaller the banking sector's size relative to the equity market. The correlation between this ratio and the GDP per capita is -0,32 and is statistically significant at the 5% level. Such a result suggests that higher income countries tend to have smaller banking sectors relative to their stock markets. This result is in accordance with Boyd and Smith's (1998) article, which states that countries tend to become relatively more market-based with economic development.

Table A5 shows that Hong Kong, South Africa, the United States, the Netherlands and Zimbabwe are the five countries with the largest equity markets relative to the banking sector. If we were to classify countries solely as market-based or bank-based, we would be classifying Zimbabwe as being on par with the US and Hong Kong equity markets, even though Zimbabwe has a small Market Capitalisation ratio and sees very little activity in the stock market. This data reinforces the importance of the distinction we will make between countries with developed and undeveloped financial systems. We have Costa Rica, Honduras, Trinidad and Tobago, Egypt and Ecuador as the countries with the largest banks relative to the stock market. Just like with the countries with the largest equity markets relative to the banking sector, it is not that these countries are the ones with the most developed banking sectors. They just have very underdeveloped equity markets which increase the relative size of an also not so developed banking sector. Of the five countries with the largest banks relative to equity markets only Egypt's banking sector as a share of GDP is above the sample mean.

Afterwards, we also analysed the size of non-bank financial intermediaries relative to the size of the stock markets. However, as it can be seen in Figure A5, there is no significant pattern between the income group and the ratio of Other Financial Institutions Assets to Market Capitalisation.

3.2 Activity

As a second measure of financial structure, we will analyse the banking sector's activity against that of the equity markets. To do so, we utilise the ratio of Private Credit by Deposit Money Banks and Other Financial Institutions to Total Value Traded. This ratio compares the activity level in the banking sector, i.e., the amount of credit channelled to the private sector by domestic banks, with the total value of trading in domestic stock markets. Just like we did when analysing the size of the banking sector relative to equity markets, we must also Winsorize the data here. In this case, the Total Value Traded is for some countries so residual

that each time it shows on the denominator, it renders comparison by income levels impossible (E.g. Barbados' Total Value Traded is 0,10%). The Winsorization is once again done in the 5th and 95th percentile. As we can see in Figure A6, there is no clear relationship between the level of income per capita and the relative activity of the banking sector. In spite of the relative size of equity markets increasing with the income per capita level, the same does not apply to the relative activity. In the past, this relationship behaved similarly to that of the relative size (Demirgüç-Kunt and Levine, 1999). However, as more countries cross the threshold to higher income groups, not all of them manage to increase the activity on par with the increases in the size of their equity markets.

Additionally, we decomposed the previous ratio into Private Credit by Deposit Money Banks to Total Value Traded and Private Credit by Other Financial Institutions to Total Value Traded. This way, we can differentiate the activity level of banks from that of non-bank financial institutions. Although data are available for this decomposition, most of it suggests that the involvement of non-bank financial institutions in credit allocation is negligible for at least two-thirds of the countries in the sample. Figure A7 illustrates just the Private Credit by Other Financial Institutions to Total Value Traded relative to the income groups. Just like with the Private Credit by Deposit Money Banks to Total Value Traded, there is no relationship between them. In the one-third of the countries with non-negligible activity from their non-bank financial intermediaries, we have the United States, which has three times as much credit given by non-bank financial intermediaries as credit given by banks. The rest of the countries with impactful non-bank financial intermediaries in credit allocation (Table A7) are Japan, Thailand, Chile, Norway, Philippines, Trinidad and Tobago, Australia, Mexico and Turkey.

Table A6 shows that the countries with the most active markets relative to the banking sector are Hong Kong, the United Kingdom, Iran, Korea, Turkey, South Africa and India. At the same time, the countries with the most active banking sector relative to the equity markets are Cyprus, Barbados, Uruguay, Panama, Jamaica and Zimbabwe. Just like with the measures of relative size, this does not mean these are the countries with the most active equity markets or banks. Sometimes the other counterpart is just so underdeveloped that the relative activity of the former comes fairly favoured. This problem is especially relevant when analysing the countries with the relatively most active banking sector since many countries have virtually inactive stock markets. To solve this, we can look at the countries with the most active banking sectors relative to equity markets while also having above-average absolute

banking sector activity levels, measured by the Private Credit by Deposit Money Banks and Other Financial Institutions to GDP. In this case, the countries with the relatively most active banking sectors are Cyprus, Mauritius, New Zealand, Austria, Portugal, Chile and Norway. This does not totally correct the ranking since, even if we ensure that countries have above-average banking activity, countries like Cyprus show in the first place due to inactive stock markets, which is a definite limitation of these relative measures.

3.3 Efficiency

As the third and last measure of financial structure we will analyse the relative efficiency of the banking sector vs the stock markets. We will be using the Total Value Traded to GDP to measure efficiency on the equity market side. An argument could be made for the usage of the Turnover Ratio instead. However, utilising the latter could lead to classifying countries with small equity markets as market-based solely because they are very active relative to their market capitalisation. We only want to classify countries as market-based if they have larger, more active and more efficient markets than banks. Therefore, we use the Total Value Traded to GDP, comparing stock markets to the overall economy and not just the markets themselves. On the banking side, we can utilise two series, the Overhead Costs or the Net Interest Margin. Thus, the relative measures of efficiency are the product of Total Value Traded to GDP and Overhead Costs and the product of Total Value Traded to GDP and the Net Interest Margin. Notice that the more efficient stock markets are, the larger will the Total Value Traded to GDP be, whereas in the case of banks, the more efficient they are, the smaller the Overhead Costs or the Net Interest Margin should be. As such, a higher value for both these relative measures of size would indicate a higher efficiency of equity markets relative to the banking sector.

Figure A8 illustrates the relationship between these efficiency ratios and the income group of countries. The positive relationship between them suggests that higher income countries tend to have more efficient equity markets relative to their financial intermediaries. This is in line with the trend for higher income countries to see their equity markets increase in size relative to banks. Only the relative activity level of the stock markets did not show a significant pattern relative to the income per capita level.

Looking at Table A8, we can see that the countries with relatively most efficient equity markets, measured by Total Value Traded to GDP times Overhead Costs, are: Hong Kong, the United Kingdom, the United States, Korea and Switzerland. On the other hand, the

countries with the relatively most active banking sector are Costa Rica, Ghana, Trinidad and Tobago, Barbados and Uruguay. Just like with the indicator of activity, this does not mean these countries are the example of a well-functioning, developed and efficient banking sector, it is just that the equity markets are, by comparison, even more underdeveloped. This problem will be tackled more methodically after constructing the structure index.

Observing Table A9, which analyses relative efficiency via the product of Total Value Traded to GDP and Net Interest Margin, we point these countries out as having the most efficient stock markets relative to banks: Hong Kong, the United Kingdom, the United States, Korea and Brazil. It is evident that some countries constantly show at the top of these tables indicating they not only have the most efficient equity markets but also the largest and most active ones. For example, Hong Kong, the United Kingdom and the United States. These countries have the most developed equity markets relative to the banking sector and have developed banking sectors which means they are truly market-based countries. What we will soon classify as a market-based with developed financial system country, since it is market-based due to the extraordinary development of its equity markets, not because of an underwhelming development of its banking sector. As for the countries with the most efficient banks relative to their stock markets, we find the usual suspects for the usual reason (severely underdeveloped equity markets): Costa Rica, Ghana, Trinidad and Tobago, Cyprus, Barbados and Uruguay.

3.4 Conglomerate Index of Financial Structure

In this subsection, we will finally construct the conglomerate index of financial structure based on Demirgüç-Kunt and Levine's methodology which will allow us to classify countries as either market-based or bank-based. This index does not use one single measure of financial system development since they tend to produce, even if slightly, different categorisations for certain countries. As such, we will utilise a measure of size, one of activity and one of efficiency. Specifically, we use the ratio of Market Capitalisation to the Deposit Money Bank Assets as a size measure. The ratio of the Total Value Traded to the Private Credit by Deposit Money Banks and Other Financial Institutions as a measure of activity. Lastly, we use the product of the Total Value Traded and Overhead costs, all familiar measures. The structure index is constructed by removing the mean of each series and then doing the average of the three measures for each country.

Figure A9 shows that higher income per capita countries tend to have more developed

equity markets than their banking sectors. In other words, richer countries are more likely to be classified as market-based. Figure B3 shows the conglomerate structure index across income quartiles. As it can be seen, the trend for higher income countries to be classified as market-based remains.

A more precise picture is drawn from the data by utilising the conglomerate index, instead of a single measure of financial development. Even so, the problem with countries that have severely underdeveloped banks or markets is present. For example, Table A10 shows that the five countries with the most developed banking sectors relative to the equity markets are Trinidad and Tobago, Costa Rica, Ecuador, Uruguay and Tunisia. All countries with a Total Value Traded to GDP of 2% or less. In the list of countries with the most developed stock markets relative to banks we have Hong Kong, South Africa, Iran, the United States and the United Kingdom. The problem is not so glaring on this end, but it is still not non-existent.

In order to solve this, we are going to subdivide the countries into another two groups. Those with developed financial systems and those with underdeveloped financial systems. By doing so, we are no longer comparing countries that have well-developed equity markets with those that are market-based just because they have very underdeveloped banking sectors. The result will be four groups of countries: Developed and Market-Based, Developed and Bank-Based, Underdeveloped and Market-Based, Underdeveloped and Bank-Based. To do this split, we utilised Demirgüç-Kunt and Levine's (1999) methodology with a slight update to reflect findings from Levine's coauthored paper (Čihák et al., 2012). The first step, and the only one done in 1999, was to utilise two measures of financial depth and consider the countries that had values below the sample mean for both measures as having an underdeveloped financial system. These measures are Private Credit by Deposit Money Banks and Other Financial Institutions to GDP and Total Value Traded to GDP. This means that a country is only considered to have an underdeveloped financial system if it has both underdeveloped banks and underdeveloped markets. The issue with this approach is that it only captures one facet of financial development. Therefore, we also included a measure of overall financial system efficiency. This makes the classification not so one-dimensional, whilst also capturing the cases in which countries have financial system depth below the sample mean but have a financial system that is very efficient. In conclusion, a country is considered to have an underdeveloped financial system if they have shallow banks and equity markets and poor overall efficiency.

Now, for the market-based vs bank-based classification, the split is done by considering the countries with a conglomerate financial structure index value above the sample mean as market-based. On the other hand, countries with a structure index value below the mean are deemed bank-based. By combining this classification with the financial development one we arrive at the groups presented in Table A11.

3.5 Financial Development and Structure Classifications

In this subsection we analyse the 4 groups created by the aforementioned methods, the countries in each one and the relevant changes in classifications relative to 1997. We could only make comparisons for 55 of the 60 countries analysed since Demirgüç-Kunt and Levine could not obtain the conglomerate structure index value for five countries. Those countries are Ghana, Iceland, Iran, Nigeria and Uruguay.

Table A11 shows that countries such as Austria, Portugal, New Zealand, Norway, Iceland, Cyprus, Spain, Germany, Italy and France are considered bank-based countries with developed financial systems which is a very intuitive result. It shows some developing economies¹ as having bank-based developed financial systems. These are Mauritius, Chile, Malaysia, Nepal and Thailand. Mauritius was classified as having an underdeveloped financial system in 1997 and its equity markets remain underdeveloped. However, its banking sector has evolved significantly and has a level of activity and a size on par with international standards (Table A1). Chile was, in 1997, categorised as a market-based country and is now considered a bank-based country. This was mainly due to a significant change in the size of the banking sector relative to the equity markets. In 1997 the value of the relative size indicator (Market Capitalisation/Deposit Money Bank Assets) was 1,8 whereas it is now 0,68. The Chilean equity markets stagnated in this 24-year period while its banking sector developed significantly in size, activity and efficiency (Table A1). This development of the banking sector also drove Chile from having an underdeveloped financial system to now being in the group of developed financial system countries. Malaysia is another country that was classified as market-based by Demirgüç-Kunt and Levine in 1997 and is now categorised as market-based. Not only was it considered market-based in the past, but it also had the highest value of the structure index, 2,93. Similarly to Chile, this change in classification is due to outstanding bank development, in what was already considered a developed banking sector. Data shows

¹ Economic development status obtained from the United Nations World Economic Situation and Prospects 2022. (United Nations, 2022)

us that in the 24 years between analyses, the GDP per capita more than quadrupled whilst the size of the banking sector doubled and the size of the equity markets diminished 50%. As a result, the relative size of Malaysian Banks more than quadrupled leading to a change in Malaysia's financial structure. Thailand is another case of change from market-based to bank-based. However, there were no significant changes in its financial structure. It is just that by international standards the relative development of the Thai equity markets is no longer enough for us to consider the country market-based. Nepal is also a new country in this group, in this case due to the significant financial development of both its banks and stock market between 1997 and 2021. Back to the developed economies we have the last country in this group. Singapore, a new addition, and the change was driven by a significant development of the banking sector relative to its stock market, just like Chile and Malaysia.

Looking at the market-based countries with developed financial systems, we see Hong Kong, South Africa, the United States, the United Kingdom, Korea, Switzerland, the Netherlands, Sweden, Denmark and Australia. Finland and Iran are also in this group but were previously classified as bank-based economies. The change was due to the significant development of their equity markets relative to their banks in terms of size and activity. Iran's stock Market Capitalisation to GDP is more than 20 times higher than in 1997 and the Total Value Traded to GDP is almost 200 times the value of 1997. Although not so extreme, Finland also saw its stock market develop immensely in this period. Market capitalisation and activity increased about five-fold. Another country that is also a new member of this group is India, not only because it used to be considered bank-based but also because it had an underdeveloped financial system. Both classifications changed due to a significant development of its stock market. India's banking system is still underdeveloped by international standards but the equity markets' development more than compensated for this fact. Another two new entries are Brazil and Turkey, which used to have underdeveloped financial systems. These countries had significant development of their banking sector and their equity markets. Curiously, the equity markets' development for these countries was astonishing in terms of activity. Brazil and Turkey have Turnover Ratios higher than 100% (139% and 366%, respectively) and their Total Value Traded compared to the size of the economy is also quite above international standards. The last country in this group and probably the most controversial result of this dissertation is Japan. Its structure index value is 0,00, barely above the sample mean of -0,01 and something that could be dismissed as insignificant. But the fact is that the structure index value of Japan in 1997 was -0,19, so even if the change in

classification is disputable, the change in Japan's financial structure is not. Japan's stock market size relative to its banking sector increased by 35% and its relative activity increased 171%. Looking at the absolute size and activity of the banking sector, we can observe that they have not shrunk, they increased. The equity markets, however, have developed much more. So much so that they may already be the predominant financing source in Japan.

