WPS-2143

POLICY RESEARCH WORKING PAPER   2143

Bank-Based and Market-Based Financial Systems

Cross-Country Comparisons

Aslı Demirgüç-Kunt
Ross Levine

Financial systems tend to be more market-based in higher income countries, where stock markets also become more active and efficient than banks. Financial systems also tend to be more market-based, even after controlling for income, in countries with a common law tradition, strong protection of shareholder rights, good accounting standards, low levels of corruption, and no explicit deposit insurance.

Summary findings

What are the relative advantages and disadvantages of bank-based financial systems (as in Germany and Japan) and market-based financial systems (as in England and the United States). Does financial structure matter?

In bank-based systems banks play a leading role in mobilizing savings, allocating capital, overseeing the investment decisions of corporate managers, and providing risk management vehicles.

In market-based systems securities markets share center stage with banks in getting society's savings to firms, exerting corporate control, and easing risk management.

The unresolved debate about whether markets or bank-based intermediaries are more effective at providing financial services hampers the formation of sound policy advice.

Demirgüç-Kunt and Levine use newly collected data on a cross-section of roughly 150 countries to illustrate how financial systems differ around the world. They (1) analyze how the size, activity, and efficiency of financial systems differ across different per capita income groups, (2) define different indicators of financial structure and identify different patterns as countries become richer, and (3) investigate legal, regulatory, and policy determinants of financial structure after controlling for per capita GDP.

A clear pattern emerges:

• Banks, other financial intermediaries, and stock markets all grow and become more active and efficient as countries become richer. As income grows, the financial sector develops.

• In higher income countries, stock markets become more active and efficient than banks. Thus, financial systems tend to be more market based.

• 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, even after controlling for income.

• Countries with a French civil law tradition, poor accounting standards, heavily restricted banking systems, and high inflation generally tend to have underdeveloped financial systems, even after controlling for income.

BANK-BASED AND MARKET-BASED FINANCIAL SYSTEMS:

CROSS-COUNTRY COMPARISONS

Asli Demirguc-Kunt and Ross Levine*

## I.	INTRODUCTION

Economists have long debated the advantages and disadvantages of bank-based financial systems vis-à-vis market-based systems.[1] This debate has primarily focused on four countries. In bank-based financial systems such as Germany and Japan, banks play a leading role in mobilizing savings, allocating capital, overseeing the investment decisions of corporate managers, and in providing risk management vehicles. In market-based financial systems such as England and the United States, securities markets share center stage with banks in terms of getting society's savings to firms, exerting corporate control, and easing risk management. Some analysts suggest that markets are more effective at providing financial services. Others tout the advantages of intermediaries. The debate is unresolved and hampers the formation of sound policy advice.

There is a major shortcoming with existing comparisons of market-based versus bank-based financial systems; they focus on a very narrow set of countries with similar levels of GDP per capita, so that the countries have very similar long-run growth rates. Thus, if one accepts that Germany and Japan are "bank-based" and that England and the United States are "market-based" and if one recognizes that these countries all have very similar long-run growth rates, then this implies that financial structure did not matter much.[2] To provide greater information on both the economic importance and determinants of financial structure, economists need to broaden the debate to include a wider array of national experiences.

---

[1] See citations and discussion in Allen and Gale (1997) and Levine (1999).

[2] While other differences (e.g., fiscal, monetary, and regulatory policies) could have perfectly balanced the growth effects of differences in financial structure, this seems unlikely. Also, past studies of financial structure do not control for differences in non-financial sector policies.

To expand the debate to a broader cross-section of countries, we need new data. Based on a newly constructed data set, this paper examines financial structure for a cross-section of up to 150 countries. We use simple graphs, correlations, and regressions to illustrate the relationships between financial structure and economic development. Furthermore, we provide empirical evidence on the potential legal, regulatory, and policy determinants of financial structure. This is the first systematic examination of financial structure and economic development for a large cross-section of countries since Goldsmith's (1969) influential book. It should be noted, however, that this paper does not examine whether financial structure – whether the country is bank-based or market-based – exerts a causal influence on economic growth and firm performance. Levine (1999) and Demirguc-Kunt and Maksimovic (1999) conduct these analyses in companion papers. Rather, this paper presents stylized facts concerning the relationship between financial structure and economic development and the links between financial structure and legal, regulatory, and policy determinants for a broad cross-section of countries.

More specifically, we provide international comparisons regarding three issues.

- economic development and bank, nonbank, and stock market development,
- economic development and bank-based versus market-based systems,
- the legal, regulatory, tax, and macroeconomic determinants of financial structure.

To analyze financial structure, we must classify countries as either market-based or bank-based. We construct a conglomerate index of financial structure based on measures of size, activity and efficiency. Specifically, we study ratios of banking sector development (measured in terms of size, activity, and efficiency) relative to stock market development (also measured in

terms of size, activity, and efficiency). Countries with larger ratios are classified as bank-based. Countries where the conglomerate ratio of banking sector development to stock market development is below the mean are classified as market-based. Thus, this grouping system produces two categories of countries: bank-based and market-based.

While a useful starting point, this bivariate classification system presents a number of complications. Uncomfortably, this method identifies countries as bank-based even though their banking systems are poorly developed by international comparisons. This occurs because their stock markets are very underdeveloped by international standards. Similarly, this method identifies countries as market-based even though their markets are underdeveloped by international comparisons because their banks are extremely underdeveloped. Consequently, we develop another grouping system where we first identify countries with highly underdeveloped financial systems. A country's financial system is considered underdeveloped if it has below median values of both bank and market development. This produces three categories of financial structure: underdeveloped, bank-based, and market-based. While this classification system also has problems, it helps in comparing financial structures across a broad cross-section of countries because very underdeveloped financial systems have more in common with each other than with better-developed financial systems that fall into either the bank-based or market-based group. Although we obtain similar results when only considering bank-based versus market-based financial systems, we observe much clearer patterns when we consider three categories of financial structure: underdeveloped, bank-based, and market-based.

We find the following.

- Banks, nonbanks, and stock markets are larger, more active, and more efficient in richer countries. Financial systems, on average, are more developed in richer countries.

- In higher income countries, stock markets become more active and efficient relative to banks. There is some tendency for national financial systems to become more market oriented, as they become richer.

- Countries with a Common Law tradition, strong protection of shareholder rights, good accounting regulations, low levels of corruption, and no explicit deposit insurance tend to be more market-based.

- Countries with a French Civil Law tradition, poor protection of shareholder and creditor rights, poor contract enforcement, high levels of corruption, poor accounting standards, restrictive banking regulations, and high inflation tend to have underdeveloped financial systems.

The rest of the paper is organized as follows. Section II presents evidence on how financial systems differ across income per capita groups. Section III defines financial structure empirically and provides cross-country comparisons. In Section IV, we examine the legal, regulatory, tax, and policy determinants of financial structure. We summarize the findings in Section V.

II. FINANCIAL SYSTEMS DIFFER ACROSS INCOME PER CAPITA GROUPS

There are large differences in financial systems across countries. This section uses newly collected data on a cross-section of up to 150 countries to illustrate how financial systems differ as one compares poorer with richer countries (measured in terms of GDP per capita). While not all measures of financial sector development vary in a systematic way across income groups,

some notable patterns emerge. Namely, financial sector development – as measured by the size,

activity, and efficiency of banks, nonbank financial intermediaries, and equity markets – tends to

be greater in richer countries. The analysis focuses on data collected in the 1990s.[3] We obtain

very similar results when we conduct the analysis over the 1980s, 1970s, or 1960s (data

permitting). The Appendix shows how financial systems differ over time. Beck, Demirguc-

Kunt, and Levine (1999) provide detailed information on data sources.

---

[3] The figures are based on the full sample whereas the tables and correlations only include 63 countries for which we have complete data.

A. Intermediaries

In higher income countries, banks and other financial intermediaries tend to be larger, more active, and more efficient.

Consider four measures. First, *Liquid Liabilities to GDP* equals the ratio of liquid liabilities of bank and non-bank financial intermediaries to GDP. By aggregating the liquid liabilities of a broad range of banks and nonbanks, *Liquid Liabilities to GDP* is a general indicator of the size of financial intermediaries relative to the size of the economy. *Liquid Liabilities to GDP* is frequently used as an overall measure of financial sector development [King and Levine 1993a,b]. Second, *Banks Assets / GDP* equals the ratio of the total domestic assets of deposit money banks divided by GDP. *Banks Assets / GDP* provides a measure of the overall size of the banking sector. Third, *Claims of Deposit Money Banks on Private Sector / GDP* equals deposit money bank credits to (and other claims on) the private sector as a share of GDP. This measure excludes credits to the public sector (central and local governments and public enterprises). By aggregating bank claims on the private sector, *Claims of Deposit Money Banks on Private Sector / GDP* is a general indicator of bank <u>activity</u> in the private sector. Fourth, *Claims of Other Financial Institutions on Private Sector / GDP* focuses on insurance companies, finance companies, pooled investment schemes (mutual funds), savings banks, private pension funds, and development banks. *Claims of Other Financial Institutions on Private Sector / GDP* equals nonbank credits to (and other claims on) the private sector as a share of GDP measures the assets side as a share of GDP. Thus, *Claims of Other Financial Institutions on Private Sector / GDP* provides a broad measure of nonbank activity in the private sector.

After computing these measures of financial intermediary size and activity, we group

countries into low, lower middle, upper middle and high income countries as defined in 1997

World Development Indicators.[4] Based on this ranking of income, we end up with roughly the

same number of countries in each quartile. Then, for each quartile we compute the average value

of the financial intermediary development indicators. Table 1 gives the data for each country.

Figure 1 shows that *Liquid Liabilities to GDP*, *Bank Assets*, *Claims of Deposit Money Banks on*

the Private Sector / GDP, and *Claims of Other Financial Institutions on the Private Sector/GDP*

all rise when comparing richer with poorer groups of countries. These patterns are statistically

significant. The correlations between GDP per capita and *Liquid Liabilities to GDP*, *Bank*

Assets, Claims of Deposit Money Banks on the Private Sector / GDP, and *Claims of Other*

Financial Institutions on the Private Sector/GDP are all significant at the 0.05 level as shown in

Table 2.   In terms of specific countries, Austria, France, Germany, Great Britain, Hong Kong,

Japan, Netherlands, and Switzerland have comparatively large, active banking systems (Table 1).

On the other hand, Argentina, Colombia, Costa Rica, Ghana, Nepal, Nigeria, Peru, Turkey, and

Zimbabwe have particularly small, inactive banking systems. In terms of nonbanks, Japan,

Korea, Netherlands, South Africa, Sweden, and the United States have very large financial

intermediaries (Table 1). Indeed, in the United States, Sweden, and Korea, other financial

intermediaries issue more credit to the private sector than the deposit money banks issue. Also,

note that in richer countries, the direct role of the Central Bank in credit allocation is smaller

(Figure 1 and Table 2).

---

[4] Countries are classified according to their 1995 GNP per capita. Low is $765 or less; lower middle is $766-$3,035; upper middle is $3,036-$9,385; and high is $9,386 or more.

Now, consider two measures of banking sector efficiency. *Overhead cost* equals the ratio of bank overhead costs to the total assets of the banks. While not unambiguous, we interpret lower overhead costs as a sign of greater efficiency. Excessive overhead expenditures may reflect waste and a lack of competition. It should also be recognized, however, that competitive banks may undertake substantial investments to provide high-quality financial services. These productivity-enhancing investments may boost overhead costs. Very low overhead costs, therefore, may reflect insufficient competition and insufficient investment in providing superior banking services. Thus, *Overhead cost* is not an unambiguously clear measure of efficiency.

A second measure of bank efficiency, *Bank Net Interest Margin*, equals the bank interest income minus interest expense over total assets. While many factors influence interest margins, tighter interest margins are frequently viewed as representing greater competition and efficiency. We obtain *Overhead Cost and Bank Net Interest Margin* from bank-level data across eighty countries. For each country, we then compute the average across the individual banks. Figure 1 illustrates that higher income countries tend to have lower average *Overhead cost* and lower average *Bank Net Interest Margin*. The correlations (and P-values) between GDP per capita and *Overhead cost* and *Bank Net Interest Margin* further demonstrate the significant, negative relationship between GDP per capita and bank efficiency (Table 2).

There is not a statistically significant link between bank concentration and GDP per capita. We measure banking sector concentration as share of the assets of the three largest banks in total banking sector assets and call this measure the *Bank Concentration Index*. Figure 1 shows that as we move from lower to higher income countries, bank concentration tends to fall.

This drop in banking sector concentration, however, is not statistically significant as shown in Table 2.

In Table 1 we also report *Foreign Bank Share* and *Public Bank Share* in total assets. Both of these measures decrease as we move to high-income countries (Figure 1). These relationships are also statistically significant as we can see from Table 2.

B. Equity Markets Across Countries

In higher income countries, stock markets tend to be larger, more active, and more efficient.