Now examining the underdeveloped countries in Table A11, most of them are bank-based, 25 out of 28 to be exact. Most countries in this group are the ones we would expect to see here. Most of them have severely underdeveloped equity markets and banking sectors that despite also being underdeveloped are the predominant financing source in these countries. An example of a country in such a situation is Cyprus. Additional important mentions in this group are Mexico, Jamaica, Peru and the Philippines. Mexico's equity market size and activity relative to its banking sector decreased significantly from 1997 to 2021. This change was mainly driven by increased bank size and decreased market activity (Table A1). Jamaica's situation is fairly similar to Mexico's. Stock market activity dropped significantly and banks grew in size and became more active. Its stock market almost doubled in size but that was insufficient to compensate for its lack of activity. Opposing forces drove Peru's change of classification. On the one hand there was an increase in the size of equity markets relative to the banking sector. On the other hand, the market activity relative to bank activity dropped from 0,42 to 0,02 from 1997 to 2021. In absolute terms, the banks and the stock market increased in size, but the stock market activity was extremely low. The Philippine's case is very similar to Peru's. There was an increase in the size of both banks and the stock market. However, the stock market activity relative to that of banks dropped from 0,54 to 0,13 (Table A10). With stock market activity that low, the country cannot be considered market-based by international standards. The other countries in this group which are important to mention are Tunisia, Panama, Jordan, Belgium and Israel. These were not classified as having underdeveloped financial systems in 1997 but are now. Specifically looking at Belgium, we can observe in Table A11 that it has bank and stock market activity below the mean of the sample and the overall efficiency of its financial system is also poor relative to international standards. On the one hand, it could be true that Belgium has indeed underdeveloped financial systems. On the other hand, the way we determine the development of financial systems may need to be updated in order to include more facets of development such as access and stability. The last worthy mentions of this group are Greece and Ireland. While they have not changed groups relative to 1997's categorisation, one still wonders if they truly have

underdeveloped financial systems or if it could also result from Demirgüç-Kunt and Levine's method being outdated.

Finally, we have the group of underdeveloped market-based countries. This group is comprised of only three countries: Argentina, Indonesia and Zimbabwe. The fact that this group is so small compared to the underdeveloped bank-based one, and that all three of these countries are developing economies, lends proof to the literature. The less developed a country is economically and financially, the more predominant banks tend to be relative to equity markets. Examining each country, we first conclude that none of them were considered market based in 1997. In the case of Argentina, there was virtually no development of their banking sector in 24 years whereas its stock market tripled in size. Even though stock market activity was very low (Total Value Traded to GDP of 0,6%), the growth in size against a stagnant banking sector was enough to drive Argentina's structure index value from -0,25 to 0,001. Indonesia's change in structure index value was even bigger, from -0,5 to -0,005. The change in classification could be disputed because it is so close to the threshold of the decision. Nonetheless, the change in its financial structure is considerable. The same forces as in Argentina's case drove such change. Stagnant banking sector and a good development of the stock market, most notable in terms of size. Stock market activity relative to that of banks is still below international standards for market-based countries. Lastly, in Zimbabwe not only did the banking sector not develop but it shrunk. Furthermore, the stock market itself was stagnant. Therefore, Zimbabwe being considered a market-based country is not a result of stock market development, like Argentina and Indonesia. It is downright due to a very underdeveloped banking sector.

3.6 Financial Structure and Development Persistence

In this subsection, we explore if the countries's classifications as market-based vs bank-based countries and developed vs underdeveloped financial systems are persistent over time or if they easily change. In other words, whether a country's past classification leads to a high likelihood of a similar classification. This analysis is important because if classifications are easily exchangeable over time, they are of little value. On the other hand, if there are few changes in countries' classifications then the ones that do occur are very relevant and convey a message of important structure and/or development transformation.

We utilised contingency tables and the chi-squared test for 2x2 contingency tables in order to measure the persistence of classifications over time. We utilise the Pearson chi-

squared test and the chi-squared test with the Yates correction for continuity. The latter accounts for the fact that we are applying a continuous distribution to discrete data, reducing the chance of overestimating statistical significance, especially for small amounts of data. The null hypothesis is that there is no connection between 1997's classification and that of 2021. We constructed two tables, one for financial structure persistence and another for financial development persistence. These chi-squared tests test for the overall persistency of classifications and not for the persistence of bank-based classifications and market-based classifications. As such, we will also use Malkiel's test (Malkiel, 1995). This test allows us to individually test the persistence of bank-based and market-based classifications and see if there are asymmetries in classification persistence that went unnoticed using the chi-squared tests (Alves, 2005). The test statistic is the following: $Z = \frac{n_{11} - 0,5(n_{11} + n_{12})}{\sqrt{0,25(n_{11} + n_{12})}}$ This would apply

to the persistence of bank-based classifications and developed financial system classifications. The test statistic for the market-based classification and underdeveloped classification is the following: $Z = \frac{n_{22} - 0,5(n_{21} + n_{22})}{\sqrt{0,25(n_{21} + n_{22})}}$ This test statistic follows a standard normal distribu-

tion when the sample is reasonably large. Malkiel considers that a reasonably large sample for this purpose is one larger than 20, which is our case.

Table 1 shows us that there is a strong relationship between 1997's financial structure classification and 2021's. So, if a country was market-based in the past, it will likely remain so in 2021. The same applies to countries classified as bank-based in 1997. Therefore, financial structure is persistent over time and eventual changes reflect significant differences in structure. This result is statistically significant at the 1% level for both the chi-squared test and chi-squared with Yates continuity correction (Table 1). When analysing the persistence of classifications individually, we see that the null hypothesis, which states there is no relationship between being classified as bank-based in 1997 and being classified as bank-based in 2001 is rejected. However, the null hypothesis for the persistence of market-based classifications is not rejected. Its p-value is almost 20%. As we have seen in the previous subsection many countries with underdeveloped financial systems that were classified as market-based in 1997 had significant changes in their financial structure and are now considered bank-based. Therefore, the lack of persistence in market-based classifications is an intuitive result.

Table 1: Financial Structure Contingency Table

	2021 Bank-Based	2021 Market-Based
1997 Bank-Based	29	6
1997 Market-Based	8	12
Total	37	18
χ^2	10,62	
p-value (χ^2)	0,00	
χ^2_{Yates}	8,76	
p-value (χ^2_{Yates})	0,00	
Z Bank	3,89	
p-value(Z Bank)	0,00	
Z Market	0,89	
p-value(Z Market)	0,19	

We also concluded that financial development classifications are persistent over time. This does not mean countries failed to see any development in these 25 years. However, most countries developed in this period, thus, the international standards of what is considered to be a developed financial system also grew. This means that countries that in 1997 were classified as having developed financial systems are likely to remain so in 2021. The same applies to countries with an underdeveloped financial system classification. The relationship between 1997's level of financial development and that of 2021 is statistically significant at the 1% level for both test statistics (Table 2). Analysing the individual persistence of each type of classification using Malkiel's Z-Test for the persistence of Winners and Losers we see that both the developed and underdeveloped classifications are persistent for p-values of less than 1%. Just like the existence of a relationship between past and present financial structures, this result lends significance to such classifications.

Table 2: Financial Development Contingency Table

	2021Developed	2021 Underdeveloped
1997 Developed	23	5
1997 Underdeveloped	7	20
Total	30	25
χ^2	17,52	
P-Value (χ^2)	0,00	
χ^2_{Yates}	15,33	
P-Value (χ^2_{Yates})	0,00	
Z Developed	3,40	
p-value(Z Developed)	0,00	
Z Underdeveloped	2,50	
p-value(Z Underdeveloped)	0,01	

3.7 Main Factors for Financial Structure Change

In this subsection, we will analyse the leading causes behind financial structure change for the cross-section of countries. In subsection 3.5, we explored individual country's structure transformation. In contrast, here we will build a couple of regressions to ascertain which forms of financial development had the most impact on financial structure.

$$\Delta Structure_i = \beta_0 + \beta_1 Rel_Size_i + \beta_2 Rel_Activity_i + \beta_3 Rel_Efficiency_i + \varepsilon_i \quad [3.1]$$

In the first regression the dependent variable is the difference between the conglomerate structure index based on 2021 data and the one with 1997 data. The explanatory variables are the usual ratios we have been using but we have now named them, for clarity. Rel_Size is the difference between the 2021 and 1997 values for the measure of the size of equity markets relative to the banking sector, which uses the ratio of Market Capitalisation to Deposit Money Bank Assets. Rel_Activity is the difference between the 2021 and 1997 values for the measure of the activity of the stock markets relative to that of the banking sector, using the ratio of Total Value Traded to Private Credit by Deposit Money Banks and Other Financial Institutions. Lastly, Rel_Efficiency is the difference between the 2021 and 1997 value for the measure of the efficiency of equity markets relative to the efficiency of the banks, which uses the ratio of the Total Value Traded to Bank Overhead Costs. With this regression, we are therefore trying to observe how much differences in the different facets of financial development impact financial structure.

The regression uses OLS estimators with White covariance estimators (HC0) since there is heteroskedasticity evidenced by both White and Breusch-Pagan tests for heteroskedasticity at less than 1% p-values. The sample size is 55 since we have to remove, from the 60 countries we classified, the five that Demirgüç-Kunt and Levine did not.

Table 3 shows the results of this regression. It is globally statistically significant, as are the coefficients for Rel_Size and Rel_Efficiency. More interestingly, we find that these three variables explain almost 50% of the variability of the structure index change. Afterwards, we regressed some variations of these equations akin to a robustness check by removing some variables, as shown in Table 3. As it could be expected from the previous result, Rel_Activity has almost zero explanatory power of the variability of the structure index change. In other words, the difference in the level of activity of markets relative to that of banks from 1997 to 2021 is not an important factor in explaining change in the financial structure of countries. On the other hand, Rel_Efficiency alone explains more than 23% of the variability of the financial structure change. When we make a regression using Rel_Efficiency and Rel_Size we explain it by 46,1%. As such, we find that the differences in the relative size and relative efficiency of stock markets relative to banks are the most important factors explaining financial structure change.

Table 3: The Effect of Relative Measures of Financial Development on Financial Structure

Variables	(1)	(2)	(3)	(4)	(5)
Rel_Size	0,086 **	0,277			0,402 ***
Rel_Activity	0,327		0,293		
Rel_Efficiency	0,214 ***			0,022 **	0,028 ***
Constant	0,029	-0,090	-0,100	0,16 **	0,118 ***
Wald F-Statistic	5,076 ***	2,534	2,301	5,585 **	6,700 ***
R-Squared	0,491	0,115	0,072	0,234	0,461
Adjusted R-Squared	0,460	0,098	0,053	0,220	0,440

Notes: OLS Regression with White covariance estimators. Dependent variable: Δ Structure. Statistical significance: *** 1%; ** 5%; * 10%

However, the past regression does not differentiate between stock market development and banking sector development, since it only uses measures of relative development. As

such, we will build another regression that disaggregates the previous ratios into its parts. The equation specification is the following:

$$2021_Structure_i = \alpha_0 + \alpha_1 Market_Size_i + \alpha_2 Bank_Size_i + \alpha_3 Stock_Value_Traded_i + \alpha_4 Bank_Overhead_Costs_i + \alpha_5 1997_Structure_i + \varepsilon_i \quad [3.2]$$

The dependent variable in this regression is the conglomerate structure index for 2021. The explanatory variables are Market_Size which is the difference in the size of the equity markets measured by the Market Capitalisation to GDP between 2021 and 1997. Bank_Size is the difference in the size of banks which utilises the ratio of Deposit Money Bank Assets to GDP between 2021 and 1997. Stock_Value_Traded is the difference between Total Value Traded to GDP of 2021 and 1997, which serves as a measure of change in activity and efficiency of the stock markets. Bank_Overhead_Costs is the difference between 2021 and 1997 of the ratio of Bank Overhead Costs to Total Bank Assets. In this regression we have not disaggregated nor utilised the measure of relative activity since we concluded that it had no explanatory power. We also included the 1997_Structure, which is the conglomerate structure index for 1997 data. As we saw in subsection 3.6, financial structure classifications are persistent between these two periods. Therefore, the past financial structure is expected to have a lot of explanatory power regarding the current one. Like the previous regression, we have to correct for heteroskedasticity and thus use the White covariance estimators (HC0).

Table 4 shows the results of this regression and subsequent variations. We can see that all the coefficients are statistically significant at the 1% level except for Bank_Overhead_Costs. The regression is also globally significant at the 1% level. More importantly, it explains 83% of the variability of the 2021 structure index values. Afterwards, we wanted to measure the impact of the past financial structure on the present one. As such, we regressed the 2021_Structure solely against the 1997_Structure. As expected, the explanatory power of the past financial structure is quite high. It explains 41% of the variability of the present financial structure which means that this variable alone has as much explanatory power as the other four variables together. The regression and the coefficient for the 1997_Structure are statistically significant at the 1% level. To find the variables with the most impact on financial structure change, we arrived at version (3) (Table 4). Here we can observe that by using the Stock_Value_Traded and the 1997_Structure as explanatory variables, we explain 77,1% of present financial structure variability. Furthermore, all the coefficients, individually and globally, are statistically significant at the 1% level. From this result, we can conclude that

the change in Total Value Traded from 1997 to 2021 was one of the most relevant factors in explaining financial structure change.

In version (4) (Table 4), we use the Market_Size and 1997_Structure as explanatory variables. From this, we also learn that the growth, in size, of the stock market from 1997 till 2021 has a lot of explanatory power. Lastly, we did a regression that combines Market_Size, Stock_Value_Traded and 1997_Structure as explanatory variables. All the coefficients are statistically significant at the 1% level and we also find that the coefficients are globally significant at the 1% level. Additionally, we now explain 80,2% of the variability of the present financial structure. From these results we can say that the past financial structure and overall stock market development mainly determine present financial structure. We also conclude that bank development had little impact on financial structure change, especially development in terms of efficiency.