To measure market size, we use *Market Capitalization as a Share of GDP*, which equals the ratio of the value of domestic equities (that are traded on domestic exchanges) to GDP. To measure market activity, we use *Total Value Traded as a Share of GDP*, which equals the value of the trades of domestic equities on domestic exchanges divided by GDP. *Total Value Traded as a Share of GDP* measures the value of stock transactions relative to the size of the economy. *Total Value Traded as a Share of GDP* is frequently used to gauge market liquidity because it measures trading relative to economic activity [e.g., Levine and Zervos 1998]. Finally, to measure the efficiency of the market, we use the *Turnover Ratio*, which equals the value of the trades of domestic equities on domestic exchanges as a share of the value of domestic equities (that are traded on domestic exchanges). The *Turnover Ratio* is not a direct measure of efficiency. It does not measure trading costs. Rather, the *Turnover Ratio* measures the value of stock transactions relative to the size of the market, and it is frequently used as a measure of market liquidity [Demirguc-Kunt and Levine 1996a].

As shown in Figure 2, *Market Capitalization as a Share of GDP, Total Value Traded as a Share of GDP,* and *Turnover Ratio* rise when we move from the poorest quartile of countries across to the highest quartile of countries. The correlations between GDP per capita and both *Total Value Traded as a Share of GDP* and the *Turnover Ratio* are about 0.4 and significant at the 0.01 level. The correlation between GDP per capita and *Market Capitalization* is almost 0.3 and is significant at the 0.05 level. Stock markets are more developed in richer countries. In terms of individual countries, rankings can depend importantly on the particular measure of stock market development. There are some countries that show-up as well-developed by all measures (Australia, Great Britain, Hong Kong, Malaysia, the Netherlands, Singapore, Sweden, Switzerland, Thailand, and the United States as shown in Table 1). Some countries are large and illiquid, such as Chile and South Africa (Table 1). Other countries have active but small stock markets, especially noteworthy are Korea and Germany.

C. Non-Bank Financial Intermediaries Across Countries

Insurance companies, pension funds, mutual funds, and other non-bank financial intermediaries are larger as a share of GDP in richer countries.

Specifically, we measure credits to the private sector issued by insurance companies, pension funds, pooled investment schemes (mutual funds), development banks, and other non-bank financial institutions. These measures are computed as a share of GDP. Figure 3A shows that each of these measures of non-bank financial intermediary size is larger in richer countries. But, as countries get richer the role of insurance companies, pension funds, and mutual funds rises relative to the role of development banks and other non-banks (Figure 3B).

For the life insurance sector we include an additional size and two additional activity measures (Figure 3C). The size of the life insurance sector, defined as the private credit by life insurance companies as a percentage of GDP, increases with income. The activity measures, life insurance penetration, measured by premiums to GDP, and life insurance density, measured by premiums to population also follow a similar pattern. The high-income countries exhibit a life insurance penetration ten times as high as lower-middle income countries and a life insurance density nearly one hundred times higher than low-income countries.

D. Overall Efficiency

In higher income countries, the overall financial system becomes larger, more active, and more efficient.

Until now, we have focused on either intermediaries or stock markets. Here, we analyze measures of the <u>overall</u> financial system. We consider five measures of overall financial sector development. First, we measure the overall size of the financial system. To do this, we sum the domestic assets of deposit money banks with stock market capitalization and divide by GDP. Rajan and Zingales (1998) use a similar indicator to measure the overall level of financial sector development. As shown in Figure 4, the overall size of the financial sector rises sharply with GDP per capita, and the correlation is significant at the 0.01 level (Table 4).

Next, we consider four measures of overall financial sector development, where we "mix-and-match" different measures of stock market and banking development. We use both *Turnover* and *Total Value Traded / GDP* to measure stock market liquidity, such that we interpret higher levels as indicating more efficiently operating equity markets. For gauging

stock market development on an economy-wide basis, we prefer the *Total Value Traded / GDP*

measure to the *Turnover* ratio. *Total Value Traded / GDP* measures trading relative to the size of

the economy, where as *Turnover* measures trading relative to the size of the market. Thus, a

small active market may have high *Turnover* and low *Total Value Traded / GDP*. Since we are

seeking to measure the ease of trading ownership of a country's firms, *Total Value Traded / GDP*

measures this more directly. Nonetheless, we provide the results using both. Similarly, we use

both *Overhead Cost* and *Bank Net Interest Margin* to measure banking sector inefficiency. Here,

we interpret higher levels as indicating less efficiently operating banks. Thus, we construct four

measures of overall financial sector development by dividing each of the stock market indictors

by each of the banking sector inefficiency measures.

The results using measures of the overall efficiency of the financial sector are plotted in

Figure 4, where the countries are broken-up into income quartiles. As shown, richer countries

tend to have more efficient financial systems and the positive relationship is economically

significant at the 0.05 significance level for all of the measures (Table 4). Some countries stand

out in terms of overall financial sector efficiency. In particular, Malaysia, Hong Kong,

Singapore, the Netherlands, Japan, Thailand, Korea, Great Britain, the United States,

Switzerland, and Australia are ranked very highly by our two preferred measures of overall

financial sector efficiency (those based on the stock market indicator, *Total Value Traded / GDP,*

and the two bank efficiency measures *Overhead Cost* and *Bank Net Interest Margin*).

III. FINANCIAL STRUCTURE: COMPARISONS AND DEFINITIONS

We now turn to financial structure. Above we showed that intermediaries and stock markets tend to be larger, more active, and more efficient in countries with higher levels of GDP per capita. This section focuses on banks <u>relative</u> to stock markets. First, we examine patterns across countries in the size, activity, and efficiency of banks relative to stock markets. Second, we attempt to classify countries as having market- or bank-based financial systems using data available for a broad cross-section of countries. This section emphasizes the difficulties in using any single measure of financial structure. Then we construct a conglomerate index of financial structure and make the classification based on this index. Furthermore, we also distinguish among economies with underdeveloped and developed financial systems. This provides additional information about financial structure, i.e., if a particular bank-based (market-based) system has banks (markets) that can be considered developed by international standards. For example, both Germany and Pakistan are classified as bank-based systems, but in Pakistan banks cannot perform the functions expected of a bank-based system because they are not as well developed as German banks. Similarly, the United States and the Philippines are both market-based systems, but the markets in the Philippines are not as effective at providing financial services. Indeed, when we look at determinants of financial structure we see countries like Pakistan and the Philippines have more in common with each other than their respective bank-based and market-based counterparts.

A. Size

In higher income countries, banks do not become larger or smaller relative to the size of domestic stock markets. Consider measures of financial structure based on size. Specifically, *Bank vs Capitalization* equals the domestic assets of deposit money banks relative to domestic stock market capitalization (i.e., *Bank vs Capitalization* equals *Bank Assets* divided by *Market Capitalization*). As in earlier figures, Figure 5 graphs *Bank vs. Capitalization* by income quartile. The first bar in the figure lists the average level of *Bank vs Capitalization* for the low-income countries. As shown, there is not a strong relationship between income level and the size of domestic bank assets relative to the size of the domestic stock market.

Now consider how *Bank vs Capitalization* classifies particular countries as having bank-based versus market-based financial structures. This relative size measure is given in Table 5, which ranks countries from lowest to highest based on *Bank vs Capitalization*. There is a large range, from 0.40 (South Africa) to 10.24 (Austria). Consider the ten countries that have the largest markets relative to the size of the banks. These include the United States, Sweden, Hong Kong, Singapore, and Malaysia, which many observers classify as market-based. However, the *Bank vs Capitalization* measure classifies Jamaica, Mexico, and the Philippines as market-based. It does this primarily because banks are very small and under-developed in these countries, not because their stock markets are particularly well developed. Indeed, Mexico's stock market capitalization ratio is below the sample mean. Similarly, the *Bank vs Capitalization* measure identifies Chile and South Africa as market-based even though not much trading is done on their stock markets as noted below.

At the other end of the bank- versus market-based range, we find the same issues. Consider the ten countries that have the largest banks relative to the size of domestic stock markets. The relative size measure of financial structure identifies Austria, Panama, Portugal, Tunisia, and Germany as bank-based. However, the *Bank vs Capitalization* measure also classifies Bangladesh, Egypt, and Iran as bank-based. Again, these are classified as bank-based primarily because their stock markets are very small and under-developed, not because their banks are particularly well developed. Specifically, Bangladesh, Egypt, and Iran have banks that are smaller as a share of GDP than the sample mean. Thus, while the relative size measure provides useful information about the relative size of banks versus stock markets, it has obvious limitations. Notably, if a country has a large value of the *Bank vs Capitalization* measure, this does not necessarily indicate that it has a well-developed banking system relative to the banking systems of other countries. Similarly, if a country has a very low value of the *Bank vs Capitalization* measure, this does not necessarily indicate that it has a well-developed equity market relative to the equity markets of other countries.

We also examined banks relative to nonbank financial intermediaries. Specifically, we constructed a measure of the size of banks relative to the size of nonbanks called *Bank vs Other Financial Institutions*, which equals the domestic assets of deposit money banks divided by domestic assets of other financial intermediaries. We can see from Figure 5 and Table 6 that there is not a strong tendency for banks to grow or shrink relative to nonbanks when moving across income quartiles.

B. Activity

In higher income countries, domestic stock markets tend to become more active relative to domestic banks. To measure financial structure based on activity, consider the ratio of private credit by deposit money banks relative to the total value of stock transactions on domestic exchanges, and call this ratio *Bank Credit vs Trading*. The *Bank Credit vs Trading* measure of financial structure will be larger in countries where banks are actively engaged in funneling credit to the private sector relative to the value of trading on domestic stock markets. Figure 6 shows that richer groups of countries tend to have lower values of the ratio *Bank Credit vs Trading* measure of financial structure; countries tend to become more market-based as they grow richer. Similarly, stock markets also tend to become more active relative to nonbank financial intermediaries as indicated in the same figure.

Now, lets consider individual country rankings using the relative activity measure of banks versus markets. The relative activity measure of financial structure (*Bank Credit vs Trading*) yields a somewhat different classification of countries than the relative size measure (*Bank vs Capitalization*). Table 7 ranks countries from lowest to highest based on the *Bank Credit vs Trading* measure of financial structure. Values range from 0.7 to 196, though the extremely high values correspond to countries where there is virtually no trading on their stock exchanges. Consider the ten countries that have the least active banks relative their markets. These include the United States, Sweden, Hong Kong, Singapore, and Malaysia, which were also classified as market-based by the size measure of financial structure (*Bank vs Capitalization*). The relative activity measure also classifies Korea as market-based. Korea has an active, though not very large, stock market and over the last fifteen years nonbanks have played an increasingly large role, so that deposit money bank credit to the private sector is not a very large share of

GDP. The relative activity measure, *Bank Credit vs Trading*, also classifies Turkey, Mexico, and Brazil as market-based. This occurs because banks are very inactive and under-developed in these countries, not because they have active stock markets. Indeed, *Trading* in these countries is less than the sample average. Also, note that Chile and South Africa no longer enter as market-based. These two countries have large, but relatively inactive stock exchanges.

The *Bank Credit vs Trading* measure of financial structure faces even greater problems in identifying bank-based financial systems because a large number of countries have very inactive stock markets, which boosts the *Bank Credit vs Trading* measure as shown in Table 7.[5] To mitigate this problem, consider only countries where bank credit to the private sector relative to GDP is greater than the sample mean. Then, the relative activity measure of financial structure identifies Panama, Tunisia, Cyprus, Austria, Portugal, Cyprus, Belgium, Italy, and Finland as bank-based, which is consistent with our expectations. Thus, while the relative activity measure provides useful information about the relative activity of banks versus stock markets, it also has specific limitations. As with the relative size measure, if a country has a large value of the *Bank Credit vs Trading* measure, this does not necessarily indicate that it has a very active banking system relative to the banking systems of other countries.

We also compared stock markets with nonbank financial intermediaries. Specifically, we constructed a measure of the activity of stock markets relative to nonbank financial intermediaries. The activity of nonbanks relative to the activity of the stock market is called *Other Financial Institutions vs Trading*, which equals private credit of nonbanks divided by the

---

[5] Specifically, Cyprus, Egypt, Honduras, Zimbabwe, Panama, Barbados, Costa Rica, Nepal, Iceland, Tunisia, Bangladesh, Kenya, Mauritius, Iran, and Trinidad and Tobago, Ecuador, and Colombia have high values of *Bank Credit vs Trading* because the value of domestic stock transactions sums to less than two percent of GDP.

value of stock transactions. We see from Figure 6 and Table 8 that nonbanks tend to shrink relative to stock market activity when moving to higher income quartiles.

C. Efficiency

In higher income countries, domestic stock markets tend to become more efficient relative to domestic banks. To measure financial structure based on efficiency, we focus on two measures of market- versus bank-based financial structures. For markets, we concentrate on the value of stock market transaction relative to the size of the economy (*Total Value as Share of GDP*). We do not use the *Turnover* ratio to avoid classifying countries with active, but small, markets as market-based. To classify a country as market-based, we want them to have a large and an active stock market relative to their banking system. For banks, we use two measures: *Overhead Cost* and *Bank Net Interest Margin*. Thus, we focus on two measures of financial structure base on efficiency: (1) *Trading vs Overhead Cost*, which equals *Total Value Traded / GDP* multiplied by *Overhead Cost*; and (2) *Trading vs Interest Margin*, which equals *Total Value Traded / GDP* multiplied by *Bank Net Interest Margin*.

Figure 7 shows that richer countries tend to have higher levels *Trading vs Overhead Cost* and *Trading vs Interest Margin*. According to these relative efficiency measures of financial structure, countries tend to become more market-based as they grow richer.

Turning to specific countries, the *Trading vs Interest Margin* and the *Trading vs Overhead Cost* measures of financial structure identify nine countries that (i) have very high values, which signifies market-based economies and (ii) have *Total Value Traded / GDP* values greater than the sample mean (Tables 9 and 10). Thus, Malaysia, Hong Kong, the United States,

Singapore, Great Britain, Switzerland, Sweden, Thailand, and Korea have active stock markets relative to their banks <u>and</u> relative to world markets. While the *Trading vs Interest Margin* and the *Trading vs Overhead Cost* measures of financial structure also classify Brazil and Turkey market-based, these markets are not very active. Specifically, *Total Value Traded / GDP* in Brazil and Turkey are below the sample mean.

In terms of classifying countries as bank-based, we again run into the problem that many countries have very inactive markets. Thus, the *Trading vs Interest Margin* and the *Trading vs Overhead Cost* measures of financial structure classify these countries as bank-based even when their banking system are not very well-developed. Thus, to identify bank-based countries we again use two-step criteria. If (i) both *Trading vs Interest Margin* and the *Trading vs Overhead Cost* measures of financial structure have very low values, which signifies bank-based economies and (ii) the country has a *Private Credit of Deposit Money Banks / GDP* value of grater than the sample mean, we consider the country bank-based. These criteria identify Panama, Tunisia, Cyprus, Portugal, Belgium, Austria, Italy, Jordan, Norway, and Japan as bank-based financial systems.

D. Conglomerate Indexes of Financial Structure

In higher income countries, financial systems tend to be more market-based. This subsection constructs a conglomerate index of financial structure based on measures of size, activity, and efficiency. Since (1) measures of relative size, activity, and efficiency place countries into slightly different places along market-based versus bank-based spectrum and (2) there is little reason to favor one particular measure of financial structure over another, this subsection merges three different measures to produce a conglomerate index of financial structure. Specifically, after removing the means of each series, we take the average of *Capitalization vs Bank*, *Trading vs Bank Credit*, and *Trading vs Overhead Cost* and call the result, *Structure*. Higher values of *Structure* signify a higher degree of stock market development relative to the development of the banking system. We also conducted the analysis using the means-removed average of *Capitalization vs Bank*, *Trading vs Bank Credit*, and *Turnover vs Overhead Cost* and obtained virtually identical rankings and results.

Figure 8 shows that richer countries tend to have higher levels of stock market development relative to the development of their banking systems. The correlation between *Structure* and real per capita GDP is .29 and is significant at the 0.05 level.

Even with this conglomerate index, however, we observe some problems with classifying countries as market-based or bank-based (Table 11). For example, *Structure* classifies Turkey as market-based since the value of Structure for Turkey is in the top ten countries. Yet, Turkey has below average measure of stock market development, as measured by the *Total Valued Traded / GDP* ratio. As we saw above, some countries are classified as market-based because they have poorly developed banks. The same is true at the other end of the spectrum. *Structure*

classifies Bangladesh, Nepal, Costa Rica and Honduras as bank-based because the value of

Structure for these countries is in the bottom 10 of the sample. Yet, each of these countries has

below average values of most of the banking sector development indicators. There may be

potential advantages to considering a country as bank-based only if it has well-developed banks

relative to other countries *and* if its banks are well-developed relative to its markets.

E. Financial Structure in Developed vs. Underdeveloped Financial Systems

**Measures of financial structure produce intuitively plausible classifications of
countries as either bank-based or market-based for both financially developed and
underdeveloped economies.**

This subsection creates four categories of countries based on the structure and level of

development of their financial systems. The four categories are (1) underdeveloped and bank-

based, (2) underdeveloped and market-based, (3) developed and bank-based, and (4) developed

and market-based. We do not use a simple bank-based, market-based classification since we

want to avoid classifying two countries in the same bank-based category if one has poorly

developed banks by international standards. Similarly, we want to avoid classifying countries in

a single market-based category when some have poorly developed markets by international

standards. Therefore, we distinguish countries that have underdeveloped financial systems from

those that have developed systems. We define a country as having an underdeveloped financial

system if both of the following hold: (1) *Claims of Deposit Money Banks on the Private Sector /*

GDP is less than the sample mean and (2) *Total Value Traded as a Share of GDP* is less than the

sample mean, as reported at the foot of Table 1. Thus, we only classify a country's financial

system as underdeveloped if it has poorly developed banks and markets.

Market-based vs. bank-based split is determined by the *Structure* index. Using the *Structure* measure of financial structure, Table 11 ranks countries along the spectrum from bank-based to market-based, where higher values of *Structure* indicate higher levels of stock market development relative to banking sector development. Countries that have above the mean values of *Structure* are then classified as market-based. Countries that have below the mean values of *Structure* are classified as bank-based.

Table 12 lists the four categories of countries. As shown, this simple classification system produces intuitively appealing results. For instance, developed economies such as Austria, Belgium, France, Germany, Italy, Japan, Portugal, and Spain are classified as bank-based. Three developing countries are also classified as financially developed and bank-based: Panama, Tunisia, and Jordan. This classification system also identifies economies with large, active stock markets. For example, Great Britain, Hong Kong, Malaysia, Singapore, United States, and Switzerland are each identified as having market-based financial systems. Interestingly, Korea, which many authors consider to be dominated by large banks [e.g., Park 1993], is also identified as having a market-based financial system. Korea is classified as market-based because it has a very active, efficient equity market, as reflected in high *Turnover* and *Total Valued Traded / GDP* ratios (Table 1). Also, nonbanks play a substantial role. Indeed, nonbanks issue more credit to the private sector than banks in Korea. Thus, while intermediaries play a relatively large role in Korea, nonbanks share center stage with banks (Table 1).

Looking at financially underdeveloped economies, we see that they are disproportionately bank-based as expected, since financial structures become more market-based as countries develop. The classification of countries like Chile, Mexico, Turkey and the Philippines as

market-based reflects the significant development of their stock markets since the second half of 1980s. Other countries like Bangladesh, Nepal, Kenya and Costa Rica remain bank-based since their stock markets are not yet developed. Yet other countries like India, Indonesia and Pakistan have seen some development of their stock markets, but are classified as bank-based because their banks still play a more important role in their financial systems. [6]

---

[6] As a robustness check, we combined *Private Credit by Deposit Money Banks* with *Private Credit by Other Financial Intermediaries* to create an overall measure of financial intermediary development. We want to evaluate whether the inclusion of nonbanks materially influences the classification of countries. After re-doing the above analysis with this financial intermediary variable, we find few changes. Panama, Portugal, Belgium and Italy were classified as bank-based but underdeveloped systems. Canada, Sweden, Thailand and South Africa were classified as intermediary-based rather than market-based systems. Finally, Ireland was classified as intermediary-based but developed rather than underdeveloped.

IV. THE LEGAL, REGULATORY, TAX AND MACROECONOMIC DETERMINANTS OF FINANCIAL STRUCTURE

A rich literature examines how features of the legal, regulatory, tax, and macroeconomic environment influence financial contracting and the functioning of intermediaries and markets. This paper collects cross-country information on many of the legal, regulatory, tax and macroeconomic determinants of financial development proposed by the literature. We then examine whether countries with different financial structures have different legal, regulatory, tax, and macroeconomic characteristics. We find the most significant differences in means exist between underdeveloped (regardless of bank-based or market-based), developed bank-based, and developed market-based financial systems. For brevity, we name these categories underdeveloped, bank-based and market-based, respectively. We also examine the correlations between these potential determinants and the three categories and the financial structure index. Finally, we use simple regressions that control for the level of real per capita GDP to assess the relationship between the legal, regulatory, tax, and macroeconomic variables and measures of financial structure. Caution, however, should be exercised in interpreting the results. We use the word "determinant" because theory and past work suggests that these variables exert a causal influence on the functioning of the financial system. We do not, however, provide any statistical evidence on causation. We simply present summary statistics.

A. The Legal Environment

LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998, henceforth LLSV) explain how countries with different legal origins develop distinct laws governing debt and equity contracts. Specifically, legal scholars have identified four major legal "families:" English Common Law,

French Civil Law, German Civil Law, and Scandinavian Civil Law. Legal systems spread

primarily through conquest and colonization. These legal families treat equity and debt

contracting differently. The consequent differences in the contracting environment have had

profound implications on the evolution of intermediaries and securities markets as demonstrated

by LLSV (1997, 1998), Levine (1998, 1999a,b), Levine, Loayza, Beck (1999), and Maksimovic

and Demirguc-Kunt (1998). Here, we use LLSV measures of the legal environment.

1. *legal origin*

Common Law countries are more likely to have market-based financial systems

than countries with other legal origins. Underdeveloped financial systems are more likely

to have French Civil Law legal systems than other legal origins.

In terms of legal origin, LLSV focus on the difference between countries that have

Common Law origins and countries with a French Civil Law tradition. LLSV show that

Common Law countries tend to stress the rights of minority shareholders with beneficial

implications for securities market development [LLSV 1997]. In contrast, countries with a

French legal tradition do not emphasize the rights of minority shareholders with adverse effects

on the functioning of equity markets [Levine 1999b]. In terms of debt contracts, legal systems

that stress creditor rights tend to generate beneficial repercussions for financial intermediary

development [Levine 1998, 1999; Levine, Loayza, Beck 1999]. The few countries with German

Legal foundations tend to stress the rights of creditors to a much greater degree than other

countries [LLSV 1998]. LLSV (1998) also shows that countries with a French Legal tradition

tend to have comparatively inefficient contract enforcement and higher levels of corruption with

negative repercussions for financial sector performance.

We first examine the relationship between legal origin and the structure of the financial system. To do this, we create the dummy variable English that takes on the value of one if the country has a Common Law legal tradition. We also create the dummy variable French, which equals one if the country has French Civil Law origins. We do not focus on German Civil Law and Scandinavian Civil Law countries because there are relatively few and because the main distinctions are between the Common Law and French Civil Law countries [LLSV 1998]. Table 13 divides countries into those with underdeveloped, bank-based, and market-based financial systems. It then presents the average values of the legal, regulatory, tax, and macroeconomic determinants and tests whether there are significant differences in the means of these determinants across the different financial structures. [7] Table 14 presents simple correlations. Underdeveloped, Bank, Market in Table 14 are simple dummy variables taking the value 1 if a country is classified as an underdeveloped, bank-based, or market-based economy, respectively. Structure is the structure index reported in Table 11. Finally, Table 14 also presents evidence on the partial correlation between the financial structure variables and the determinants after controlling for the level of GDP per capita.

Countries with market-based financial systems are much more likely to have Common Law origins than underdeveloped or bank-based systems. Similarly, Common Law countries tend to have market-based financial systems even after controlling for the level of GDP per capita. Underdeveloped and bank-based financial systems are more likely to have French legal

---

[7] The 4-way split in Table 12 or a 2-way bank-based vs. market-based split without taking into account financial development do not produce significant results. Differences in means become significant only if we analyze underdeveloped countries as a single group. Thus we look at differences among underdeveloped and (developed) bank-based and (developed) market-based financial structures. However, this classification is less important when we look at correlations, since correlations with the continuous structure index also produce consistent results.

origins than market-based systems and there is a positive correlation between French Civil Law countries and underdeveloped financial systems.

2. *legal codes*

Countries with legal codes that rigorously protect the rights of minority shareholders tend to have market-based financial systems. Countries with legal codes that stress the rights of creditors and shareholders are much less likely to have underdeveloped financial systems.

We now examine the relationship between particular legal codes and financial structure. Here we use two variables. SRIGHTS is LLSV's (1998) index of the degree to which the legal codes of the country protect monetary shareholder rights.[8] LLSV (1998) note that to the extent that a country's laws help potential shareholders feel confident about their property and voting rights, this should be reflected in larger, more active, and hence more efficient equity markets. LLSV (1997) and Levine (1999b) confirm this hypothesis. The second variable, CRIGHTS is an index of the degree to which the legal codes of the country protect purchasers of debt contracts, which is also based on the LLSV (1998) database.[9] If the legal environment makes banks confident about their claims, this should encourage the development of an active banking sector.

---

[8] Shareholder rights, SRIGHTS, is an index which is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample mean); or (6) shareholders have preemptive rights that can only be waved by a shareholders' vote. The index ranges from 0 to 6.

[9] CRIGHTS is an index aggregating different creditor rights. The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the

Market-based economies tend to have much stronger shareholder rights than either bank-based or underdeveloped financial systems (Table 13). Table 14 also shows that there is a significant positive correlation between market-based systems and the strength of shareholder rights protection even after controlling for the level of GDP per capita. In terms of creditor rights, however, there is little difference between bank-based and market-based financial systems. Note, however, that countries with legal systems that stress the rights of creditors tend not to have underdeveloped financial system after controlling for differences in GDP per capita.