Table 4: The Effect of Banks and Stock Market's Development on Financial Structure

Variables	(1)	(2)	(3)	(4)	(5)
Market_Size	0,099 ***			0,184 ***	0,097 ***
Bank_Size	-0,228 ***				
Stock_Value_Traded	0,178 ***		0,281 ***		0,159 ***
Bank_Overhead_Costs	0,018				
1997_Structure_Index	0,200 ***	0,367 ***	0,180 ***	0,227 ***	0,187 ***
Constant	-0,070	-0,013	-0,142 ***	-0,124 ***	-0,144 ***
Wald F-Statistic	66,499 ***	8,507 ***	186,627 ***	98,309 ***	71,087 ***
R-Squared	0,830	0,410	0,771	0,766	0,802
Adjusted R-Squared	0,812	0,399	0,762	0,757	0,790

Notes: OLS Regression with White covariance estimators. Dependent variable: 2021_Structure_Index.

Statistical significance: *** 1%; ** 5%; * 10%

4. Market-Based and Bank-Based Foundations

In this section, we will look into the specificities of each type of financial structure, namely the advantages and disadvantages of each one and the underlying institutional structures that are the foundations of financial structure differences. Changes in these foundations, namely the legal environment, policies, regulations and economic development may be the key explanatory variables for financial structure transformation.

4.1 Anglo-Saxon Financial System

The Anglo-Saxon financial system is a system based on capital markets. Each financial system has several defining institutional and corporate governance characteristics. Geographically it is present in the US, UK and Canada, countries with, generally, small government intervention (U-Din, 2021). The ownership structure of companies is widely dispersed and of private nature. This means ownership and control are separate, which protects minority investors but may also present costs and be a source of inefficiencies (Becht and Mayer, 2002). Namely, shareholders lack of control over manager's self-interested actions due to the absence of large blockholders to keep them in check.

The influence of employees and social partners is very limited. This is due to the low unionisation rate and high heterogeneity of the organised labour. This, coupled with the board structure leads to a lack of participation of workers in strategic management decisions, practice which can be beneficial to companies. Additionally, the role of the stock exchange is of the utmost importance in the Anglo-Saxon system. Moreover, corporate control mechanisms in this system are very "free", with hostile takeovers being mostly unrestricted and perceived as a welcome mechanism of correction in the markets.

The Anglo-Saxon Financial system is shown to have better mechanisms for incentivising research and innovation, tying compensation to firm performance and managing risk (Levine, 2002; Holmström and Tirole, 1993). Risk related to liquidity, for example, is significantly smaller in this system than in the Continental one, given the dispersed nature of ownership and the wide use of financial markets enabling investment to quickly change hands without impacting the productive process of firms (Levine, 1991).

4.2 Continental Europe Financial System

The Continental Europe financial system is bank-based, meaning companies resort much more to financial institutions to gather capital rather than the capital markets. Not only are banks a significant source of corporate financing, but they are also major shareholders of

many corporations. This system also has pronounced characteristics of its own. Geographically it concentrates as the name suggests in most European countries. These have moderate government intervention and the influence of employees and social partners is extensive and thoroughly recognised unlike the Anglo-Saxon countries (U-Din, 2021). The latter combined with the board structure of continental Europe companies - two tier structure with the input of other organs such as a work council - means interests are further aligned with stakeholders, not just the shareholders.

The ownership structure of companies is concentrated, with the existence of large bank and corporate blockholders. Banks often have large positions and bank representatives on the board of directors of companies which take large loans with them. These serve as a way to gather company information and control their actions and risk-taking. When it comes to mechanisms for corporate control, takeovers are rather restricted. Continental European countries seem to oppose takeovers with managers and employees' uncooperativeness being an obstacle to the deal's success (de Jong, 1989). The role of the stock exchange is only moderate when compared to its pivotal role in the Anglo-Saxon financial system. Lastly, the lack of separation between ownership and control for family businesses is also characteristic of this financial system.

The financial system used arguably has a significant impact on the amount of financing obtained by companies, given by banks and the cost of financing. Within a bank-based system, financial institutions have access to private information from companies, have developed relationships with their clients (the companies seeking financing) and thereby reduced information asymmetries which can lead to a more efficient capital allocation and lower financing costs for companies (Levine, 2002; Moutinho et al., 2022). For example, relationship banking allows companies to divulge proprietary information with the bank and therefore obtain more favourable and appropriate conditions of financing given its characteristics. This is information that the firm would not want to disclose to the market because it does not want to share it with its competitors (Boot, 2000). Not only are there longstanding relationships with the clients but, as it was mentioned before, banks also take large positions in their biggest loan-taker companies, allowing them to control the managers, risk and agency costs. In comparison, the absence of these relationships in the Anglo-Saxon system, lead to higher agency costs and in turn inefficient capital allocation and higher spreads.

However, it can also be shown that these close relationships can lead to spread differentiation that maximises bank's profits to the detriment of companies' financing costs (Boot

and Thakor, 2000; Marques and Alves, 2021). It was shown that in Japan, bank's close relationships with firms gave firms access to more capital but these exhibited a higher cost of capital than their peers. This meant that the supposed benefits of relationship banking ended up stunting the growth of the main bank's clients due to the higher spreads and conservative investment policies imposed by the banks (Weinstein and Yafeh, 1998). A study of 18000 loans to Belgian firms corroborates that firms pay higher loan rates due to relationship banking and spread differentiation. The study even states a positive relationship between the duration of the relationship and the loan rate increase. However, the relationships between banks and their clients also increases in scope, providing firms with other "information-sensitive products" at better rates which reduce the actual loan interest rate. The effect from the widening scope is shown to be more substantial than the one from duration, which means that the net result on loan rates is not detrimental to the firms (Degryse and Van Cayseele, 2000). Additionally, a study comparing four types of financial systems, the Anglo-Saxon and the Continental plus the Chinese and Islamic ones, found that "Banks under the Continental model charge lower margin to its costumers (...)" (U-din, 2021). Additionally, the reduced information asymmetries of the bank-based model allow for a more "secure economic environment that allows firms to seek higher profits in the long term, as opposed to the short-term view imposed by stock markets on Anglo-Saxon companies" (Cernat, 2004).

Lastly, Chakraborty and Ray (2006) have found that the level of investment and per capita GDP are higher under a bank-based system due to how this system solves agency problems, thus promoting borrowing at higher and more optimal levels. Furthermore, they state that bank-based systems promote the growth of the manufacturing sector more than market-based, especially for countries in development (i.e., transition from traditional activities to manufacturing) (Chakraborty and Ray, 2006).

4.3 Main Institutional Structures

Each country has its institutions and forms of corporate governance which impact their economic performance (Cernat, 2004). When a country's financial structure changes something fundamental needs to have transformed to drive such change. Be it their policies, regulations, legal system, economic development, etc. There are several theories in the literature for what these drivers may be.

Firstly, some state financial structure is rooted in cultural and institutional differences. Both market-based and bank-based systems fulfil their purpose of capital allocation, risk

management and corporate control, and both tend to grow with economic development. The main examples of cultural and institutional differences are: Common Law vs French Civil Law, the focus on protection of minority shareholders vs creditors and large blockholders, contract enforcement frameworks, accounting standards, banking regulations and deposit insurance.

“Countries with a Common Law tradition, strong protection for shareholder rights, good accounting standards, low levels of corruption and no explicit deposit insurance tend to be more market-based” (Demirgüç-Kunt and Levine, 2001). On the other hand, countries with the opposite characteristics are not necessarily bank-based. Instead, they tend to have underdeveloped financial systems (Levine et al., 2000). Demirgüç-Kunt and Levine (1999) found that common institutional reasons for underdeveloped financial systems are: legal systems that protect creditors and large shareholders above minority shareholders, poor contract enforcement frameworks which are not impartial and may also favour governments, high levels of corruption, poor accounting standards and lack of transparency surrounding financial information and financial contracts. Additionally, French Civil Law countries are more prone to have underdeveloped financial systems. The same applies to countries which restrict their banks from securities underwriting, dealing and brokering, from insurance underwriting and selling and from investing in real estate or non-financial firms. Demirgüç-Kunt and Levine (1999) also found that countries with explicit deposit insurance tend to have bank-based financial systems.

Secondly, some theories state that most institutional differences and even the classification as market-based and bank-based are negligible. If banks and markets supply better mechanisms for corporate control, risk management and capital allocation, the degree to which an economy is bank-based or market-based is unimportant. The important factors are laws and regulations above all else. It states the efficiency of capital allocation, risk management and corporate control lies in the quality of the contracts that govern these interactions and the mechanisms for their enforcement (La Porta et al., 1997). As such, change between market-based and bank-based systems is negligible since the significant factor is change that drives the efficiency of the legal system upwards (Beck and Levine, 2002; Chakraborty and Ray, 2006).

Another theory surrounding the key drivers of change in financial structure states that financial systems will gradually become more market based with economic development. Boyd and Smith (1998) consider that there is a shift from debt financing to equity markets

due to economic development of countries. The reasoning is that when capital is scarce and therefore expensive, firms mostly get it through debt, which has a higher but unobservable gross return. However, with the “unobservable return technology” there is a CSV (costly state verification) problem, meaning that there are high costs associated with monitoring the firms that took on debt given the higher bankruptcy costs and lack of public observability (Boyd and Smith, 1995). As countries develop and accumulate capital, the relative cost of monitoring will be perceived by investors as increasing. As such they will start favouring the “observable return technology”, i.e., equity markets (Boyd and Smith, 1998).

Through this reasoning, it could be argued that the tendency is for countries’ financial systems to gravitate towards equity markets as the single source of investment funding. Notwithstanding, the authors consider both “technologies” complementary instead of substitutes. On the one hand, developed equity markets allows companies to issue cheaper debt since the markets provide public information. On the other hand, debt is still important to keep monitoring costs as low as possible. Furthermore, debt is important for financing riskier companies and deals with a significant risk of asset substitution moral hazard (Boot and Thakor, 1997). Moreover, markets tend to fill long-term financing needs, whereas banks are more related to short-term financing (Demirgüç-Kunt and Maksimovic, 2002). Boyd and Smith’s (1998) most important output is that countries should tend to see an increase in the importance of equity markets relative to banks as their income level rises. Nevertheless, bank financing will always be of paramount importance, especially for certain industries with substantial CSV. An example of this is the existence of venture capital firms that finance firms with substantial moral hazard risk since they have expertise in monitoring such firms (Boot and Thakor, 1997).

The last theory is a potential explanation for why market-based and bank-based classifications persist over time. It tells us that the institutional differences between the two systems are too heterogeneous. Each financial system has immiscible decision-making characteristics and therefore small changes in the institutional structure are impossible because they would collide with the rest of the incumbent institutions (Cernat, 2004). Change of the institutional setting that can drive significant change in financial structure requires uprooting very based institutions and cultural values, making changes difficult and financial structure classifications persistent.

5. Conclusion

In this dissertation we collected data from 60 countries to analyse their financial systems and financial structure. The main objective was to analyse financial development and structure worldwide and see how it has evolved since the last study, almost 25 years ago. Firstly, we analysed the size, activity and efficiency of banks, non-bank intermediaries and stock markets and illustrated the patterns that emerge between financial development and countries' income per capita. We found that financial systems are, on average, more developed in higher income countries. Banks, non-bank financial intermediaries and stock markets are larger, more active and more efficient in richer countries.

Secondly, we analysed the development of the banking sector relative to that of the stock market. Relevant patterns emerged, with higher income countries tending to have larger and more efficient stock markets than banks. There was no statistically significant relationship between the activity of stock markets relative to the banking sector and the income per capita group. Afterwards we constructed a conglomerate financial structure index based on important measures of financial development and classified countries as either market-based or bank-based. Here we concluded that countries are prone to become market-based the higher their income per capita level.

We further distinguished the countries with developed financial systems from those with underdeveloped financial systems by international standards. This way, we avoid classifying a country with an underdeveloped banking sector as bank-based and putting it in the same group with a country like Germany. This solution also prevents countries with underdeveloped markets from being classified as market-based just because of even more severely underdeveloped banks. This way, we put countries into four groups: Developed Bank-Based, Developed Market-Based, Underdeveloped Bank-Based and Underdeveloped Market-Based.

We also compared the results obtained for our 2021 data with the ones obtained by Demirgüç-Kunt and Levine for 1997 data. We analysed the major changes in classification and what they entail in terms of financial structure and conducted statistical tests to measure the persistence of the classifications over time. We found that financial structure and financial development classifications are persistent over time. Individually, the classification as market-based is not as persistent. We also concluded that changes in the financial structure between 1997 and 2021 were mainly driven by stock market development. In contrast, the impact of bank development, especially in terms of efficiency, was almost negligible.

Lastly, we analysed the main contributions of the literature to the market-based and

bank-based debate to find potential explanations for financial structure change. We found that the main drivers of such change are economic development and countries' institutional structure, namely the policies, regulations and legal system.