3. *enforcement*

Poor contract enforcement goes hand-in-hand with underdeveloped financial systems, contract enforcement is not strongly linked with whether a country's financial system is bank-based or market-based.

Laws are important, but the enforcement of those laws is frequently more important for financial development [LLSV 1998]. We use an index of contract enforcement that measures whether the country's laws are efficiently and impartially enforced and whether governments tend to change the nature of contracts ex post.[10] Higher values of ENFORCE indicate greater efficiency in enforcing contracts. Improved contract enforcement lowers transactions costs and should facilitate equity and debt contracting [LLSV (1997, 1998) and Levine (1999a,b)]. There are not good a priori reasons to believe that efficient contract enforcement will favor debt or equity contracting relative to the other.

---

disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4.

[10] This enforcement variable, ENFORCE, averages the contract risk and law and order variables collected by LLSV (1998) as discussed in Levine (1998).

Countries with underdeveloped financial system are much likely to have low levels of contract enforcement. (Table 13). There is little difference between bank-based and market-based financial systems in terms of contract enforcement. The strong negative connection between the efficiency of contract enforcement and the degree of overall financial sector development holds even after controlling for differences in income per capita (Table 14).

4. *corruption*

There is a strong positive link between corruption and financial underdevelopment. Countries with lower levels of corruption tend to have more market-based financial systems.

Corruption, if it exists, can severely undermine enforcement of legal codes. We use an index of corruption, CORRUPT, which measures corruption in government (LLSV, 1997). Lower scores indicate that government officials are likely to demand special payments in the form of bribes throughout all levels of government.

Countries with underdeveloped financial systems are much more likely to have high levels of corruption in government (Table 13). To the extent that corruption reflects poor enforcement of legal codes, countries with poorly operating legal systems tend to have less well-developed financial systems.

Corruption tends to hurt development of markets disproportionately since well-enforced shareholder rights are essential for market-based financial systems. Indeed, lower levels of corruption are correlated with more market-based financial structures (Table 14).

B. Regulatory Environment

Government regulations and guidelines materially affect the functioning of the financial sector. Through listing requirements, regulations, policies, and tax laws, governments influence accounting practices, permissible practices of banks, and deposit insurance. Each of these strategies may affect the operation of banks and markets. The section empirically examines accounting standards and bank regulations.

1. accounting

Countries with strong accounting standards tend to have market-based financial systems and are unlikely to have underdeveloped financial systems.

Information about corporations is critical for exerting corporate governance and making investment decisions. Accounting standards that simplify the interpretability and comparability of information across corporations will facilitate financial contracting. Furthermore, financial contracting that use accounting measures to trigger particular actions can more usefully be used with effective accounting standards. Governments impose an assortment of regulations regarding information disclosure and accounting standards. This paper examines a measure of the quality of information disclosed through corporate accounts from LLSV (1998).

ACCOUNT is an index of the comprehensiveness of company reports. The maximum possible value is 90 and the minimum is 0. The Center for International Financial Analysis and Research assessed general accounting information, income statements, balance sheets, funds flow statement, accounting standards, and stock data in company reports in 1990.

Underdeveloped financial systems are much less likely to have high accounting standards. (Table 13). Furthermore, the positive relationship between financial development and

accounting standards holds even after controlling for the level of real per capita GDP. Finally, comprehensive, high-quality information about firms is very strongly correlated with market-based systems. Thus, the easy availability of good, comparable corporate financial statements is particularly important for the operation of equity markets.

2. *bank regulations*

Countries with regulations that restrict the rights of banks to engage in securities market activities, real estate, and insurance are more likely to have underdeveloped financial systems.

This section uses data on allowable nontraditional activities of banks from Barth, Caprio, and Levine (1998). We consider the degree to which a country's regulatory system allows banks to engage in the following four nontraditional activities:

- **Securities**: the ability of banks to engage in the businesses of securities underwriting, brokering, dealing, and all aspects of the mutual fund business.

- **Insurance**: the ability of banks to engage in insurance underwriting and selling.

- **Real Estate**: the ability of banks to engage in real estate investment, development and management.

- **Nonfinancial Firm Ownership**: the ability of banks to own and control nonfinancial firms.

After assessing each country's regulations, a number between one and four was assigned to each activity – Securities, Insurance, Real Estate, and Nonfinancial Firm Ownership. The assigned numbers are interpreted as follows: one -- indicates "unrestricted": banks can engage in the full range of the activity directly in the bank; two -- indicates "permitted": the full range of those activities can be conducted, but all or some of the activity must be conducted in

subsidiaries; three -- indicates "restricted": banks can engage in less than full range of to activity, either in the bank or subsidiaries; four -- indicates "prohibited": the activity may not be conducted by the bank or subsidiaries.

RESTRICT is a summary index of overall regulatory restrictiveness. RESTRICT equals the average value of Securities, Insurance, Real Estate, and Nonfinancial Firm Ownership, so that RESTRICT takes on values between 1 (least restrictive) and 4 (most restrictive). The average value of RESTRICT is 2.2, with a standard deviation of 0.6. The United States has a value of 3.

As shown in Table 13, countries with underdeveloped financial systems tend to have much greater restrictions on the activities of their banks. The negative relationship between regulatory restrictiveness and financial sector development holds after controlling for the level of GDP per capita at the 0.05 significance level (Table 14). Thus, while Barth, Caprio, and Levine (1998) show that greater restrictiveness tends to increase the fragility of the banking system, this paper shows that greater restrictiveness is also associated with a generally underdeveloped financial system.

3. *deposit insurance*

Countries with explicit deposit insurance systems are less likely to have market-based financial systems.

Explicit deposit insurance systems may increase confidence that the general public has in the formal banking system. This may allow easier entry of new banks and operation of smaller banks that have reputation disadvantages.

To assess if there is any link between deposit insurance and financial structure we use *deposit insurance,* a dummy variable that takes on the value one for countries with explicit

deposit insurance and zero for those that do not. As shown in Table 13, countries with explicit deposit insurance are most likely to have bank-based financial systems and least likely to have market-based systems. Although the correlation between bank-based financial systems and explicit deposit insurance is not significant, the negative correlation between market-based systems and deposit insurance holds when we control for differences in income per capita.

C. Taxes

There is not a strong link between financial structure and tax distortions favoring either dividends or capital gains relative to interest income.

We consider two tax variables. *Dividend Disadvantage* equals the degree to which the tax laws discriminate against dividend income relative to interest income.[11] Higher values signify greater tax disadvantage for dividend income. *Capital Gains Disadvantage* equals the degree to which the tax system discriminates against capital gains income relative to interest income.[12] As shown in Table 13, we could not find a strong link between the tax distortions and financial structure.

---

[11] Assuming that marginal investor is a private individual who is sufficiently wealthy to be paying personal income taxes at the highest rate, dividend disadvantage equals the extent to which net income per $1 of dividends is less than net income from $1 of interest income.

[12] Assuming that marginal investor is a private individual who is sufficiently wealthy to be paying personal income taxes at the highest rate, capital gains disadvantage equals the extent to which net income per $1 of capital gains is less than net income from $1 of interest income.

D. Macroeconomy

High-inflation economies are much more likely to have underdeveloped financial systems, but inflation is not strongly linked with whether a country's financial system is bank-based or market-based.

Macroeconomic instability may importantly distort and complicate financial contracting. Huybens and Smith (1999) show theoretically and Boyd, Levine, and Smith (1999) confirm econometrically that higher levels of inflation produce smaller, less active, and less efficient banks and markets.[13] This subsection examines the relationship between financial structure and inflation. As shown in Table 13, economies with underdeveloped financial systems tend to have higher inflation rates than either bank-based or market-based systems. Inflation, however, is not significantly different in bank- versus market-based systems. The correlation table confirms this. Inflation is positively correlated with financial underdevelopment even after controlling for the level of GDP per capita, but no significant inflation rate differences exist between bank-based and market-based systems.[14]

V. CONCLUSIONS

In this paper we used newly collected data on a cross-section of up to 150 countries to illustrate how financial systems differ around the world. In providing the first systematic

---

[13] Boyd, Levine, and Smith (1999) highlight the nonlinear relationship between inflation and financial sector performance.

[14] We also investigated the linkages between financial structure and growth in GDP per capita, existence of black market premium, and equality of income distribution. There is no correlation between black market premium and financial structure. While there is some indication that countries with more equal income distribution and higher growth are more likely to have market-based financial structures, the statistical significance of these results is low.

examination of financial structure and economic development since Goldsmith's 1969 seminal book, we had three goals. First, we analyze how the size, activity, and efficiency of financial systems - banks, other financial institutions and stock markets - differ across different income per capita groups. Second, we define different indicators of financial structure - financial intermediaries relative to markets - and look for patterns as countries become richer. Third, we investigate legal, regulatory, and policy determinants of financial structure after controlling for the level of GDP per capita.

Looking at financial systems across different income groups, a clear pattern emerges. Banks, other financial intermediaries, and stock markets all get larger, more active and more efficient as countries become richer. Thus, financial sector development tends to be greater at higher income levels.

Next, we analyze differences in financial structure across different income groups. We see that size measures of financial structure do not follow a clear pattern, as countries become richer. However, patterns do emerge when we look at activity and efficiency indicators. In higher income countries stock markets become more active and more efficient relative to banks. Using an aggregate index of financial structure we see that in higher income countries financial systems tend to be more market-based.

We then classify countries as market-based or bank-based using this aggregate index of financial structure. To avoid classifying a country as bank-based (market-based) when it has poorly developed banks (markets) by international standards, we also distinguish those countries with underdeveloped financial systems from those with developed financial systems. We

identify a country to have an underdeveloped financial system, if it has both poorly developed banks and markets.

Finally, we analyze legal, regulatory, tax and macroeconomic determinants of financial structure by looking at correlations and simple regressions that control for the level of real GDP per capita. We see that 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, even after controlling for income. On the other hand, countries with a French Civil Law tradition, poor protection of shareholder and creditor rights, poor contract enforcement, high levels of corruption, poor accounting standards, heavily restricted banking systems, and high inflation tend to have underdeveloped financial systems in general, even after controlling for income.

In this paper our goal has not been to test specific hypotheses rigorously. Rather, our objectives have been to compile and compare different indicators of financial structure, make an initial attempt at identifying certain interesting patterns and highlight suggestive correlations. We hope the most important contribution of this paper will be to stimulate additional research in the area of financial structures and economic development.

APPENDIX: FINANCIAL SYSTEMS EVOLVE OVER TIME

A. Intermediaries Across Time

This section examines the evolution of financial systems across time. In the case of banks, data exist from the 1960s onward. Thus, we examine how financial intermediary size as a share of GDP changes across the last four decades. The intertemporal patterns are very similar to the cross-country patterns.

Banks and other financial intermediaries have grown as a share of GDP over the decades.

To illustrate this, we first construct the income quartiles discussed in the text for the 1960s, 1970s, 1980s, and 1990s. Figure 1A presents these quartile graphs and makes two points. First, the cross-country patterns illustrated with data from the 1990s holds for each of the four decades. Second, financial intermediary size as a share of GDP grows in all income quartiles over time. *Liquid Liabilities to GDP, Claims of Deposit Money Banks on the Private Sector / GDP*, and *Claims of Other Financial Institutions on the Private Sector/GDP* all rise as we move from the 1960s to the 1970s, 1980s, and 1990s. This can, perhaps, be seen more clearly in Figure 2A. Figure 2A averages financial data across all countries with data for the entire sample period for each of the decades. As depicted, banks and other financial institutions become larger as a share of GDP over time. While central banks tend to play smaller role in credit allocation in richer countries, there is a small increase in this role over time.

B. Equity Markets Across Time

Stock markets have tended to become larger, more active, and more efficient over time. As shown in Figure 3A and 4A, *Market Capitalization as a Share of GDP, Total Value*

Traded as a Share of GDP, and *Turnover Ratio* have risen in all income quartiles when comparing the 1970, 1980s and the 1990s. Also note that the cross-country patterns observed in the 1990s are consistent with those observed in the 1980s: As we move from the poorest quartile of countries across to the highest quartile of countries, stock markets are more developed.

C. Non-Banks Financial Intermediaries Across Countries

Insurance companies, pension funds, mutual funds, and other non-bank financial intermediaries tend to become larger as a share of GDP as countries become richer. Here we face considerable data problems because information on non-banks becomes scarce for earlier years. Figure 5A shows that insurance companies, pension funds, mutual funds, and other non-bank financial intermediaries tend to be larger in the 1990s than they were in the 1980s. Furthermore, the cross-country patterns noted above hold across decades.

REFERENCES

Beck, Thorsten; Demirguc-Kunt, Asli; and Levine, Ross. "A New database on Financial Development and Structure, " World Bank mimeo, January 1999.