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Appendix I: Tables and Figures

Table A1: Financial Development Worldwide

Country	GDP per Capita	Liquid Liabilities /GDP	Deposit Money Bank Assets /GDP	Private Credit by Deposit Money Banks and Other Financial Institutions/GDP	Central Bank Assets /GDP	Bank Overhead Costs /Total Assets	Bank Net Interest Margin	Bank Concentration Index	Public Share in Commercial Bank Assets	Market Capitalisation/ GDP	Total Value Traded /GDP	Turnover Ratio
Argentina	10 636,10	28,50%	24,20%	16,00%	16,70%	7,20%	10,40%	52,10%	43,70%	34,70%	0,60%	7,57%
Australia	60 443,10	133,50%	148,20%	142,80%	16,30%	1,00%	1,70%	69,10%	0,00%	118,79%	92,30%	71,30%
Austria	53 637,70	111,70%	104,10%	93,60%	24,50%	1,40%	1,10%	64,80%	7,50%	35,01%	9,20%	30,10%
Bangladesh	2 457,90	56,60%	59,20%	39,00%	1,10%	1,80%	1,90%	26,80%	27,60%	12,98%	4,00%	16,60%
Barbados	17 225,50	114,20%	102,90%	81,20%	8,60%	2,10%	4,70%	100,00%	0,00%	63,69%	0,10%	0,20%
Belgium	51 247,00	135,40%	83,00%	71,00%	25,90%	1,00%	1,10%	68,00%	15,00%	71,30%	16,17%	28,14%
Brazil	7 507,20	98,90%	125,80%	71,40%	23,40%	3,10%	4,40%	70,40%	46,70%	50,96%	94,80%	139,00%
Chile	16 265,10	60,30%	90,30%	108,70%	0,10%	1,60%	2,90%	52,20%	16,40%	61,31%	15,70%	21,50%
Colombia	6 104,10	55,20%	60,10%	51,70%	2,60%	3,20%	2,90%	73,80%	4,40%	31,05%	3,70%	9,40%
Costa Rica	12 472,40	42,10%	71,60%	57,10%	0,00%	3,90%	5,20%	55,90%	49,00%	3,06%	0,00%	1,60%
Cyprus	31 551,80	-	16,60%	93,40%	0,10%	5,70%	2,20%	84,80%	1,50%	8,19%	0,20%	0,80%
Denmark	68 007,80	62,80%	169,90%	158,70%	0,00%	1,20%	0,90%	81,80%	-	184,70%	74,80%	40,38%
Ecuador	5 965,10	51,40%	49,80%	50,20%	5,80%	4,60%	6,00%	55,50%	15,50%	8,32%	1,06%	2,33%
Egypt, Arab Rep.	3 698,80	91,80%	100,30%	29,70%	12,90%	1,50%	3,80%	74,50%	-	11,30%	4,40%	38,90%
Finland	53 654,80	89,10%	105,10%	96,90%	21,70%	0,90%	0,80%	92,60%	0,00%	135,85%	62,18%	45,92%
France	43 659,00	128,30%	131,10%	115,40%	30,40%	0,80%	0,50%	66,30%	7,50%	127,80%	37,76%	29,55%
Germany	51 203,60	111,00%	95,90%	85,00%	22,20%	1,60%	1,00%	79,40%	37,10%	61,36%	47,20%	79,40%
Ghana	2 363,30	29,60%	28,20%	10,30%	10,70%	4,80%	9,40%	32,80%	8,00%	13,97%	0,00%	0,40%
Greece	20 192,60	122,30%	73,10%	56,80%	22,50%	1,30%	2,10%	92,40%	0,00%	36,00%	8,70%	32,30%
Honduras	2 771,70	60,50%	76,30%	66,70%	5,40%	4,60%	6,20%	61,70%	0,00%	7,31%	19,96%	-
Hong Kong SAR, China	49 800,50	438,80%	268,80%	260,00%	-	0,90%	1,10%	62,50%	0,00%	1474,08%	890,00%	50,10%
Iceland	68 727,60	72,50%	111,30%	102,60%	0,70%	1,70%	2,60%	100,00%	65,90%	76,05%	32,61%	42,96%
India	2 256,60	84,90%	72,40%	51,90%	6,80%	1,80%	3,20%	40,90%	67,50%	113,33%	72,90%	75,00%
Indonesia	4 332,70	39,40%	43,30%	36,90%	8,10%	2,80%	5,10%	43,30%	39,60%	48,29%	12,40%	26,40%
Iran, Islamic Rep.	4 091,20	88,10%	75,00%	66,40%	2,60%	1,40%	-	100,00%	0,00%	93,40%	199,70%	38,00%
Ireland	100 172,10	107,70%	32,00%	28,00%	15,40%	1,50%	1,30%	73,80%	15,30%	36,48%	4,01%	11,00%
Israel	52 170,70	109,90%	79,50%	70,20%	5,40%	1,50%	2,50%	75,80%	0,00%	75,78%	25,70%	39,90%
Italy	35 657,50	119,00%	115,50%	77,70%	43,00%	1,50%	1,10%	62,60%	-	43,12%	65,78%	341,24%
Jamaica	5 183,60	77,60%	71,50%	58,10%	14,80%	4,10%	3,70%	83,40%	0,00%	84,71%	0,30%	0,40%
Japan	39 312,70	287,90%	169,60%	194,00%	89,10%	0,40%	0,50%	46,30%	-	137,07%	125,70%	94,30%
Jordan	4 103,30	118,30%	128,20%	83,70%	1,60%	1,80%	3,40%	63,10%	0,00%	48,38%	3,40%	8,10%

Country	GDP per Capita	Liquid Liabilities /GDP	Deposit Money Bank Assets /GDP	Private Credit by Deposit Money Banks and Other Financial Institutions/GDP	Central Bank Assets /GDP	Bank Overhead Costs /Total Assets	Bank Net Interest Margin	Bank Concentration Index	Public Share in Comercial Bank Assets	Market Capitalisation/ GDP	Total Value Traded /GDP	Turnover Ratio
Kenya	2 081,80	38,80%	47,90%	30,90%	2,40%	3,50%	6,10%	44,80%	3,90%	21,40%	0,50%	2,30%
Korea, Rep.	34 997,80	174,40%	181,70%	171,50%	1,70%	1,40%	1,60%	56,30%	24,00%	127,90%	316,90%	238,50%
Malaysia	11 109,30	133,30%	153,00%	127,60%	0,80%	1,20%	2,00%	53,00%	0,00%	109,95%	73,80%	56,90%
Mauritius	9 106,20	164,60%	129,20%	88,90%	3,30%	1,10%	2,00%	59,10%	14,00%	56,19%	2,80%	5,00%
Mexico	10 045,70	34,90%	45,10%	35,80%	-	3,60%	5,70%	49,50%	17,20%	38,79%	7,60%	20,70%
Nepal	1 208,20	122,80%	123,60%	105,30%	2,10%	1,70%	3,20%	17,90%	-	100,16%	57,71%	36,26%
Netherlands	57 767,90	124,10%	104,60%	97,10%	18,10%	1,00%	1,10%	88,30%	28,60%	174,00%	69,10%	39,71%
New Zealand	48 781,00	111,80%	154,50%	144,30%	18,50%	1,00%	2,10%	57,20%	3,90%	62,40%	10,50%	16,80%
Nigeria	2 065,70	24,90%	16,40%	12,80%	13,20%	2,70%	3,60%	59,30%	0,00%	12,58%	0,60%	4,40%
Norway	89 154,30	68,30%	133,80%	143,60%	0,00%	1,00%	1,80%	94,40%	0,00%	91,31%	33,28%	36,45%
Pakistan	1 505,00	44,50%	45,30%	15,40%	12,50%	1,90%	3,30%	40,60%	20,30%	14,87%	9,71%	35,22%
Panama	14 617,60	83,50%	88,90%	84,90%	13,00%	2,30%	3,20%	43,80%	11,40%	25,80%	0,40%	1,50%
Peru	6 621,60	55,70%	51,90%	47,80%	0,50%	2,60%	4,40%	70,60%	5,50%	67,47%	1,00%	2,40%
Philippines	3 460,50	70,40%	71,00%	70,70%	8,40%	2,00%	3,60%	52,30%	14,30%	93,15%	9,00%	12,00%
Portugal	24 567,50	133,00%	114,70%	97,60%	34,40%	1,10%	1,20%	68,90%	37,00%	37,87%	13,51%	68,67%
Singapore	72 794,00	152,60%	169,00%	135,70%	2,50%	0,90%	1,20%	80,80%	0,00%	157,53%	67,80%	30,78%
South Africa	7 055,00	69,90%	74,30%	57,70%	0,80%	2,90%	3,10%	79,40%	0,00%	331,04%	87,60%	27,90%
Spain	30 103,50	137,20%	119,60%	96,40%	37,50%	1,20%	0,90%	72,00%	2,00%	89,70%	38,20%	64,50%
Sri Lanka	4 013,70	63,00%	76,60%	49,70%	2,30%	1,90%	3,60%	57,70%	45,60%	31,19%	2,10%	10,70%
Sweden	61 028,70	88,70%	145,80%	135,70%	8,30%	1,00%	1,10%	89,60%	2,70%	226,93%	109,18%	48,30%
Switzerland	91 991,60	185,60%	172,50%	168,50%	0,30%	2,00%	0,80%	65,60%	21,40%	251,50%	173,80%	65,30%
Thailand	7 066,20	129,50%	152,00%	164,20%	2,80%	1,40%	2,50%	44,80%	15,00%	120,99%	96,30%	88,60%
Trinidad and Tobago	16 032,50	83,20%	69,60%	60,00%	32,20%	2,70%	4,00%	92,60%	21,70%	0,08%	0,00%	0,95%
Tunisia	3 807,10	69,80%	86,60%	64,90%	4,70%	2,20%	2,80%	44,50%	41,90%	17,83%	1,86%	10,47%
Turkey	9 661,20	66,20%	88,80%	72,80%	2,40%	1,50%	3,30%	46,80%	33,80%	30,11%	120,60%	365,80%
United Kingdom	46 510,30	163,30%	136,00%	136,00%	0,50%	1,40%	1,80%	42,90%	8,00%	108,64%	416,41%	193,08%
United States	70 248,60	91,70%	74,20%	216,60%	24,60%	2,40%	2,80%	38,40%	0,00%	224,11%	211,11%	155,67%
Uruguay	17 313,20	60,20%	31,70%	27,30%	5,50%	2,80%	4,60%	72,80%	52,00%	6,89%	0,11%	1,65%
Zimbabwe	1 773,90	16,10%	9,00%	7,50%	2,70%	8,00%	12,80%	81,80%	19,00%	14,23%	0,08%	5,02%
Mean	27 389,38	99,82%	95,84%	86,54%	11,97%	2,22%	3,12%	64,54%	16,57%	99,22%	64,28%	50,31%

Table A2: Correlations Between Measures of Financial Development and GDP per Capita

	Correlation	p-value
Liquid Liabilities/GDP	0,508	0,000
Deposit Money Bank Assets/GDP	0,456	0,001
Private Credit by Deposit Money Banks and Other Financial Institutions/GDP	0,584	0,000
Central Bank assets/GDP	0,185	0,198
Bank Overhead Costs/Total Assets	-0,456	0,001
Bank Net Interest Margin	-0,534	0,000
Bank Concentration Index	0,416	0,003
Public Share in Comercial Bank Assets	-0,179	0,215
Market Capitalisation/GDP	0,459	0,001
Total Value Traded/GDP	0,332	0,019
Turnover Ratio	0,168	0,244

Table A3: Overall Size and Efficiency of Financial Systems

Country	GDP per Capita	Overall Size	Overall Efficiency (Total Value Traded / Net Interest Margin)	Overall Efficiency (Total Value Traded /Overhead Costs)	Overall Efficiency (Turnover / Net Interest Margin)	Overall Efficiency (Turnover /Overhead Costs)
Argentina	10636,1	58,90%	0,06	0,08	0,73	1,05
Australia	60443,1	266,99%	54,29	92,30	41,94	71,30
Austria	53637,7	139,11%	8,36	6,57	27,36	21,50
Bangladesh	2457,9	72,18%	2,11	2,22	8,74	9,22
Barbados	17225,5	166,59%	0,02	0,05	0,04	0,10
Belgium	51247	154,30%	14,70	16,17	25,58	28,14
Brazil	7507,2	176,76%	21,55	30,58	31,59	44,84
Chile	16265,1	151,61%	5,41	9,81	7,41	13,44
Colombia	6104,1	91,15%	1,28	1,16	3,24	2,94
Costa Rica	12472,4	74,66%	0,00	0,00	0,31	0,41
Cyprus	31551,8	24,79%	0,09	0,04	0,36	0,14
Denmark	68007,8	354,60%	83,11	62,33	44,86	33,65
Ecuador	5965,1	58,12%	0,18	0,23	0,39	0,51
Egypt, Arab Rep.	3698,8	111,60%	1,16	2,93	10,24	25,93
Finland	53654,8	240,95%	77,72	69,09	57,40	51,02
France	43659	258,90%	75,52	47,20	59,09	36,93
Germany	51203,6	157,26%	47,20	29,50	79,40	49,63
Ghana	2363,3	42,17%	0,00	0,00	0,04	0,08
Greece	20192,6	109,10%	4,14	6,69	15,38	24,85
Honduras	2771,7	83,61%	3,22	4,34	-	-
Hong Kong SAR, China	49800,5	1742,88%	809,09	988,89	45,55	55,67
Iceland	68727,6	187,35%	12,54	19,18	16,52	25,27
India	2256,6	185,73%	22,78	40,50	23,44	41,67
Indonesia	4332,7	91,59%	2,43	4,43	5,18	9,43
Iran, Islamic Rep.	4091,2	168,40%	-	142,64	-	27,14
Ireland	100172,1	68,48%	3,09	2,68	8,46	7,33
Israel	52170,7	155,28%	10,28	17,13	15,96	26,60
Italy	35657,5	158,62%	59,80	43,85	310,21	227,49
Jamaica	5183,6	156,21%	0,08	0,07	0,11	0,10
Japan	39312,7	306,67%	251,40	314,25	188,60	235,75
Jordan	4103,3	176,58%	1,00	1,89	2,38	4,50

Country	GDP per Capita	Overall Size	Overall Efficiency (Total Value Traded / Net Interest Margin)	Overall Efficiency (Total Value Traded /Overhead Costs)	Overall Efficiency (Turnover / Net Interest Margin)	Overall Efficiency (Turnover /Overhead Costs)
Kenya	2081,8	69,30%	0,08	0,14	0,38	0,66
Korea, Rep.	34997,8	309,60%	198,06	226,36	149,06	170,36
Malaysia	11109,3	262,95%	36,90	61,50	28,45	47,42
Mauritius	9106,2	185,39%	1,40	2,55	2,50	4,55
Mexico	10045,7	83,89%	1,33	2,11	3,63	5,75
Nepal	1208,2	223,76%	18,03	33,95	11,33	21,33
Netherlands	57767,9	278,60%	62,82	69,10	36,10	39,71
New Zealand	48781	216,90%	5,00	10,50	8,00	16,80
Nigeria	2065,7	28,98%	0,17	0,22	1,22	1,63
Norway	89154,3	225,11%	18,49	33,28	20,25	36,45
Pakistan	1505	60,17%	2,94	5,11	10,67	18,54
Panama	14617,6	114,70%	0,13	0,17	0,47	0,65
Peru	6621,6	119,37%	0,23	0,38	0,55	0,92
Philippines	3460,5	164,15%	2,50	4,50	3,33	6,00
Portugal	24567,5	152,57%	11,25	12,28	57,22	62,42
Singapore	72794	326,53%	56,50	75,33	25,65	34,20
South Africa	7055	405,34%	28,26	30,21	9,00	9,62
Spain	30103,5	209,30%	42,44	31,83	71,67	53,75
Sri Lanka	4013,7	107,79%	0,58	1,11	2,97	5,63
Sweden	61028,7	372,73%	99,26	109,18	43,91	48,30
Switzerland	91991,6	424,00%	217,25	86,90	81,63	32,65
Thailand	7066,2	272,99%	38,52	68,79	35,44	63,29
Trinidad and Tobago	16032,5	69,68%	0,00	0,00	0,24	0,35
Tunisia	3807,1	104,43%	0,67	0,85	3,74	4,76
Turkey	9661,2	118,91%	36,55	80,40	110,85	243,87
United Kingdom	46510,3	244,64%	231,34	297,44	107,27	137,91
United States	70248,6	298,31%	75,40	87,96	55,60	64,86
Uruguay	17313,2	38,59%	0,02	0,04	0,36	0,59
Zimbabwe	1773,9	23,23%	0,01	0,01	0,39	0,63

Table A4: Correlations Between Overall Size and Efficiency with GDP per Capita

	Correlation	p-value
Overall Size	0,323	0,014
Overall Efficiency (Total Value Traded / Net Interest Margin)	0,317	0,015
Overall Efficiency (Total Value Traded /Overhead Costs)	0,249	0,059
Overall Efficiency (Turnover / Net Interest Margin)	0,307	0,019
Overall Efficiency (Turnover /Overhead Costs)	0,226	0,088

Table A5: Banks vs Stock Market - Size

Country	GDP per Capita	Deposit Money Bank Assets /GDP	Stock market Capitalisation /GDP	Deposit Money Bank Assets /Market Capitalisation
Hong Kong SAR, China	49800,5	268,80%	1474,08%	0,47
South Africa	7055	74,30%	331,04%	0,47
United States	70248,6	74,20%	224,11%	0,47
Netherlands	57767,9	104,60%	174,00%	0,60
Zimbabwe	1773,9	9,00%	14,23%	0,63
India	2256,6	72,40%	113,33%	0,64
Sweden	61028,7	145,80%	226,93%	0,64
Switzerland	91991,6	172,50%	251,50%	0,69
Argentina	10636,1	24,20%	34,70%	0,70
Philippines	3460,5	71,00%	93,15%	0,76
Peru	6621,6	51,90%	67,47%	0,77
Finland	53654,8	105,10%	135,85%	0,77
Iran, Islamic Rep.	4091,2	75,00%	93,40%	0,80
Jamaica	5183,6	71,50%	84,71%	0,84
Ireland	100172,1	32,00%	36,48%	0,88
Indonesia	4332,7	43,30%	48,29%	0,90
Denmark	68007,8	169,90%	184,70%	0,92
France	43659	131,10%	127,80%	1,03
Israel	52170,7	79,50%	75,78%	1,05
Singapore	72794	169,00%	157,53%	1,07
Mexico	10045,7	45,10%	38,79%	1,16
Belgium	51247	83,00%	71,30%	1,16
Nepal	1208,2	123,60%	100,16%	1,23
Japan	39312,7	169,60%	137,07%	1,24
Australia	60443,1	148,20%	118,79%	1,25
United Kingdom	46510,3	136,00%	108,64%	1,25
Thailand	7066,2	152,00%	120,99%	1,26
Nigeria	2065,7	16,40%	12,58%	1,30
Spain	30103,5	119,60%	89,70%	1,33
Malaysia	11109,3	153,00%	109,95%	1,39
Korea, Rep.	34997,8	181,70%	127,90%	1,42
Iceland	68727,6	111,30%	76,05%	1,46
Norway	89154,3	133,80%	91,31%	1,47
Chile	16265,1	90,30%	61,31%	1,47
Germany	51203,6	95,90%	61,36%	1,56
Barbados	17225,5	102,90%	63,69%	1,62
Colombia	6104,1	60,10%	31,05%	1,94
Ghana	2363,3	28,20%	13,97%	2,02
Cyprus	31551,8	16,60%	8,19%	2,03
Greece	20192,6	73,10%	36,00%	2,03
Kenya	2081,8	47,90%	21,40%	2,24
Mauritius	9106,2	129,20%	56,19%	2,30
Sri Lanka	4013,7	76,60%	31,19%	2,46
Brazil	7507,2	125,80%	50,96%	2,47
New Zealand	48781	154,50%	62,40%	2,48
Jordan	4103,3	128,20%	48,38%	2,65
Italy	35657,5	115,50%	43,12%	2,68
Turkey	9661,2	88,80%	30,11%	2,95
Austria	53637,7	104,10%	35,01%	2,97
Portugal	24567,5	114,70%	37,87%	3,03
Pakistan	1505	45,30%	14,87%	3,05
Panama	14617,6	88,90%	25,80%	3,45
Bangladesh	2457,9	59,20%	12,98%	4,56
Uruguay	17313,2	31,70%	6,89%	4,60
Tunisia	3807,1	86,60%	17,83%	4,86
Ecuador	5965,1	49,80%	8,32%	5,99
Egypt, Arab Rep.	3698,8	100,30%	11,30%	8,88
Costa Rica	12472,4	71,60%	3,06%	9,66
Honduras	2771,7	76,30%	7,31%	9,66
Trinidad and Tobago	16032,5	69,60%	0,08%	9,66

Table A6: Banks vs Stock Market - Activity

Country	GDP per Capita	Private credit by deposit money banks/GDP	Total Value Traded /GDP	Private credit by deposit money banks/Total Value Traded
Hong Kong SAR, China	49800,5	260,00%	890,00%	0,33
United Kingdom	46510,3	136,00%	416,41%	0,33
United States	70248,6	54,60%	211,11%	0,33
Iran, Islamic Rep.	4091,2	66,40%	199,70%	0,33
Korea, Rep.	34997,8	171,50%	316,90%	0,54
Turkey	9661,2	66,50%	120,60%	0,55
South Africa	7055	57,70%	87,60%	0,66
India	2256,6	51,90%	72,90%	0,71
Brazil	7507,2	71,40%	94,80%	0,75
Japan	39312,7	119,20%	125,70%	0,95
Switzerland	91991,6	168,50%	173,80%	0,97
Italy	35657,5	77,70%	65,78%	1,18
Sweden	61028,7	135,70%	109,18%	1,24
Thailand	7066,2	126,80%	96,30%	1,32
Netherlands	57767,9	97,10%	69,10%	1,41
Australia	60443,1	133,00%	92,30%	1,44
Finland	53654,8	96,90%	62,18%	1,56
Pakistan	1505	15,40%	9,71%	1,59
Malaysia	11109,3	127,60%	73,80%	1,73
Germany	51203,6	85,00%	47,20%	1,80
Nepal	1208,2	105,30%	57,71%	1,82
Singapore	72794	132,70%	67,80%	1,96
Denmark	68007,8	158,70%	74,80%	2,12
Spain	30103,5	96,40%	38,20%	2,52
Indonesia	4332,7	31,90%	12,40%	2,57
Israel	52170,7	70,20%	25,70%	2,73
France	43659	115,40%	37,76%	3,06
Iceland	68727,6	102,60%	32,61%	3,15
Honduras	2771,7	64,40%	19,96%	3,23
Mexico	10045,7	26,70%	7,60%	3,51
Norway	89154,3	121,30%	33,28%	3,64
Belgium	51247	71,00%	16,17%	4,39
Chile	16265,1	80,60%	15,70%	5,13
Philippines	3460,5	49,90%	9,00%	5,54
Greece	20192,6	56,80%	8,70%	6,53
Egypt, Arab Rep.	3698,8	29,70%	4,40%	6,75
Ireland	100172,1	28,00%	4,01%	6,98
Portugal	24567,5	97,60%	13,51%	7,23
Bangladesh	2457,9	39,00%	4,00%	9,75
Austria	53637,7	93,60%	9,20%	10,17
New Zealand	48781	144,30%	10,50%	13,74
Colombia	6104,1	51,70%	3,70%	13,97
Nigeria	2065,7	12,20%	0,60%	20,33
Sri Lanka	4013,7	49,70%	2,10%	23,67
Jordan	4103,3	83,70%	3,40%	24,62
Argentina	10636,1	15,40%	0,60%	25,67
Mauritius	9106,2	88,90%	2,80%	31,75
Tunisia	3807,1	64,90%	1,86%	34,82
Ecuador	5965,1	47,90%	1,06%	45,19
Peru	6621,6	47,80%	1,00%	47,80
Kenya	2081,8	30,90%	0,50%	61,80
Zimbabwe	1773,9	7,50%	0,08%	89,55
Jamaica	5183,6	58,10%	0,30%	193,67
Panama	14617,6	83,10%	0,40%	207,75
Barbados	17225,5	81,20%	0,10%	229,92
Cyprus	31551,8	93,40%	0,20%	229,92
Uruguay	17313,2	27,30%	0,11%	229,92
Costa Rica	12472,4	56,00%	0,00%	-
Ghana	2363,3	10,30%	0,00%	-
Trinidad and Tobago	16032,5	46,10%	0,00%	-

Table A7: Non-Bank Financial Intermediaries vs Stock Market - Activity

Country	GDP per Capita	Private Credit by Other Financial Institutions/GDP	Total Value Traded /GDP	Private Credit by Other Financial Institutions/Total Value Traded
Austria	53637,7	0,00%	9,20%	0,00
Bangladesh	2457,9	0,00%	4,00%	0,00
Barbados	17225,5	0,00%	0,10%	0,00
Belgium	51247	0,00%	16,17%	0,00
Brazil	7507,2	0,00%	94,80%	0,00
Colombia	6104,1	0,00%	3,70%	0,00
Cyprus	31551,8	0,00%	0,20%	0,00
Denmark	68007,8	0,00%	74,80%	0,00
Egypt, Arab Rep.	3698,8	0,00%	4,40%	0,00
Finland	53654,8	0,00%	62,18%	0,00
France	43659	0,00%	37,76%	0,00
Germany	51203,6	0,00%	47,20%	0,00
Greece	20192,6	0,00%	8,70%	0,00
Hong Kong SAR, China	49800,5	0,00%	890,00%	0,00
Iceland	68727,6	0,00%	32,61%	0,00
India	2256,6	0,00%	72,90%	0,00
Iran, Islamic Rep.	4091,2	0,00%	199,70%	0,00
Ireland	100172,1	0,00%	4,01%	0,00
Israel	52170,7	0,00%	25,70%	0,00
Italy	35657,5	0,00%	65,78%	0,00
Jamaica	5183,6	0,00%	0,30%	0,00
Jordan	4103,3	0,00%	3,40%	0,00
Kenya	2081,8	0,00%	0,50%	0,00
Korea, Rep.	34997,8	0,00%	316,90%	0,00
Malaysia	11109,3	0,00%	73,80%	0,00
Mauritius	9106,2	0,00%	2,80%	0,00
Nepal	1208,2	0,00%	57,71%	0,00
Netherlands	57767,9	0,00%	69,10%	0,00
New Zealand	48781	0,00%	10,50%	0,00
Pakistan	1505	0,00%	9,71%	0,00
Peru	6621,6	0,00%	1,00%	0,00
Portugal	24567,5	0,00%	13,51%	0,00
South Africa	7055	0,00%	87,60%	0,00
Spain	30103,5	0,00%	38,20%	0,00
Sri Lanka	4013,7	0,00%	2,10%	0,00
Sweden	61028,7	0,00%	109,18%	0,00
Switzerland	91991,6	0,00%	173,80%	0,00
Tunisia	3807,1	0,00%	1,86%	0,00
United Kingdom	46510,3	0,00%	416,41%	0,00
Uruguay	17313,2	0,00%	0,11%	0,00
Zimbabwe	1773,9	0,00%	0,08%	0,00
Singapore	72794	3,00%	67,80%	0,04
Turkey	9661,2	6,30%	120,60%	0,05
Australia	60443,1	9,80%	92,30%	0,11
Honduras	2771,7	2,30%	19,96%	0,12
Thailand	7066,2	37,40%	96,30%	0,39
Indonesia	4332,7	5,00%	12,40%	0,40
Japan	39312,7	74,80%	125,70%	0,60
Norway	89154,3	22,30%	33,28%	0,67
United States	70248,6	162,00%	211,11%	0,77
Argentina	10636,1	0,60%	0,60%	1,00
Nigeria	2065,7	0,60%	0,60%	1,00
Mexico	10045,7	9,10%	7,60%	1,20
Chile	16265,1	28,10%	15,70%	1,79
Ecuador	5965,1	2,30%	1,06%	2,04
Panama	14617,6	1,80%	0,40%	2,04
Philippines	3460,5	20,80%	9,00%	2,04
Costa Rica	12472,4	1,10%	0,00%	-
Ghana	2363,3	0,00%	0,00%	-
Trinidad and Tobago	16032,5	13,90%	0,00%	-

Table A8: Banks vs Stock Market - Efficiency (Overhead Costs)