Beck, Thorsten; Levine, Ross; and Loayza, Norman. "Finance and the Sources of Growth," World Bank mimeo, 1999.

Boyd, John H.; Levine, Ross; and Smith, Bruce D. "The Impact of Inflation on Financial Sector Performance." January 1999. University of Virginia mimeo.

Dermiguc-Kunt, Asli and Levine, Ross. "Stock Market Development and Financial Intermediary Growth: Stylized Facts," World Bank Economic Review, May, 1996.

Demirgüç-Kunt, Asli and Maksimovic, Vojislav. "Law, Finance, and Firm Growth," Journal of Finance, December 1998, 53(6), pp.2107-2137.

Gertler, Mark. "Financial Structure and Aggregate Economic Activity: An Overview," Journal of Money, Credit, and Banking, August 1988, 20(3, Pt. 2), pp. 559-88.

King, Robert G. and Levine, Ross. "Finance and Growth: Schumpeter Might Be Right," Quarterly Journal of Economics, August 1993a, 108(3), pp. 717-38.

King, Robert G. and Levine, Ross. "Finance, Entrepreneurship, and Growth: Theory and Evidence," Journal of Monetary Economics, December 1993b, 32(3), pp. 513-42.

Laporta, Rafael; Lopez-de-Silanes, Florencio; Shleifer, Andrei; and Vishny, Robert W. "Law and Finance," Journal of Political Economy, December 1998, 106(6), pp. 1113-1155.

Laporta, Rafael; Lopez-de-Silanes, Florencio; Shleifer, Andrei; and Vishny, Robert W. "Legal Determinants of External Finance," Journal of Finance, July 1997, 52(3), pp. 1131-1150.

Levine, Ross. "Financial Development and Economic Growth: Views and Agenda," Journal of Economic Literature, June 1997, 35(2), pp. 688-726.

Levine, Ross. "The Legal Environment, Banks, and Long-Run Economic Growth," Journal of Money, Credit, and Banking, August 1998a, 30(3 pt.2), pp.596-613.

Levine, Ross. "Law, Finance, and Economic Growth", Journal of Financial Intermediation, January 1999a.

Levine, Ross. "Napolean, Bourses, and Economic Growth with a Focus on Latin America," in Market Augmenting Government (Eds: Omar Azfar and Chalres Cadwell) forthcoming 1999b.

Levine, Ross; Loayza, Norman; and Beck, Thorsten. "Financial Intermediation and Growth: Causality and Causes", mimeo, World Bank.

Levine, Ross and Zervos, Sara. "Stock Markets, Banks, and Economic Growth," American Economic Review, June 1998, 88(3), pp. 537-58.

Park, Yung Chul. "The Role of Finance in Economic Development in South Korean and Taiwan," in Finance and Development: Issues and Experience (Ed. Alberto Giovannini), 1993, Cambridge, U.K.: Cambridge University Press, pp. 121-157.

Table 1: Financial Intermediary and Equity Market Development Across Countries

Country name	GDP per capita 1990-95	Liquid Liabilities / GDP	Bank Assets / GDP	Claims of Deposit Money Banks on Private Sector / GDP	Claims of Other Financial Institutions on Private Sector / GDP	Central Bank Assets / GDP	Overhead Costs	Bank Net Interest Margin	Bank Concentration Index	Foreign Bank Assets in Total Bank Assets	Public Share in Commercial Bank Assets	Market capitalization / GDP	Total Value Traded / GDP	Turnover Ratio
Argentina	4039.12	0.15	0.21	0.15	0.00	0.04	0.10	0.07	0.50	0.16	0.34	0.11	0.04	0.34
Australia	14313.95	0.61	0.77	0.70	0.27	0.03	0.03	0.02	0.65	0.01		0.71	0.33	0.43
Austria	13177.30	0.89	1.26	0.93		0.00	0.03	0.02	0.72	0.03	0.98	0.12	0.08	0.64
Bangladesh	194.31	0.34	0.31	0.22		0.02	0.02	0.01	0.64	0.20	0.72	0.04	0.01	0.09
Barbados	4777.04	0.64	0.52	0.35	0.11	0.05	0.05	0.03	1.00			0.21	0.00	0.02
Belgium	14481.78	0.69	1.18	0.56		0.01	0.03	0.02	0.65	0.03	0.00	0.36	0.05	0.15
Bolivia	754.98	0.35	0.37	0.36	0.02	0.22	0.05	0.04	0.48	0.29	0.13	0.02	0.00	0.01
Brazil	2346.36	0.23	0.32	0.23	0.05	0.14	0.11	0.11	0.60	0.05	0.56	0.19	0.12	0.56
Canada	17284.79	0.76	0.66	0.57	0.24	0.04	0.02	0.02	0.58	0.07	0.00	0.59	0.29	0.47
Chile	2725.16	0.38	0.46	0.45	0.12	0.20	0.03	0.04	0.47	0.04		0.84	0.09	0.10
Colombia	1432.39	0.30	0.18	0.16	0.15	0.02	0.08	0.06	0.44	0.15	0.58	0.13	0.01	0.10
Costa Rica	1866.60	0.37	0.17	0.15	0.01	0.10	0.06	0.05	0.80	0.05	0.33	0.07	0.00	0.03
Cyprus	6588.45	1.24	0.81	0.69	0.39	0.11	0.04	0.06	0.88	0.48		0.22	0.02	0.11
Denmark	17022.55	0.58	0.48	0.38		0.02	0.04	0.05	0.74	0.00	0.00	0.34	0.16	0.45
Ecuador	1322.40	0.24	0.17	0.17	0.04	0.09	0.08	0.07	0.40	0.06	0.00	0.10	0.01	0.14
Egypt	1042.35	0.81	0.63	0.26	0.04	0.34	0.02	0.01	0.65			0.10	0.02	0.14
Finland	15892.44	0.58	0.80	0.77		0.01	0.02	0.02	0.88		0.18	0.29	0.12	0.34
France	15232.41	0.64	1.02	0.89		0.01	0.04	0.03	0.41	0.06	0.74	0.33	0.17	0.50
Germany	16573.02	0.66	1.21	0.94	0.05	0.01	0.03	0.02	0.45	0.04	0.00	0.24	0.28	1.13
Ghana	553.23	0.16	0.06	0.05		0.16	0.06	0.08	0.89		0.79	0.15	0.00	0.03
Great Britain	11794.31	0.96	1.16	1.14		0.03	0.03	0.02	0.56			1.13	0.55	0.48
Greece	6551.64	0.60	0.41	0.18	0.14	0.19	0.04	0.03	0.77	0.02	0.77	0.15	0.06	0.36
Honduras	751.32	0.29	0.25	0.21	0.04	0.07	0.04	0.07	0.44	0.19		0.05	0.02	0.67
Hong Kong	10537.98	1.63	1.49	1.42			0.02	0.02	0.72			1.96	1.08	0.52
Iceland	18939.92	0.37	0.49	0.45		0.03			1.00			0.11	0.01	0.08
India	385.43	0.44	0.34	0.24		0.13	0.03	0.03	0.47	0.06	0.88	0.28	0.08	0.35
Indonesia	609.76	0.42	0.49	0.46		0.02	0.03	0.04	0.42	0.23	0.57	0.18	0.08	0.45
Iran	2397.40	0.44	0.22	0.20	0.06	0.26						0.04	0.01	0.21
Ireland	9014.40	0.52	0.36	0.29	0.37	0.01	0.01	0.01	0.74	0.31	0.00	0.26	0.14	0.62
Israel	9259.58	0.69	0.92	0.60		0.06	0.04	0.03	0.84	0.03		0.33	0.19	0.70
Italy	11504.72	0.65	0.74	0.52		0.10	0.04	0.03	0.36	0.00	0.65	0.17	0.08	0.42
Jamaica	1711.34	0.43	0.28	0.21	0.07	0.06	0.08	0.10	0.82			0.42	0.05	0.10
Japan	15705.68	1.91	1.31	1.17	0.85	0.05	0.01	0.02	0.22	0.00	0.00	0.79	0.28	0.36
Jordan	1288.78	1.11	0.71	0.62	0.07	0.21	0.03	0.02	0.91			0.65	0.12	0.20
Kenya	440.62	0.46	0.29	0.21	0.10	0.11	0.04	0.07	0.74	0.03		0.16	0.00	0.03
Korea	3908.74	0.65	0.55	0.53	0.59	0.01	0.02	0.02	0.31			0.37	0.44	1.22
Malaysia	2629.22	0.97	0.82	0.75	0.28	0.01	0.02	0.03	0.49	0.06		2.01	1.14	0.50
Mauritius	2124.69	0.68	0.54	0.39		0.02	0.02	0.03	0.94	0.03		0.27	0.01	0.05
Mexico	2951.55	0.25	0.24	0.22	0.03	0.01	0.05	0.05	0.58	0.01	0.00	0.32	0.13	0.41
Nepal	199.61	0.33	0.22	0.16		0.11	0.02	0.04	0.90	0.96		0.05	0.00	0.04
Netherlands	13954.71	0.83	1.12	0.90	0.55	0.01	0.01	0.01	0.74	0.10	0.00	0.69	0.43	0.56
New Zealand	9492.46	0.73	0.85	0.78	0.04	0.03	0.03	0.02	0.69		0.00	0.49	0.14	0.27
Nigeria	550.95	0.20	0.11	0.08	0.03	0.20	0.08	0.05	0.81	0.08		0.06	0.00	0.01
Norway	20134.81	0.57	0.69	0.57	0.34	0.02	0.02	0.03	0.84	0.01	0.00	0.26	0.14	0.53
Pakistan	435.90	0.41	0.36	0.23		0.14	0.03	0.03	0.74	0.20	0.52	0.16	0.06	0.34
Panama	1950.45	0.53	0.58	0.56		0.21	0.02	0.02	0.42	0.42		0.09	0.00	0.04
Peru	1292.36	0.15	0.12	0.09	0.01	0.00	0.10	0.08	0.69	0.42		0.11	0.04	0.30
Philippines	734.06	0.45	0.37	0.28	0.05	0.09	0.05	0.04	0.47	0.30	0.19	0.52	0.15	0.26
Portugal	4822.10	0.71	0.79	0.54		0.04	0.02	0.03	0.46	0.06	0.68	0.13	0.05	0.38

Country name	GDP per capita 1990-95	Liquid Liabilities / GDP	Bank Assets / GDP	Claims of Deposit Money Banks on Private Sector / GDP	Claims of Other Financial Institutions on Private Sector / GDP	Central Bank Assets / GDP	Overhead Costs	Bank Net Interest Margin	Bank Concentration Index	Foreign Bank Assets In Total Bank Assets	Public Share in Commercial Bank Assets	Market capitalization / GDP	Total Value Traded / GDP	Turnover Ratio
Singapore	11152.47	1.12	0.95	0.83	0.17		0.01	0.02	0.71	0.33		1.37	0.70	0.50
South Africa	2379.26	0.44	0.66	0.61	0.51	0.03	0.04	0.04	0.77	0.01		1.66	0.15	0.08
Spain	7286.25	0.76	0.96	0.69	0.06	0.04	0.03	0.04	0.47	0.10	0.07	0.30	0.23	0.63
Sri Lanka	537.67	0.37	0.27	0.21		0.10	0.05	0.05	0.82		0.56	0.16	0.02	0.12
Sweden	18981.50	0.47	0.54	0.46	0.73	0.06	0.03	0.03	0.88	0.03	0.26	0.62	0.33	0.47
Switzerland	19529.79	1.44	1.77	1.65	0.39	0.01	0.05	0.02	0.76	0.08	0.19	0.98	0.76	0.74
Thailand	1502.88	0.77	0.82	0.78	0.30	0.02	0.02	0.03	0.53	0.05	0.17	0.57	0.40	0.77
Trinidad and Tobago	3684.84	0.52	0.37	0.30	0.17	0.08	0.04	0.04	0.76			0.12	0.01	0.10
Tunisia	1534.16	0.47	0.55	0.51	0.13	0.01	0.02	0.02	0.59	0.24	0.73	0.10	0.01	0.09
Turkey	2258.77	0.22	0.19	0.13	0.01	0.06	0.06	0.10	0.44	0.01	0.51	0.14	0.16	1.04
United States	19413.52	0.60	0.73	0.64	0.91	0.05	0.04	0.04	0.19	0.04	0.00	0.80	0.62	0.73
Uruguay	2514.33	0.39	0.28	0.24		0.15	0.06	0.06	0.87	0.17	0.68	0.01	0.00	0.03
Venezuela	3166.58	0.29	0.15	0.12	0.05	0.06	0.07	0.09	0.52	0.24		0.12	0.03	0.26
Zimbabwe	803.59	0.35	0.21	0.16	0.08	0.10	0.05	0.05	0.82	0.62		0.23	0.01	0.07
mean	6546.68	0.59	0.58	0.48	0.21	0.08	0.04	0.04	0.65	0.15	0.35	0.39	0.17	0.35