Country	GDP per Capita	Total Value Traded / GDP	Bank Overhead Costs / Total Assets	Total Value Traded*Overhead Costs
Costa Rica	12472,4	0,00%	3,90%	0,00
Ghana	2363,3	0,00%	4,80%	0,00
Trinidad and Tobago	16032,5	0,00%	2,70%	0,00
Barbados	17225,5	0,10%	2,10%	0,00
Uruguay	17313,2	0,11%	2,80%	0,00
Zimbabwe	1773,9	0,08%	8,00%	0,00
Panama	14617,6	0,40%	2,30%	0,00
Cyprus	31551,8	0,20%	5,70%	0,00
Jamaica	5183,6	0,30%	4,10%	0,00
Nigeria	2065,7	0,60%	2,70%	0,00
Kenya	2081,8	0,50%	3,50%	0,00
Peru	6621,6	1,00%	2,60%	0,00
Mauritius	9106,2	2,80%	1,10%	0,00
Sri Lanka	4013,7	2,10%	1,90%	0,00
Tunisia	3807,1	1,86%	2,20%	0,00
Argentina	10636,1	0,60%	7,20%	0,00
Ecuador	5965,1	1,06%	4,60%	0,00
Ireland	100172,1	4,01%	1,50%	0,00
Jordan	4103,3	3,40%	1,80%	0,00
Egypt, Arab Rep.	3698,8	4,40%	1,50%	0,00
Bangladesh	2457,9	4,00%	1,80%	0,00
New Zealand	48781	10,50%	1,00%	0,00
Greece	20192,6	8,70%	1,30%	0,00
Colombia	6104,1	3,70%	3,20%	0,00
Austria	53637,7	9,20%	1,40%	0,00
Portugal	24567,5	13,51%	1,10%	0,00
Belgium	51247	16,17%	1,00%	0,00
Philippines	3460,5	9,00%	2,00%	0,00
Pakistan	1505	9,71%	1,90%	0,00
Chile	16265,1	15,70%	1,60%	0,00
Mexico	10045,7	7,60%	3,60%	0,00
France	43659	37,76%	0,80%	0,00
Norway	89154,3	33,28%	1,00%	0,00
Indonesia	4332,7	12,40%	2,80%	0,00
Israel	52170,7	25,70%	1,50%	0,00
Spain	30103,5	38,20%	1,20%	0,00
Japan	39312,7	125,70%	0,40%	0,01
Iceland	68727,6	32,61%	1,70%	0,01
Finland	53654,8	62,18%	0,90%	0,01
Singapore	72794	67,80%	0,90%	0,01
Netherlands	57767,9	69,10%	1,00%	0,01
Germany	51203,6	47,20%	1,60%	0,01
Malaysia	11109,3	73,80%	1,20%	0,01
Denmark	68007,8	74,80%	1,20%	0,01
Honduras	2771,7	19,96%	4,60%	0,01
Australia	60443,1	92,30%	1,00%	0,01
Nepal	1208,2	57,71%	1,70%	0,01
Italy	35657,5	65,78%	1,50%	0,01
Sweden	61028,7	109,18%	1,00%	0,01
India	2256,6	72,90%	1,80%	0,01
Thailand	7066,2	96,30%	1,40%	0,01
Turkey	9661,2	120,60%	1,50%	0,02
South Africa	7055	87,60%	2,90%	0,03
Iran, Islamic Rep.	4091,2	199,70%	1,40%	0,03
Brazil	7507,2	94,80%	3,10%	0,03
Switzerland	91991,6	173,80%	2,00%	0,03
Korea, Rep.	34997,8	316,90%	1,40%	0,04
United States	70248,6	211,11%	2,40%	0,05
United Kingdom	46510,3	416,41%	1,40%	0,06
Hong Kong SAR, China	49800,5	890,00%	0,90%	0,08

Table A9: Banks vs Stock Market - Efficiency (Net Interest Margin)

Country	GDP per Capita	Total Value Traded /GDP	Bank Net Interest Margin	Total Value Traded*Net Interest Margin
Costa Rica	12472,4	0,00%	5,20%	0,00
Ghana	2363,3	0,00%	9,40%	0,00
Trinidad and Tobago	16032,5	0,00%	4,00%	0,00
Cyprus	31551,8	0,20%	2,20%	0,00
Barbados	17225,5	0,10%	4,70%	0,00
Uruguay	17313,2	0,11%	4,60%	0,00
Zimbabwe	1773,9	0,08%	12,80%	0,00
Jamaica	5183,6	0,30%	3,70%	0,00
Panama	14617,6	0,40%	3,20%	0,00
Nigeria	2065,7	0,60%	3,60%	0,00
Kenya	2081,8	0,50%	6,10%	0,00
Peru	6621,6	1,00%	4,40%	0,00
Ireland	100172,1	4,01%	1,30%	0,00
Tunisia	3807,1	1,86%	2,80%	0,00
Mauritius	9106,2	2,80%	2,00%	0,00
Argentina	10636,1	0,60%	10,40%	0,00
Ecuador	5965,1	1,06%	6,00%	0,00
Sri Lanka	4013,7	2,10%	3,60%	0,00
Bangladesh	2457,9	4,00%	1,90%	0,00
Austria	53637,7	9,20%	1,10%	0,00
Colombia	6104,1	3,70%	2,90%	0,00
Jordan	4103,3	3,40%	3,40%	0,00
Portugal	24567,5	13,51%	1,20%	0,00
Egypt, Arab Rep.	3698,8	4,40%	3,80%	0,00
Belgium	51247	16,17%	1,10%	0,00
Greece	20192,6	8,70%	2,10%	0,00
France	43659	37,76%	0,50%	0,00
New Zealand	48781	10,50%	2,10%	0,00
Pakistan	1505	9,71%	3,30%	0,00
Philippines	3460,5	9,00%	3,60%	0,00
Spain	30103,5	38,20%	0,90%	0,00
Mexico	10045,7	7,60%	5,70%	0,00
Chile	16265,1	15,70%	2,90%	0,00
Germany	51203,6	47,20%	1,00%	0,00
Finland	53654,8	62,18%	0,80%	0,00
Norway	89154,3	33,28%	1,80%	0,01
Japan	39312,7	125,70%	0,50%	0,01
Indonesia	4332,7	12,40%	5,10%	0,01
Israel	52170,7	25,70%	2,50%	0,01
Denmark	68007,8	74,80%	0,90%	0,01
Italy	35657,5	65,78%	1,10%	0,01
Netherlands	57767,9	69,10%	1,10%	0,01
Singapore	72794	67,80%	1,20%	0,01
Iceland	68727,6	32,61%	2,60%	0,01
Sweden	61028,7	109,18%	1,10%	0,01
Honduras	2771,7	19,96%	6,20%	0,01
Switzerland	91991,6	173,80%	0,80%	0,01
Malaysia	11109,3	73,80%	2,00%	0,01
Australia	60443,1	92,30%	1,70%	0,02
Nepal	1208,2	57,71%	3,20%	0,02
India	2256,6	72,90%	3,20%	0,02
Thailand	7066,2	96,30%	2,50%	0,02
South Africa	7055	87,60%	3,10%	0,03
Turkey	9661,2	120,60%	3,30%	0,04
Brazil	7507,2	94,80%	4,40%	0,04
Korea, Rep.	34997,8	316,90%	1,60%	0,05
United States	70248,6	211,11%	2,80%	0,06
United Kingdom	46510,3	416,41%	1,80%	0,07
Hong Kong SAR, China	49800,5	890,00%	1,10%	0,10
Iran, Islamic Rep.	4091,2	199,70%	-	-

Table A10: Conglomerate Financial Structure Index

Country	GDP per Capita	Structure Index	Market Capitalisation/Deposit Money Bank Assets	Total Value Traded/Private Credit by Deposit Money Banks and Other Financial institutions	Total value traded*overhead costs
Trinidad and Tobago	16032,5	-0,456	0,00	-	0,00
Costa Rica	12472,4	-0,435	0,04	-	0,00
Ecuador	5965,1	-0,427	0,17	0,02	0,00
Uruguay	17313,2	-0,416	0,22	0,00	0,00
Tunisia	3807,1	-0,411	0,21	0,03	0,00
Egypt, Arab Rep.	3698,8	-0,402	0,11	0,15	0,00
Panama	14617,6	-0,391	0,29	0,00	0,00
Bangladesh	2457,9	-0,382	0,22	0,10	0,00
Honduras	2771,7	-0,355	0,10	0,30	0,01
Jordan	4103,3	-0,350	0,38	0,04	0,00
Austria	53637,7	-0,344	0,34	0,10	0,00
Sri Lanka	4013,7	-0,340	0,41	0,04	0,00
Kenya	2081,8	-0,335	0,45	0,02	0,00
Mauritius	9106,2	-0,334	0,43	0,03	0,00
Portugal	24567,5	-0,333	0,33	0,14	0,00
New Zealand	48781	-0,330	0,40	0,07	0,00
Cyprus	31551,8	-0,324	0,49	0,00	0,00
Colombia	6104,1	-0,293	0,52	0,07	0,00
Barbados	17225,5	-0,283	0,62	0,00	0,00
Greece	20192,6	-0,274	0,49	0,15	0,00
Nigeria	2065,7	-0,218	0,77	0,05	0,00
Chile	16265,1	-0,214	0,68	0,14	0,00
Ghana	2363,3	-0,209	0,50	-	0,00
Norway	89154,3	-0,184	0,68	0,23	0,00
Pakistan	1505	-0,169	0,33	0,63	0,00
Iceland	68727,6	-0,154	0,68	0,32	0,01
Mexico	10045,7	-0,131	0,86	0,21	0,00
Belgium	51247	-0,127	0,86	0,23	0,00
Spain	30103,5	-0,106	0,75	0,40	0,00
Jamaica	5183,6	-0,093	1,18	0,01	0,00
Germany	51203,6	-0,089	0,64	0,56	0,01
Italy	35657,5	-0,080	0,37	0,85	0,01
Ireland	100172,1	-0,062	1,14	0,14	0,00
France	43659	-0,055	0,97	0,33	0,00
Malaysia	11109,3	-0,054	0,72	0,58	0,01
Peru	6621,6	-0,049	1,30	0,02	0,00
Israel	52170,7	-0,049	0,95	0,37	0,00
Nepal	1208,2	-0,033	0,81	0,55	0,01
Thailand	7066,2	-0,024	0,80	0,59	0,01
Singapore	72794	-0,010	0,93	0,50	0,01
Philippines	3460,5	-0,009	1,31	0,13	0,00
Indonesia	4332,7	-0,005	1,12	0,34	0,00
Australia	60443,1	-0,004	0,80	0,65	0,01
Japan	39312,7	-0,003	0,81	0,65	0,01
Argentina	10636,1	0,001	1,43	0,04	0,00
Denmark	68007,8	0,033	1,09	0,47	0,01
Zimbabwe	1773,9	0,041	1,58	0,01	0,00
Brazil	7507,2	0,098	0,41	1,33	0,03
Finland	53654,8	0,157	1,29	0,64	0,01
Turkey	9661,2	0,182	0,34	1,66	0,02
Sweden	61028,7	0,301	1,56	0,80	0,01
Netherlands	57767,9	0,304	1,66	0,71	0,01
Switzerland	91991,6	0,352	1,46	1,03	0,03
Korea, Rep.	34997,8	0,376	0,70	1,85	0,04
India	2256,6	0,505	1,57	1,40	0,01
United Kingdom	46510,3	0,817	0,80	3,06	0,06
United States	70248,6	0,859	3,02	0,97	0,05
Iran, Islamic Rep.	4091,2	0,937	1,25	3,01	0,03
South Africa	7055	1,510	4,46	1,52	0,03
Hong Kong SAR, China	49800,5	2,506	5,48	3,42	0,08

Table A11: Financial Structure and Development Groups

Bank-Based and Underdeveloped	
Country	Structure Index
Trinidad and Tobago	-0,46
Costa Rica	-0,44
Ecuador	-0,43
Uruguay	-0,42
Uruguay	-0,42
Tunisia	-0,41
Egypt, Arab Rep.	-0,40
Panama	-0,39
Bangladesh	-0,38
Honduras	-0,35
Jordan	-0,35
Sri Lanka	-0,34
Kenya	-0,34
Colombia	-0,29
Barbados	-0,28
Greece	-0,27
Nigeria	-0,22
Ghana	-0,21
Pakistan	-0,17
Mexico	-0,13
Belgium	-0,13
Jamaica	-0,09
Ireland	-0,06
Peru	-0,05
Israel	-0,05
Philippines	-0,01
Group Mean	-0,27

Market-Based and Underdeveloped	
Country	Structure Index
Indonesia	0,00
Argentina	0,00
Zimbabwe	0,04
Group Mean	0,01

Bank-Based and Developed	
Country	Structure Index
Austria	-0,34
Mauritius	-0,33
Portugal	-0,33
New Zealand	-0,33
Cyprus	-0,32
Chile	-0,21
Norway	-0,18
Iceland	-0,15
Spain	-0,11
Germany	-0,09
Italy	-0,08
France	-0,05
Malaysia	-0,05
Nepal	-0,03
Thailand	-0,02
Singapore	-0,01
Group Mean	-0,17

Market-Based and Developed	
Country	Structure Index
Australia	0,00
Japan	0,00
Denmark	0,03
Brazil	0,10
Finland	0,16
Turkey	0,18
Sweden	0,30
Netherlands	0,30
Switzerland	0,35
Korea, Rep.	0,38
India	0,50
United Kingdom	0,82
United States	0,86
Iran, Islamic Rep.	0,94
South Africa	1,51
Hong Kong SAR, China	2,51
Group Mean	0,56