**Table 2: Correlations of Financial Intermediary and
Equity Market Development with GDP per capita**

	Correlation	p-value
Liquid Liabilities / GDP	0.465	(0.001)
Bank Assets / GDP	0.663	(0.001)
Claims of Deposit Money Banks on Private Sector / GDP	0.639	(0.001)
Claims of Other Financial Institutions on Private Sector / GDP	0.636	(0.001)
Central Bank Assets / GDP	-0.442	(0.001)
Overhead Costs	-0.353	(0.005)
Bank Net Interest Margin	-0.443	(0.001)
Bank Concentration Index	0.017	(0.898)
Foreign Bank Assets in Total Bank Assets	-0.371	(0.009)
Public Share in Total Bank Assets	-0.462	(0.004)
Market Capitalization / GDP	0.282	(0.025)
Total Value Traded / GDP	0.409	(0.001)
Turnover Ratio	0.424	(0.001)

Table 3: Overall Size and Efficiency of the Financial Sector Across Countries

Country name	GDP per capita 1990-95	Overall Size [(domestic assets of deposit money banks + stock market capitalization) / GDP]	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	4039.12	0.32	0.50	0.36	4.70	3.38
Australia	14313.95	1.48	16.30	12.87	21.10	16.67
Austria	13177.30	1.38	4.22	2.90	34.37	23.65
Bangladesh	194.31	0.35	0.70	0.26	11.30	4.20
Barbados	4777.04	0.74	0.11	0.08	0.47	0.34
Belgium	14481.78	1.53	2.37	1.87	7.03	5.56
Bolivia	754.98	0.38				
Brazil	2346.36	0.50	1.09	1.10	5.17	5.20
Canada	17284.79	1.24	16.80	12.86	26.76	20.49
Chile	2725.16	1.30	1.96	2.78	2.20	3.13
Colombia	1432.39	0.31	0.21	0.16	1.51	1.18
Costa Rica	1866.60	0.24	0.03	0.02	0.52	0.43
Cyprus	6588.45	1.03	0.39	0.57	1.77	2.57
Denmark	17022.55	0.82	3.31	4.43	9.53	12.74
Ecuador	1322.40	0.28	0.19	0.18	2.07	1.91
Egypt	1042.35	0.73	1.44	1.13	10.23	7.98
Finland	15892.44	1.09	7.42	7.03	21.22	20.12
France	15232.41	1.35	4.91	3.87	14.47	11.41
Germany	16573.02	1.45	11.18	10.01	45.39	40.64
Ghana	553.23	0.21	0.05	0.07	0.38	0.53
Great Britain	11794.31	2.29	26.97	20.65	23.54	18.02
Greece	6551.64	0.56	1.73	1.48	10.55	9.01
Honduras	751.32	0.30	0.29	0.48	9.57	16.09
Hong Kong	10537.98	3.45	45.54	44.90	22.10	21.79
Iceland	18939.92	0.60				
India	385.43	0.62	2.58	2.86	11.72	13.02
Indonesia	609.76	0.68	1.85	2.70	10.76	15.68
Iran	2397.40	0.26				
Ireland	9014.40	0.63	9.95	19.95	43.49	87.18
Israel	9259.58	1.25	5.86	5.16	22.13	19.51
Italy	11504.72	0.91	2.18	2.15	12.26	12.07
Jamaica	1711.34	0.70	0.55	0.63	1.09	1.25
Japan	15705.68	2.10	15.84	20.17	19.80	25.22
Jordan	1288.78	1.36	5.35	4.82	8.54	7.69
Kenya	440.62	0.45	0.08	0.13	0.44	0.75
Korea	3908.74	0.92	19.77	17.86	54.93	49.60
Malaysia	2629.22	2.83	44.24	74.91	19.45	32.93
Mauritius	2124.69	0.81	0.45	0.75	1.63	2.74
Mexico	2951.55	0.56	2.54	2.44	8.21	7.88
Nepal	199.61	0.27	0.06	0.10	0.95	1.56
Netherlands	13954.71	1.80	28.83	38.70	37.45	50.27
New Zealand	9492.46	1.34	6.06	5.66	11.35	10.60

44

Country name	GDP per capita 1990-95	Overall Size [(domestic assets of deposit money banks + stock market capitalization) / GDP]	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)
Nigeria	650.95	0.17				
Norway	20134.81	0.95	4.82	5.94	17.88	22.03
Pakistan	435.90	0.52	2.17	2.05	12.14	11.46
Panama	1950.45	0.66	0.12	0.15	1.76	2.13
Peru	1292.36	0.23	0.51	0.39	3.91	3.05
Philippines	734.06	0.88	3.88	3.15	6.73	5.46
Portugal	4822.10	0.92	1.55	1.93	12.55	15.64
Singapore	11152.47	2.32	32.20	54.62	23.04	39.08
South Africa	2379.26	2.32	3.46	4.07	1.98	2.33
Spain	7286.25	1.27	6.30	6.65	17.17	18.11
Sri Lanka	637.67	0.43	0.43	0.45	2.44	2.57
Sweden	18981.50	1.16	12.91	12.24	18.43	17.48
Switzerland	19529.79	2.75	47.04	15.76	45.92	15.38
Thailand	1502.88	1.39	13.70	19.72	26.35	37.93
Trinidad and Tobago	3684.84	0.49	0.38	0.32	2.54	2.13
Tunisia	1534.16	0.65	0.52	0.59	3.99	4.60
Turkey	2258.77	0.33	1.61	2.57	10.72	17.06
United States	19413.52	1.53	15.76	16.95	18.64	20.05
Uruguay	2514.33	0.30				
Venezuela	3166.58	0.27	0.38	0.49	3.03	3.84
Zimbabwe	803.59	0.44	0.30	0.30	1.48	1.50

Table 4: Correlations of Overall Size and Efficiency of the Financial Sector with GDP per capita

	Correlation	p-value
Overall Size [(domestic assets of deposit money banks + stock market capitalization) / GDP]	0.519	(0.001)
overall efficiency (total value traded / bank net interest margin)	0.470	(0.001)
overall efficiency (total value traded / overhead costs)	0.304	(0.020)
overall efficiency (turnover ratio / bank net interest margin)	0.574	(0.001)
overall efficiency (turnover ratio / overhead costs)	0.400	(0.002)

Table 5: Banks vs. Capitalization

Country Name	GDP per capita	Domestic assets of deposit money banks / GDP	Market capitalization / GDP	Domestic assets of deposit money banks / Market capitalization
South Africa	2379.26	0.66	1.66	0.40
Malaysia	2629.22	0.82	2.01	0.41
Chile	2725.16	0.46	0.84	0.55
Jamaica	1711.34	0.28	0.42	0.67
Singapore	11152.47	0.95	1.37	0.70
Philippines	734.06	0.37	0.52	0.71
Mexico	2951.55	0.24	0.32	0.76
Hong Kong	10537.98	1.49	1.96	0.76
Sweden	18981.50	0.54	0.62	0.86
United States	19413.52	0.73	0.80	0.91
Zimbabwe	803.59	0.21	0.23	0.95
Peru	1292.36	0.12	0.11	1.01
Great Britain	11794.31	1.16	1.13	1.03
Australia	14313.95	0.77	0.71	1.08
Jordan	1288.78	0.71	0.65	1.10
Canada	17284.79	0.66	0.59	1.12
Venezuela	3166.58	0.15	0.12	1.21
India	385.43	0.34	0.28	1.24
Colombia	1432.39	0.18	0.13	1.34
Turkey	2258.77	0.19	0.14	1.35
Ireland	9014.40	0.36	0.26	1.36
Denmark	17022.55	0.48	0.34	1.40
Thailand	1502.88	0.82	0.57	1.44
Korea	3908.74	0.55	0.37	1.48
Netherlands	13954.71	1.12	0.69	1.63
Japan	15705.68	1.31	0.79	1.66
Ecuador	1322.40	0.17	0.10	1.68
Sri Lanka	537.67	0.27	0.16	1.69
Brazil	2346.36	0.32	0.19	1.70
New Zealand	9492.46	0.85	0.49	1.73
Kenya	440.62	0.29	0.16	1.80
Switzerland	19529.79	1.77	0.98	1.80
Nigeria	550.95	0.11	0.06	1.88
Argentina	4039.12	0.21	0.11	1.90
Mauritius	2124.69	0.54	0.27	2.04
Pakistan	435.90	0.36	0.16	2.17
Barbados	4777.04	0.52	0.21	2.44
Costa Rica	1866.60	0.17	0.07	2.51
Indonesia	609.76	0.49	0.18	2.67
Norway	20134.81	0.69	0.26	2.69
Finland	15892.44	0.80	0.29	2.71
Israel	9259.58	0.92	0.33	2.76
Greece	6551.64	0.41	0.15	2.78
Trinidad and Tobago	3684.84	0.37	0.12	2.95
France	15232.41	1.02	0.33	3.11
Spain	7286.25	0.96	0.30	3.20
Belgium	14481.78	1.18	0.36	3.31
Cyprus	6588.45	0.81	0.22	3.73
Nepal	199.61	0.22	0.05	4.30
Italy	11504.72	0.74	0.17	4.45
Iceland	18939.92	0.49	0.11	4.50
Germany	16573.02	1.21	0.24	5.01
Honduras	751.32	0.25	0.05	5.22
Iran	2397.40	0.22	0.04	5.24
Tunisia	1534.16	0.55	0.10	5.79
Portugal	4822.10	0.79	0.13	5.84
Egypt	1042.35	0.63	0.10	6.10
Panama	1950.45	0.58	0.09	6.74
Bangladesh	194.31	0.31	0.04	7.76
Austria	13177.30	1.26	0.12	10.24

Table 6: Banks vs. Other Financial Institutions

Country name	GDP per capita	Domestic assets of deposit money banks / GDP	Domestic assets of other fin. instit. / GDP	Domestic assets of deposit money banks/ domestic assets of other fin. instit.
Sweden	18981.50	0.54	0.82	0.66
United States	19413.52	0.73	1.11	0.66
Ireland	9014.40	0.36	0.45	0.81
South Africa	2379.26	0.66	0.77	0.86
Korea	3908.74	0.55	0.60	0.92
Japan	15705.68	1.31	1.41	0.93
Colombia	1432.39	0.18	0.19	0.95
Netherlands	13954.71	1.12	0.96	1.16
Zimbabwe	803.59	0.21	0.15	1.41
Norway	20134.81	0.69	0.46	1.51
Greece	6551.64	0.41	0.27	1.54
Trinidad and Tobago	3684.84	0.37	0.20	1.87
Cyprus	6588.45	0.81	0.39	2.06
Kenya	440.62	0.29	0.13	2.15
Thailand	1502.88	0.82	0.34	2.42
Mexico	2951.55	0.24	0.10	2.46
Canada	17284.79	0.66	0.26	2.56
Malaysia	2629.22	0.82	0.31	2.60
Venezuela	3166.58	0.15	0.06	2.64
Australia	14313.95	0.77	0.27	2.81
Iran	2397.40	0.22	0.06	3.35
Chile	2725.16	0.46	0.13	3.56
Jamaica	1711.34	0.28	0.08	3.68
Nigeria	550.95	0.11	0.03	3.73
Switzerland	19529.79	1.77	0.44	3.98
Tunisia	1534.16	0.55	0.13	4.20
Ecuador	1322.40	0.17	0.04	4.24
Barbados	4777.04	0.52	0.11	4.67
Honduras	751.32	0.25	0.05	4.90
Brazil	2346.36	0.32	0.06	5.06
Singapore	11152.47	0.95	0.18	5.25
Philippines	734.06	0.37	0.06	6.65
New Zealand	9492.46	0.85	0.09	9.94
Jordan	1288.78	0.71	0.07	10.27
Egypt	1042.35	0.63	0.06	11.42
Peru	1292.36	0.12	0.01	11.48
Turkey	2258.77	0.19	0.01	15.26
Spain	7286.25	0.96	0.06	16.47
Germany	16573.02	1.21	0.05	22.68
Austria	13177.30	1.26	0.05	23.35
Bolivia	754.98	0.37	0.02	24.31
Costa Rica	1866.60	0.17	0.01	29.54