Figure A1: Financial Development of the Banking Sector

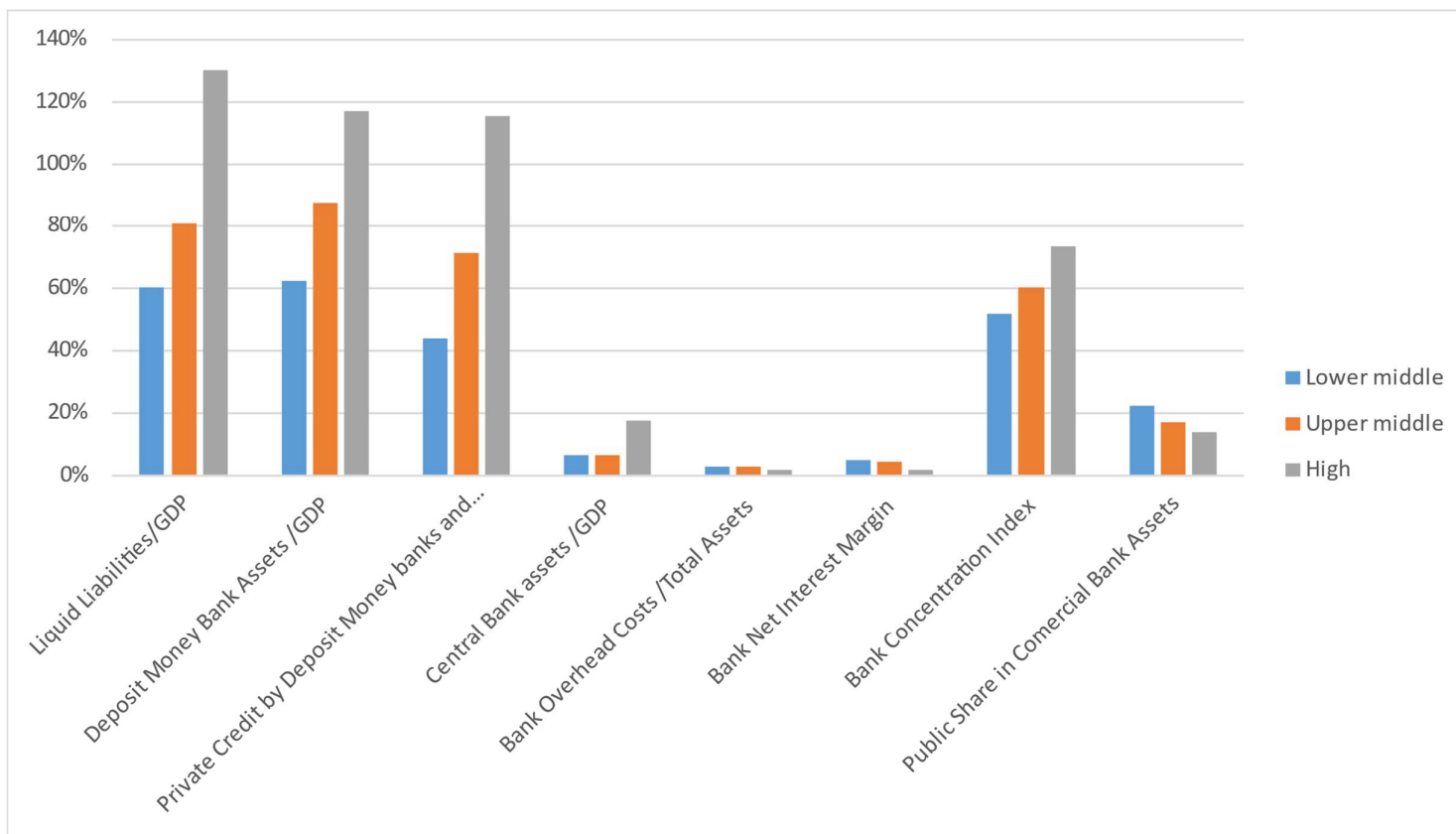


Figure A2: Financial Development of Equity Markets

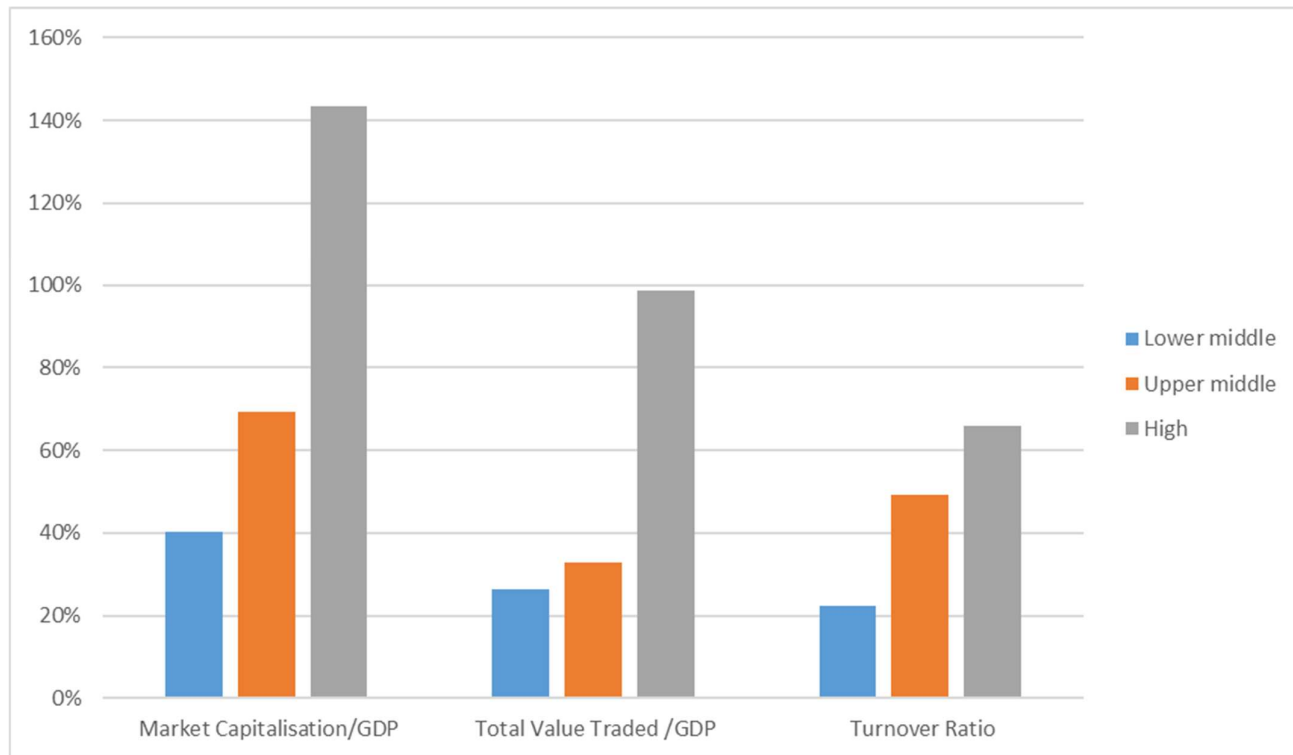


Figure A3: Financial Development of Non-Bank Intermediaries

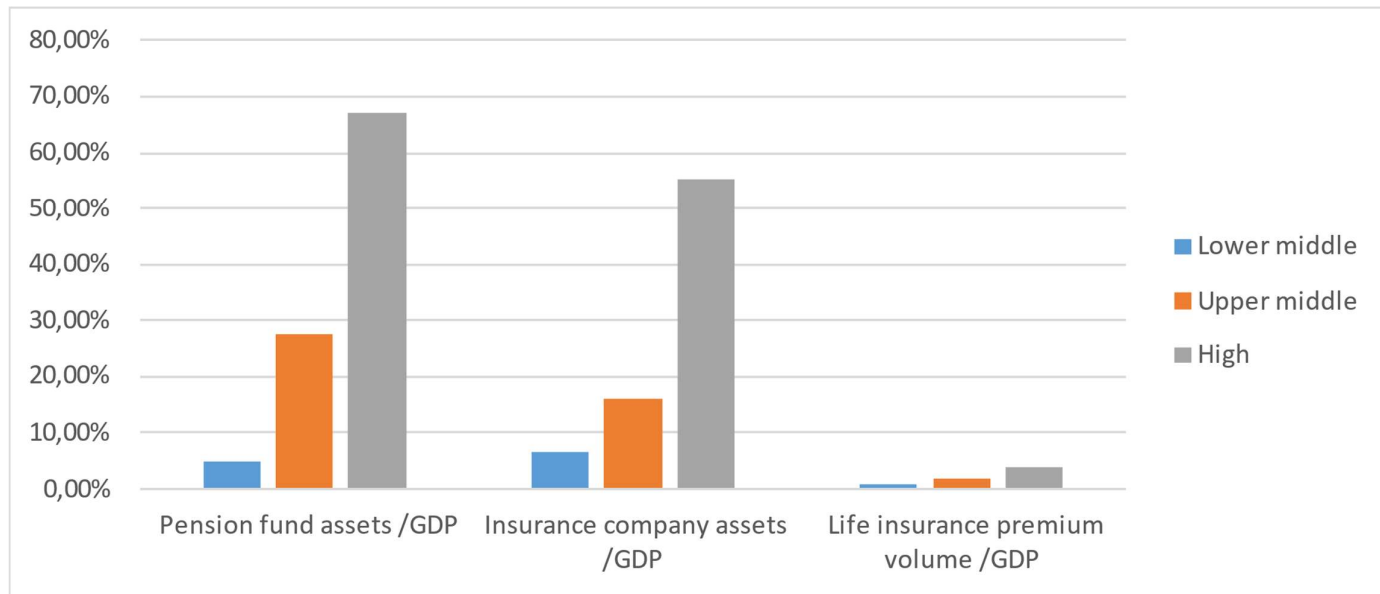


Figure A4: Overall Size and Efficiency of Financial Systems

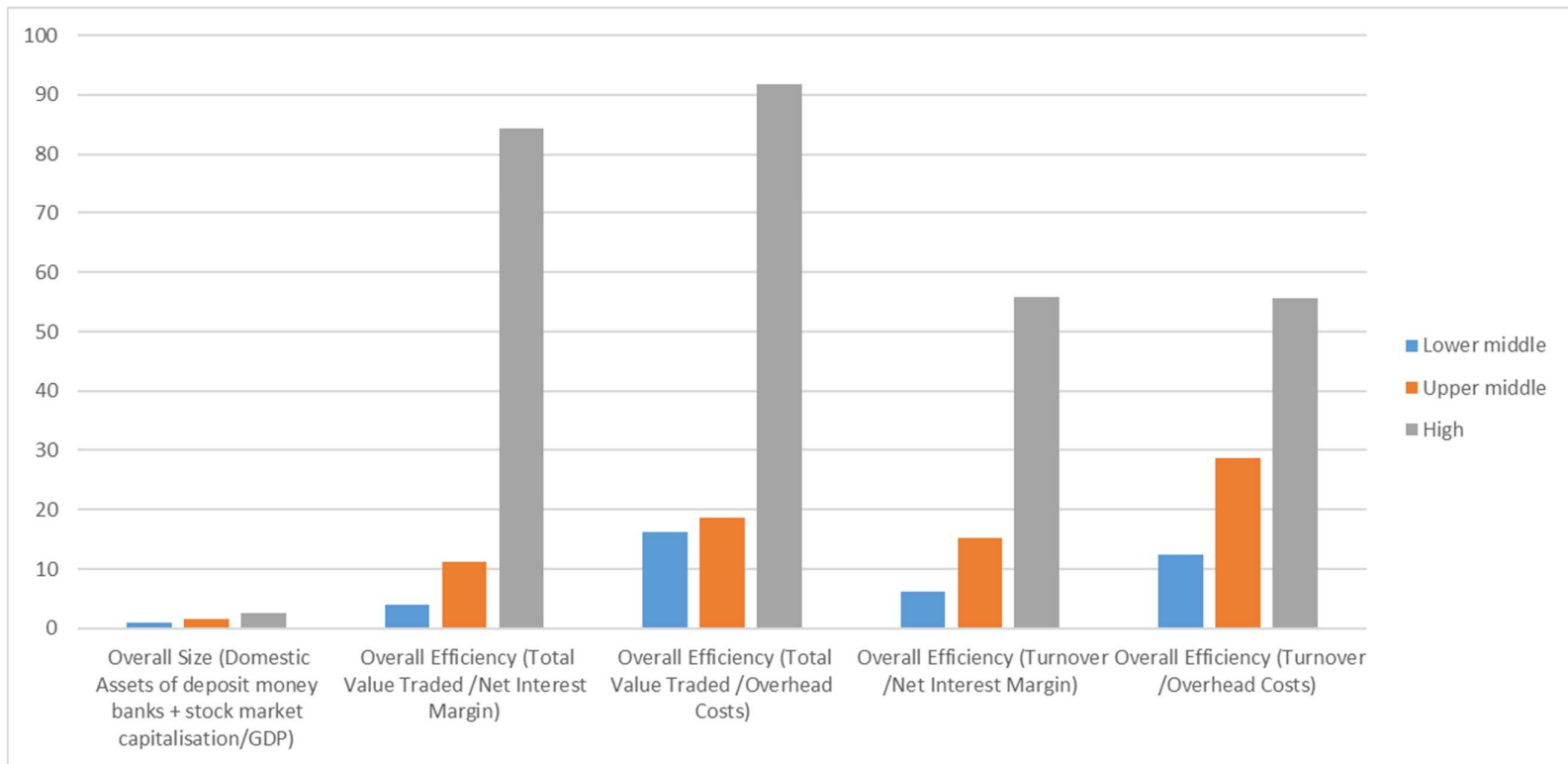


Figure A5: Relative Size of Banks and Non-Bank Financial Intermediaries vs Stock Markets

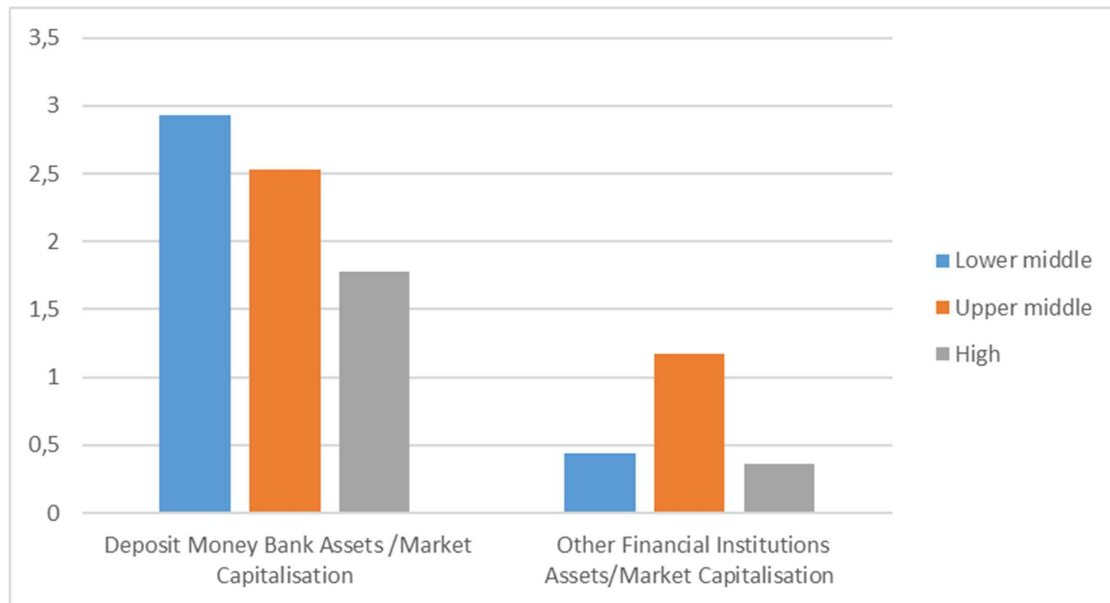


Figure A6: Relative Activity of Banks and Non-Bank Financial Intermediaries vs Stock Markets