Table 7: Bank Credit vs. Trading

Country Name	GDP per capita	Claims of deposit money banks on private sector / GDP	Total value traded / GDP	Claims of dep. Money banks on private sector / total value traded
Malaysia	2629.22	0.75	1.14	0.66
Turkey	2258.77	0.13	0.16	0.85
United States	19413.52	0.64	0.62	1.05
Singapore	11152.47	0.83	0.70	1.18
Korea	3908.74	0.53	0.44	1.21
Hong Kong	10537.98	1.42	1.08	1.32
Sweden	18981.50	0.46	0.33	1.38
Mexico	2951.55	0.22	0.13	1.71
Philippines	734.06	0.28	0.15	1.87
Brazil	2346.36	0.23	0.12	1.92
Canada	17284.79	0.57	0.29	1.93
Thailand	1502.88	0.78	0.40	1.96
Great Britain	11794.31	1.14	0.55	2.06
Ireland	9014.40	0.29	0.14	2.07
Australia	14313.95	0.70	0.33	2.10
Netherlands	13954.71	0.90	0.43	2.11
Switzerland	19529.79	1.65	0.76	2.18
Denmark	17022.55	0.38	0.16	2.40
Peru	1292.36	0.09	0.04	2.44
Spain	7286.25	0.69	0.23	2.98
Greece	6551.64	0.18	0.06	3.13
India	385.43	0.24	0.08	3.17
Israel	9259.58	0.60	0.19	3.20
Germany	16573.02	0.94	0.28	3.40
Venezuela	3166.58	0.12	0.03	3.52
Pakistan	435.90	0.23	0.06	3.78
Jamaica	1711.34	0.21	0.05	3.92
Norway	20134.81	0.57	0.14	4.01
Japan	15705.68	1.17	0.28	4.11
South Africa	2379.26	0.61	0.15	4.14
Argentina	4039.12	0.15	0.04	4.17
Jordan	1288.78	0.62	0.12	4.98
France	15232.41	0.89	0.17	5.21
Chile	2725.16	0.45	0.09	5.28
New Zealand	9492.46	0.78	0.14	5.44
Indonesia	609.76	0.46	0.08	5.99
Finland	15892.44	0.77	0.12	6.55
Italy	11504.72	0.52	0.08	6.90
Sri Lanka	537.67	0.21	0.02	9.80
Honduras	751.32	0.21	0.02	10.39
Belgium	14481.78	0.56	0.05	10.81
Zimbabwe	803.59	0.16	0.01	11.15
Portugal	4822.10	0.54	0.05	11.35
Colombia	1432.39	0.16	0.01	11.64
Austria	13177.30	0.93	0.08	11.91
Ecuador	1322.40	0.17	0.01	12.78
Egypt	1042.35	0.26	0.02	13.58
Trinidad and Tobago	3684.84	0.30	0.01	21.03
Iran	2397.40	0.20	0.01	27.07
Mauritius	2124.69	0.39	0.01	27.14
Cyprus	6588.45	0.69	0.02	28.39
Bangladesh	194.31	0.22	0.01	38.61
Kenya	440.62	0.21	0.00	42.55
Tunisia	1534.16	0.51	0.01	43.98
Iceland	18939.92	0.45	0.01	61.65
Nepal	199.61	0.16	0.00	67.27
Costa Rica	1866.60	0.15	0.00	98.50
Barbados	4777.04	0.35	0.00	103.40
Panama	1950.45	0.56	0.00	196.18

Table 8: Other Financial Institutions vs. Trading

Country name	GDP per capita	Claims of other financial institutions on private sector / GDP	Total value traded / GDP	Claims of other fin. instit. on private sector / total value traded
Turkey	2258.77	0.01	0.16	0.06
Germany	16573.02	0.05	0.28	0.18
Peru	1292.36	0.01	0.04	0.23
Singapore	11152.47	0.17	0.70	0.24
Malaysia	2629.22	0.28	1.14	0.25
Spain	7286.25	0.06	0.23	0.25
Mexico	2951.55	0.03	0.13	0.26
New Zealand	9492.46	0.04	0.14	0.29
Philippines	734.06	0.05	0.15	0.33
Brazil	2346.36	0.05	0.12	0.39
Switzerland	19529.79	0.39	0.76	0.51
Jordan	1288.78	0.07	0.12	0.56
Thailand	1502.88	0.30	0.40	0.75
Australia	14313.95	0.27	0.33	0.81
Canada	17284.79	0.24	0.29	0.83
Jamaica	1711.34	0.07	0.05	1.26
Netherlands	13954.71	0.55	0.43	1.28
Korea	3908.74	0.59	0.44	1.33
Chile	2725.16	0.12	0.09	1.46
United States	19413.52	0.91	0.62	1.49
Venezuela	3166.58	0.05	0.03	1.50
Sweden	18981.50	0.73	0.33	2.18
Honduras	751.32	0.04	0.02	2.20
Egypt	1042.35	0.04	0.02	2.22
Greece	6551.64	0.14	0.06	2.35
Norway	20134.81	0.34	0.14	2.40
Ireland	9014.40	0.37	0.14	2.63
Japan	15705.68	0.85	0.28	2.98
Ecuador	1322.40	0.04	0.01	3.09
South Africa	2379.26	0.51	0.15	3.42
Costa Rica	1866.60	0.01	0.00	3.62
Zimbabwe	803.59	0.08	0.01	5.80
Iran	2397.40	0.06	0.01	8.69
Tunisia	1534.16	0.13	0.01	11.27
Colombia	1432.39	0.15	0.01	11.38
Trinidad and Tobago	3684.84	0.17	0.01	12.00
Cyprus	6588.45	0.39	0.02	16.22
Kenya	440.62	0.10	0.00	20.35
Barbados	4777.04	0.11	0.00 .	32.44

Table 9: Trading vs. Overhead Costs

Country name	GDP per capita	total value traded	Overhead costs	total value traded* overhead costs
Panama	1950.45	0.00	0.02	0.00
Nepal	199.61	0.00	0.02	0.00
Costa Rica	1866.60	0.00	0.06	0.00
Bangladesh	194.31	0.01	0.02	0.00
Barbados	4777.04	0.00	0.05	0.00
Kenya	440.62	0.00	0.04	0.00
Tunisia	1534.16	0.01	0.02	0.00
Ghana	553.23	0.00	0.06	0.00
Mauritius	2124.69	0.01	0.02	0.00
Egypt	1042.35	0.02	0.02	0.00
Trinidad and Tobago	3684.84	0.01	0.04	0.00
Zimbabwe	803.59	0.01	0.05	0.00
Honduras	751.32	0.02	0.04	0.00
Ireland	9014.40	0.14	0.01	0.00
Ecuador	1322.40	0.01	0.08	0.00
Sri Lanka	537.67	0.02	0.05	0.00
Cyprus	6588.45	0.02	0.04	0.00
Colombia	1432.39	0.01	0.08	0.00
Portugal	4822.10	0.05	0.02	0.00
Belgium	14481.78	0.05	0.03	0.00
Pakistan	435.90	0.06	0.03	0.00
Finland	15892.44	0.12	0.02	0.00
India	385.43	0.08	0.03	0.00
Austria	13177.30	0.08	0.03	0.00
Indonesia	609.76	0.08	0.03	0.00
Venezuela	3166.58	0.03	0.07	0.00
Greece	6551.64	0.06	0.04	0.00
Chile	2725.16	0.09	0.03	0.00
Italy	11504.72	0.08	0.04	0.00
Jordan	1288.78	0.12	0.03	0.00
Norway	20134.81	0.14	0.02	0.00
New Zealand	9492.46	0.14	0.03	0.00
Argentina	4039.12	0.04	0.10	0.00
Peru	1292.36	0.04	0.10	0.00
Japan	15705.68	0.28	0.01	0.00
Jamaica	1711.34	0.05	0.08	0.00
Netherlands	13954.71	0.43	0.01	0.00
South Africa	2379.26	0.15	0.04	0.01
Denmark	17022.55	0.16	0.04	0.01
Mexico	2951.55	0.13	0.05	0.01
Canada	17284.79	0.29	0.02	0.01
Israel	9259.58	0.19	0.04	0.01
Philippines	734.06	0.15	0.05	0.01
France	15232.41	0.17	0.04	0.01
Germany	16573.02	0.28	0.03	0.01
Spain	7286.25	0.23	0.03	0.01
Thailand	1502.88	0.40	0.02	0.01
Australia	14313.95	0.33	0.03	0.01
Sweden	18981.50	0.33	0.03	0.01
Singapore	11152.47	0.70	0.01	0.01
Turkey	2258.77	0.16	0.06	0.01
Korea	3908.74	0.44	0.02	0.01
Brazil	2346.36	0.12	0.11	0.01
Great Britain	11794.31	0.55	0.03	0.01
Malaysia	2629.22	1.14	0.02	0.02
United States	19413.52	0.62	0.04	0.02
Hong Kong	10537.98	1.08	0.02	0.03
Switzerland	19529.79	0.76	0.05	0.04

Table 10: Trading vs. Interest Margin

Country name	GDP per capita	total value traded	net interest margin	total value traded* net interest margin
Bangladesh	194.31	0.01	0.01	0.00
Panama	1950.45	0.00	0.02	0.00
Costa Rica	1866.60	0.00	0.05	0.00
Nepal	199.61	0.00	0.04	0.00
Barbados	4777.04	0.00	0.03	0.00
Tunisia	1534.16	0.01	0.02	0.00
Egypt	1042.35	0.02	0.01	0.00
Ghana	553.23	0.00	0.08	0.00
Kenya	440.62	0.00	0.07	0.00
Mauritius	2124.69	0.01	0.03	0.00
Trinidad and Tobago	3684.84	0.01	0.04	0.00
Zimbabwe	803.59	0.01	0.05	0.00
Colombia	1432.39	0.01	0.06	0.00
Ecuador	1322.40	0.01	0.07	0.00
Sri Lanka	537.67	0.02	0.05	0.00
Belgium	14481.78	0.05	0.02	0.00
Honduras	751.32	0.02	0.07	0.00
Portugal	4822.10	0.05	0.03	0.00
Austria	13177.30	0.08	0.02	0.00
Cyprus	6588.45	0.02	0.06	0.00
Pakistan	435.90	0.06	0.03	0.00
Finland	15892.44	0.12	0.02	0.00
Greece	6551.64	0.06	0.03	0.00
Ireland	9014.40	0.14	0.01	0.00
India	385.43	0.08	0.03	0.00
Italy	11504.72	0.08	0.03	0.00
Argentina	4039.12	0.04	0.07	0.00
Jordan	1288.78	0.12	0.02	0.00
Venezuela	3166.58	0.03	0.09	0.00
Peru	1292.36	0.04	0.08	0.00
Indonesia	609.76	0.08	0.04	0.00
New Zealand	9492.46	0.14	0.02	0.00
Chile	2725.16	0.09	0.04	0.00
Norway	20134.81	0.14	0.03	0.00
Canada	17284.79	0.29	0.02	0.01
Japan	15705.68	0.28	0.02	0.01
Jamaica	1711.34	0.05	0.10	0.01
Philippines	734.06	0.15	0.04	0.01
France	15232.41	0.17	0.03	0.01
Israel	9259.58	0.19	0.03	0.01
Mexico	2951.55	0.13	0.05	0.01
South Africa	2379.26	0.15	0.04	0.01
Netherlands	13954.71	0.43	0.01	0.01
Australia	14313.95	0.33	0.02	0.01
Germany	16573.02	0.28	0.02	0.01
Denmark	17022.55	0.16	0.05	0.01
Spain	7286.25	0.23	0.04	0.01
Sweden	18981.50	0.33	0.03	0.01
Korea	3908.74	0.44	0.02	0.01
Great Britain	11794.31	0.55	0.02	0.01
Thailand	1502.88	0.40	0.03	0.01
Switzerland	19529.79	0.76	0.02	0.01
Brazil	2346.36	0.12	0.11	0.01
Turkey	2258.77	0.16	0.10	0.02
Singapore	11152.47	0.70	0.02	0.02
United States	19413.52	0.62	0.04	0.02
Hong Kong	10537.98	1.08	0.02	0.03
Malaysia	2629.22	1.14	0.03	0.03