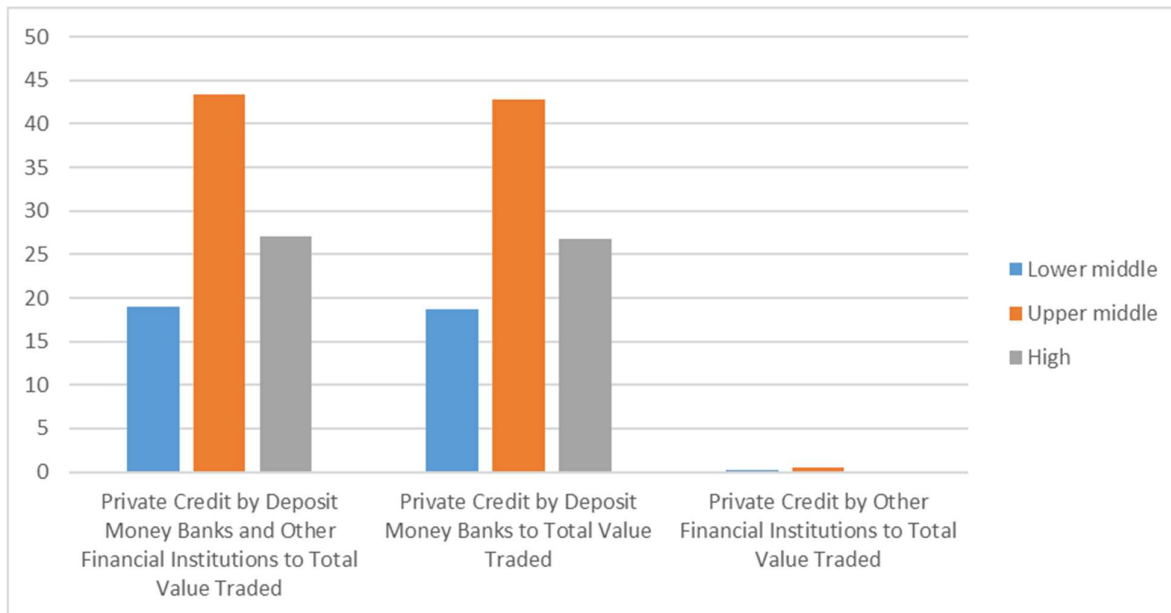


Figure A7: Relative Activity of Non-Bank Financial Intermediaries vs Stock Market

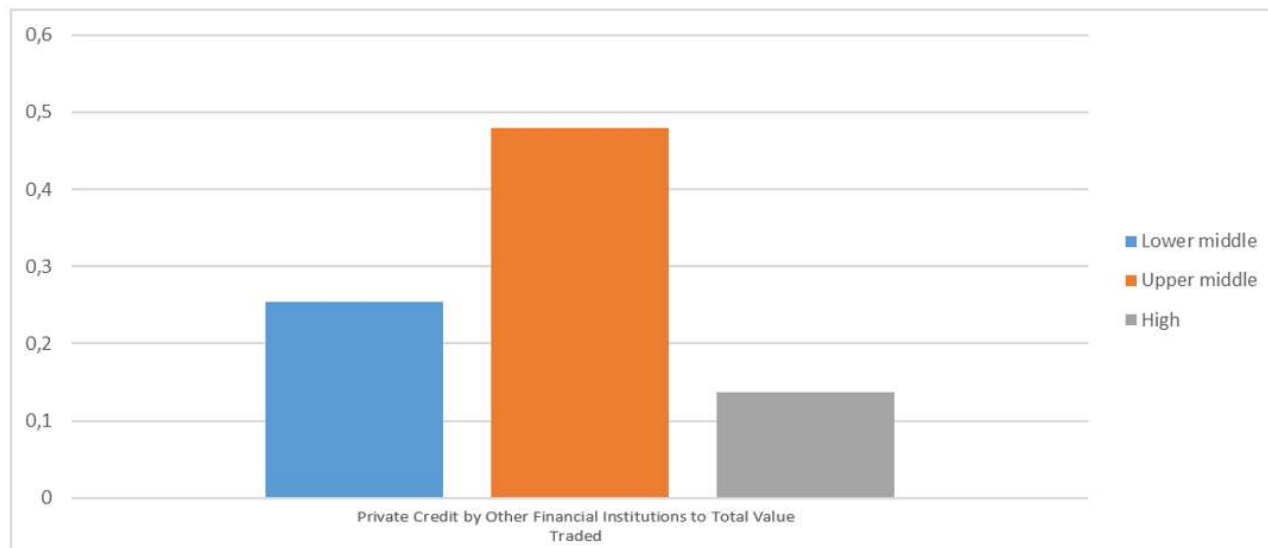


Figure A8: Relative Efficiency of Banks vs Stock Markets

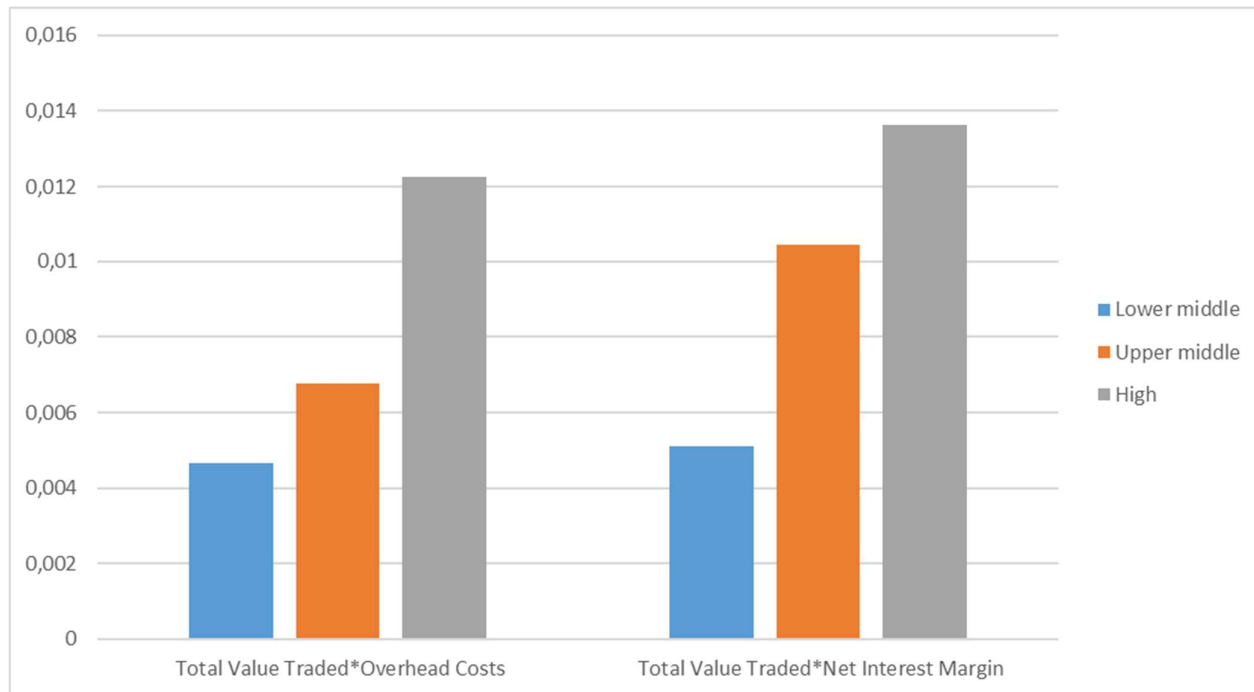
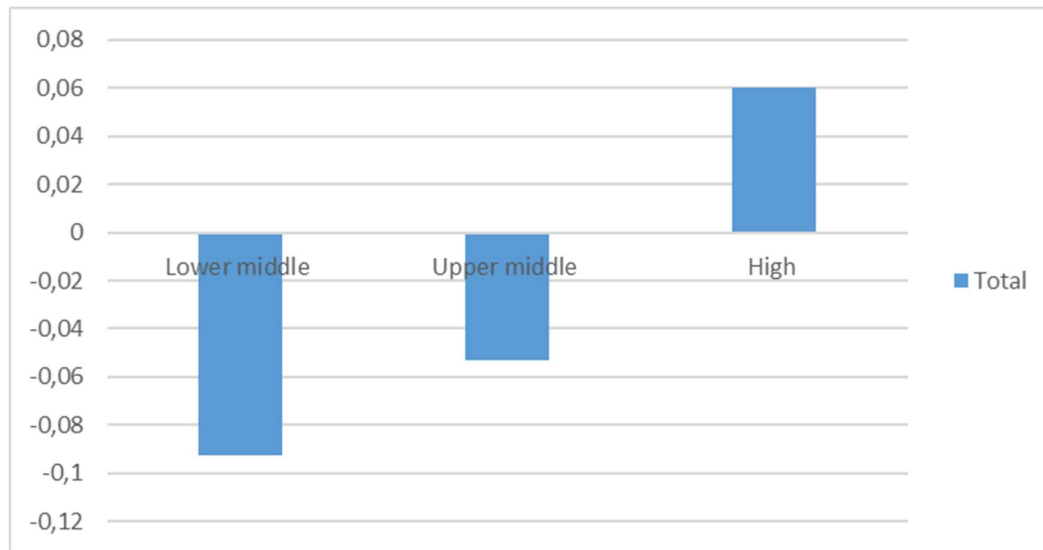


Figure A9: Conglomerate Financial Structure Index



Appendix II

Figure B1: Financial Development of the Banking Sector Across Income Quartiles

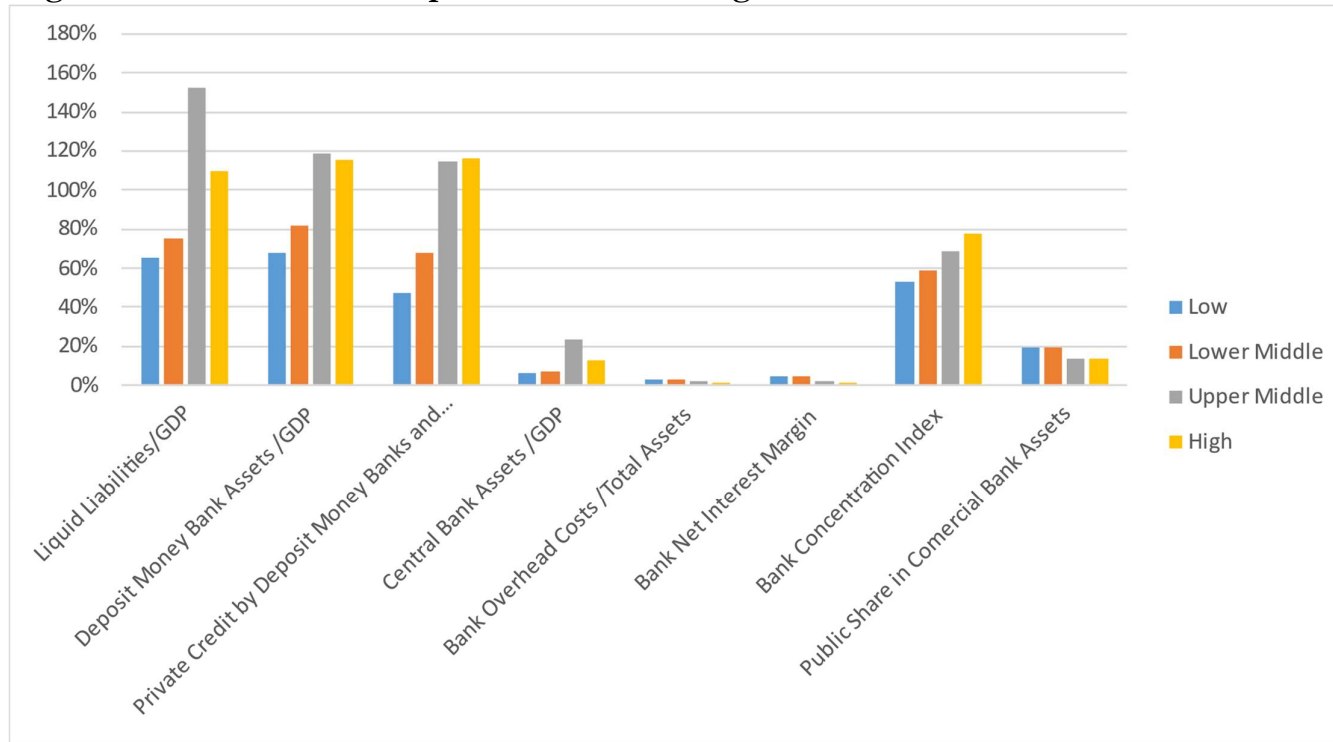


Figure B2: Financial Development of Equity Markets Across Income Quartiles

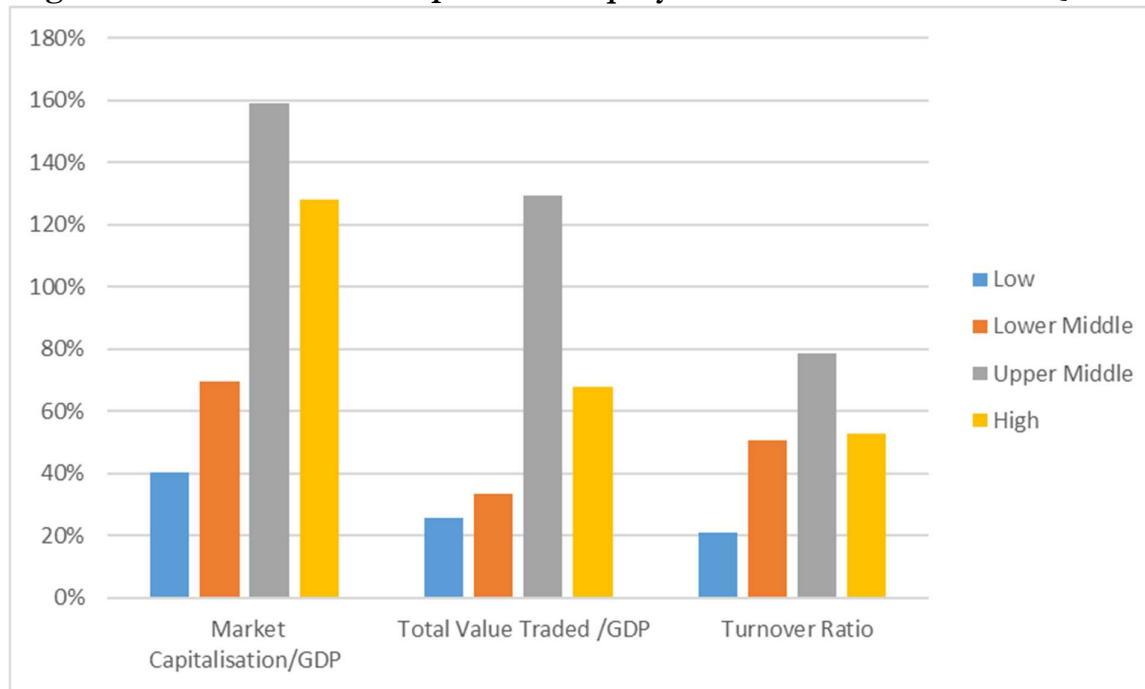


Figure B3: Conglomerate Financial Structure Index Across Income Quartiles