Table 11: Financial Structure Across Countries

Country name	GDP per capita	Structure index	Market capitalization / Domestic assets of deposit money banks	Trading vs. Banks	Trading vs. overhead costs
Panama	1950.45	-0.92	0.15	0.01	0.00
Bangladesh	194.31	-0.90	0.13	0.03	0.00
Tunisia	1534.16	-0.88	0.17	0.02	0.00
Nepal	199.61	-0.87	0.23	0.01	0.00
Egypt	1042.35	-0.82	0.16	0.07	0.00
Costa Rica	1866.60	-0.79	0.40	0.01	0.00
Barbados	4777.04	-0.78	0.41	0.01	0.00
Cyprus	6588.45	-0.77	0.27	0.04	0.00
Honduras	751.32	-0.75	0.19	0.10	0.00
Portugal	4822.10	-0.75	0.17	0.09	0.00
Trinidad and Tobago	3684.84	-0.74	0.34	0.05	0.00
Austria	13177.30	-0.73	0.10	0.08	0.00
Mauritius	2124.69	-0.70	0.49	0.04	0.00
Kenya	440.62	-0.69	0.56	0.02	0.00
Belgium	14481.78	-0.66	0.30	0.09	0.00
Italy	11504.72	-0.57	0.22	0.15	0.00
Ecuador	1322.40	-0.56	0.60	0.08	0.00
Sri Lanka	537.67	-0.54	0.59	0.10	0.00
Finland	15892.44	-0.53	0.37	0.15	0.00
Indonesia	609.76	-0.50	0.37	0.17	0.00
Colombia	1432.39	-0.47	0.75	0.09	0.00
Pakistan	435.90	-0.38	0.46	0.26	0.00
Zimbabwe	803.59	-0.34	1.06	0.09	0.00
Greece	6551.64	-0.34	0.36	0.32	0.00
Norway	20134.81	-0.33	0.37	0.25	0.00
New Zealand	9492.46	-0.29	0.58	0.18	0.00
Argentina	4039.12	-0.25	0.53	0.24	0.00
Japan	15705.68	-0.19	0.60	0.24	0.00
France	15232.41	-0.17	0.32	0.19	0.01
Venezuela	3166.58	-0.15	0.83	0.28	0.00
India	385.43	-0.14	0.81	0.32	0.00
Jordan	1288.78	-0.14	0.91	0.20	0.00
Germany	16573.02	-0.10	0.20	0.29	0.01
Israel	9259.58	-0.06	0.36	0.31	0.01
Ireland	9014.40	-0.06	0.73	0.48	0.00
Spain	7286.25	0.02	0.31	0.34	0.01
Netherlands	13954.71	0.11	0.61	0.47	0.00
Denmark	17022.55	0.15	0.72	0.42	0.01
Peru	1292.36	0.16	0.99	0.41	0.00
Chile	2725.16	0.25	1.80	0.19	0.00
Jamaica	1711.34	0.28	1.49	0.26	0.00
Thailand	1502.88	0.39	0.69	0.51	0.01
Canada	17284.79	0.41	0.90	0.52	0.01
Australia	14313.95	0.50	0.93	0.48	0.01
Brazil	2346.36	0.65	0.59	0.52	0.01
Mexico	2951.55	0.68	1.32	0.58	0.01
Philippines	734.06	0.71	1.40	0.54	0.01
South Africa	2379.26	0.83	2.50	0.24	0.01
Korea	3908.74	0.89	0.68	0.82	0.01
Sweden	18981.50	0.91	1.16	0.72	0.01
Great Britain	11794.31	0.92	0.97	0.48	0.01
Singapore	11152.47	1.18	1.43	0.85	0.01
Turkey	2258.77	1.23	0.74	1.18	0.01
United States	19413.52	1.96	1.09	0.96	0.02
Switzerland	19529.79	2.03	0.55	0.46	0.04
Hong Kong	10537.98	2.10	1.32	0.76	0.03
Malaysia	2629.22	2.93	2.47	1.52	0.02

Table 12: Country Classification of Financial Structure

Finacially underdeveloped economies		Finacially developed economies	
Country name	Structure index	Country name	Structure index
Bank-based economies		**Bank-based economies**	
Bangladesh	-0.90	Panama	-0.92
Nepal	-0.87	Tunisia	-0.88
Egypt	-0.82	Cyprus	-0.77
Costa Rica	-0.79	Portugal	-0.75
Barbados	-0.78	Austria	-0.73
Honduras	-0.75	Belgium	-0.66
Trinidad and Tobago	-0.74	Italy	-0.57
Mauritius	-0.70	Finland	-0.53
Kenya	-0.69	Norway	-0.33
Ecuador	-0.56	New Zealand	-0.29
Sri Lanka	-0.54	Japan	-0.19
Indonesia	-0.50	France	-0.17
Colombia	-0.47	Jordan	-0.14
Pakistan	-0.38	Germany	-0.10
Zimbabwe	-0.34	Israel	-0.06
Greece	-0.34	Spain	0.02
Argentina	-0.25		
Venezuela	-0.15	group-mean	-0.44
India	-0.14		
Ireland	-0.06	**Market-based economies**	
		Netherlands	0.11
group-mean	-0.54	Thailand	0.39
		Canada	0.41
Market-based economies		Australia	0.50
Denmark	0.15	South Africa	0.83
Peru	0.16	Korea	0.89
Chile	0.25	Sweden	0.91
Jamaica	0.28	Great Britain	0.92
Brazil	0.65	Singapore	1.18
Mexico	0.68	United States	1.96
Philippines	0.71	Switzerland	2.03
Turkey	1.23	Hong Kong	2.10
		Malaysia	2.93
group-mean	0.52	group-mean	1.17
Financially underdeveloped countries	-0.24	Financially developed countries	0.28
Overall mean	0.03		

Table 13: Determinants of Financial Structure – Means tests

	English	French	Srights	Crights	Enforce	Corrupt	Account	Restrict	Deposit insurance	Dividend Disadvantage	Capital Gain Disadvantage	Inflation
Underdeveloped	0.38	0.56	2.86	2.29	5.49	4.60	49.53	2.50	0.61	0.23	0.19	25.23
Bank-based	0.19	0.50	2.54	2.08	8.68	7.37	63.17	1.90	0.83	0.18	0.14	3.91
Market-based	0.69	0.08	3.69	2.54	8.54	8.44	71.69	1.96	0.54	0.16	0.09	4.31

Means-test (t-statistics)

	English	French	Srights	Crights	Enforce	Corrupt	Account	Restrict	Deposit insurance	Dividend Disadvantage	Capital Gain Disadvantage	Inflation
Underdeveloped vs. Bank	0.19	0.06	0.33	0.20	-3.18	-2.77	-13.63	0.61	-0.22	0.05	0.05	21.32
	(0.175)	(0.704)	(0.464)	(0.702)	(0.001)	(0.001)	(0.005)	(0.013)	(0.174)	(0.451)	(0.565)	(0.037)
Underdeveloped vs. Market	-0.31	0.48	-0.83	-0.25	-3.04	-3.84	-22.16	0.54	0.07	0.07	0.10	20.92
	(0.059)	(0.002)	(0.061)	(0.635)	(0.001)	(0.001)	(0.001)	(0.017)	(0.656)	(0.249)	(0.252)	(0.064)
Bank vs. Market	-0.50	0.42	-1.15	-0.46	0.14	-1.07	-8.53	-0.07	0.29	0.02	0.05	-0.40
	(0.005)	(0.013)	(0.040)	(0.346)	(0.809)	(0.195)	(0.021)	(0.769)	(0.124)	(0.768)	(0.619)	(0.690)

Table 14: Determinants of Financial Structure - Correlations

Variable		English	French	Srights	Crights	Enforce	Corrupt	Account	Restrict	Deposit insurance	Dividend Disadvantage	Capital Gain Disadvantage	Inflation
Underdeveloped	correlation	-0.032	0.249	-0.096	-0.013	-0.728	-0.626	-0.654	0.442	-0.070	0.178	0.162	0.346
	coefficient	(0.803)	(0.049)	(0.516)	(0.934)	(0.001)	(0.001)	(0.001)	(0.002)	(0.610)	(0.235)	(0.283)	(0.005)
		63	63	48	46	48	59	40	45	56	46	46	63
	regression	-0.165	0.142	-0.032	-0.095	-0.135	-0.055	-0.014	0.171	0.197	0.028	0.147	0.004
	coefficient	(0.107)	(0.158)	(0.433)	(0.014)	(0.032)	(0.133)	(0.003)	(0.051)	(0.077)	(0.928)	(0.498)	(0.027)
		63	63	48	46	48	59	40	45	56	46	46	63
Bank	correlation	-0.250	0.065	-0.215	-0.096	0.429	0.275	0.115	-0.270	0.208	-0.062	-0.028	-0.222
	coefficient	(0.048)	(0.611)	(0.142)	(0.525)	(0.002)	(0.035)	(0.482)	(0.072)	(0.125)	(0.682)	(0.854)	(0.080)
		63	63	48	46	48	59	40	45	56	46	46	63
	regression	-0.161	0.120	-0.076	0.018	0.044	-0.029	-0.006	-0.084	0.057	0.129	0.057	-0.002
	coefficient	(0.133)	(0.256)	(0.095)	(0.694)	(0.541)	(0.463)	(0.294)	(0.402)	(0.619)	(0.706)	(0.813)	(0.226)
		63	63	48	46	48	59	40	45	56	46	46	63
Market	correlation	0.308	-0.377	0.323	0.108	0.388	0.460	0.564	-0.221	-0.120	-0.137	-0.152	-0.187
	coefficient	(0.014)	(0.002)	(0.025)	(0.476)	(0.006)	(0.001)	(0.001)	(0.145)	(0.379)	(0.364)	(0.315)	(0.141)
		63	63	48	46	48	59	40	45	56	46	46	63
	regression	0.326	-0.263	0.108	0.077	0.091	0.084	0.021	-0.088	-0.253	-0.156	-0.204	-0.002
	coefficient	(0.001)	(0.007)	(0.020)	(0.118)	(0.224)	(0.021)	(0.001)	(0.424)	(0.031)	(0.677)	(0.443)	(0.349)
		63	63	48	46	48	59	40	45	56	46	46	63
Structure index	correlation	0.184	-0.260	0.310	-0.004	0.182	0.375	0.460	-0.158	-0.054	-0.157	-0.230	0.091
	coefficient	(0.170)	(0.051)	(0.036)	(0.979)	(0.227)	(0.005)	(0.004)	(0.312)	(0.712)	(0.308)	(0.133)	(0.501)
		57	57	46	44	46	54	38	43	50	44	44	57
	regression	0.418	-0.354	0.195	0.037	-0.053	0.144	0.044	-0.148	-0.338	-0.581	-0.707	0.004
	coefficient	(0.060)	(0.111)	(0.035)	(0.709)	(0.722)	(0.080)	(0.001)	(0.507)	(0.204)	(0.434)	(0.177)	(0.230)
		57	57	46	44	46	54	38	43	50	44	44	57

regressions include the log of per capita income

p-values in parentheses, number of observations

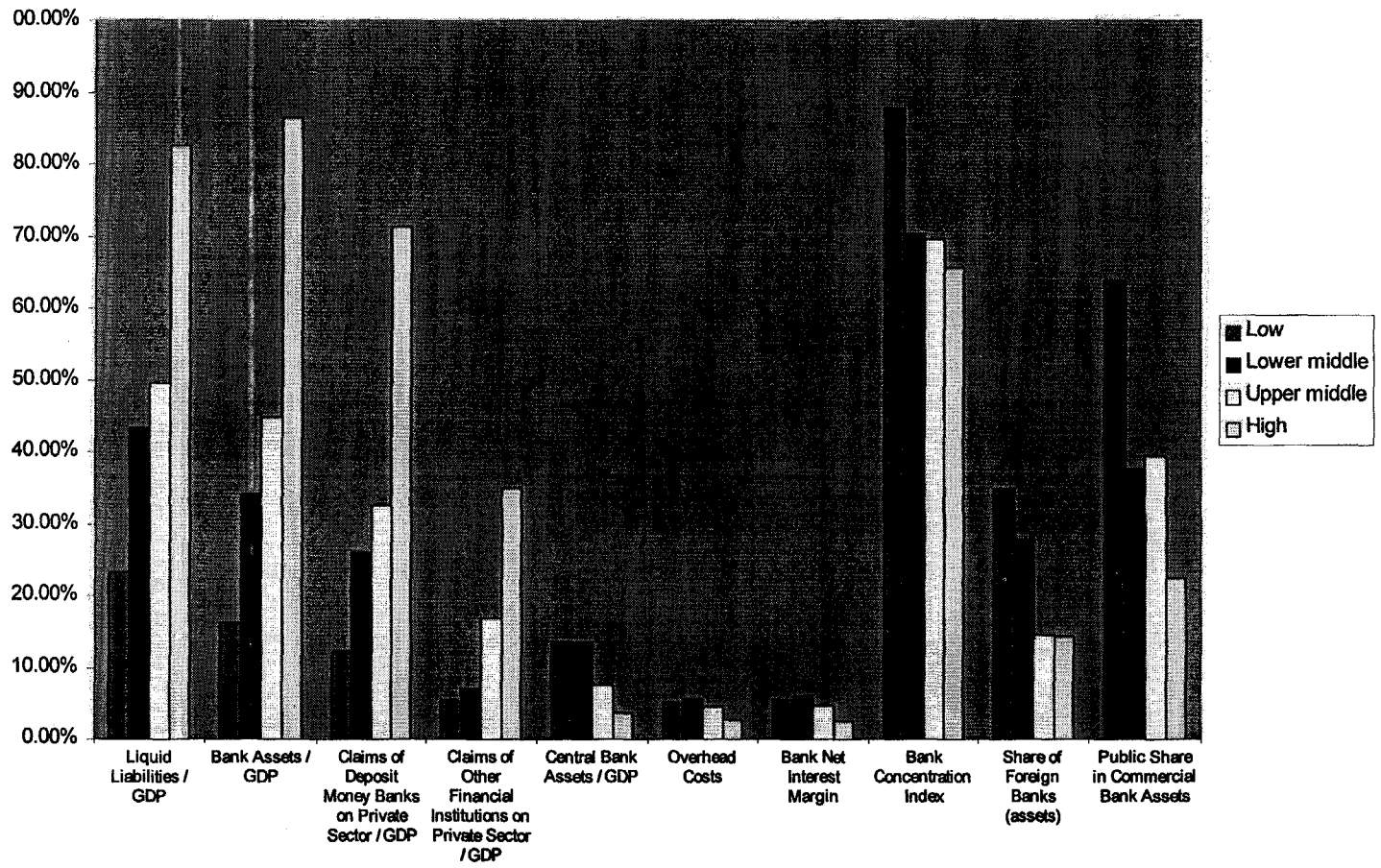# Figure 1: Financial Intermediary Development in the 90s
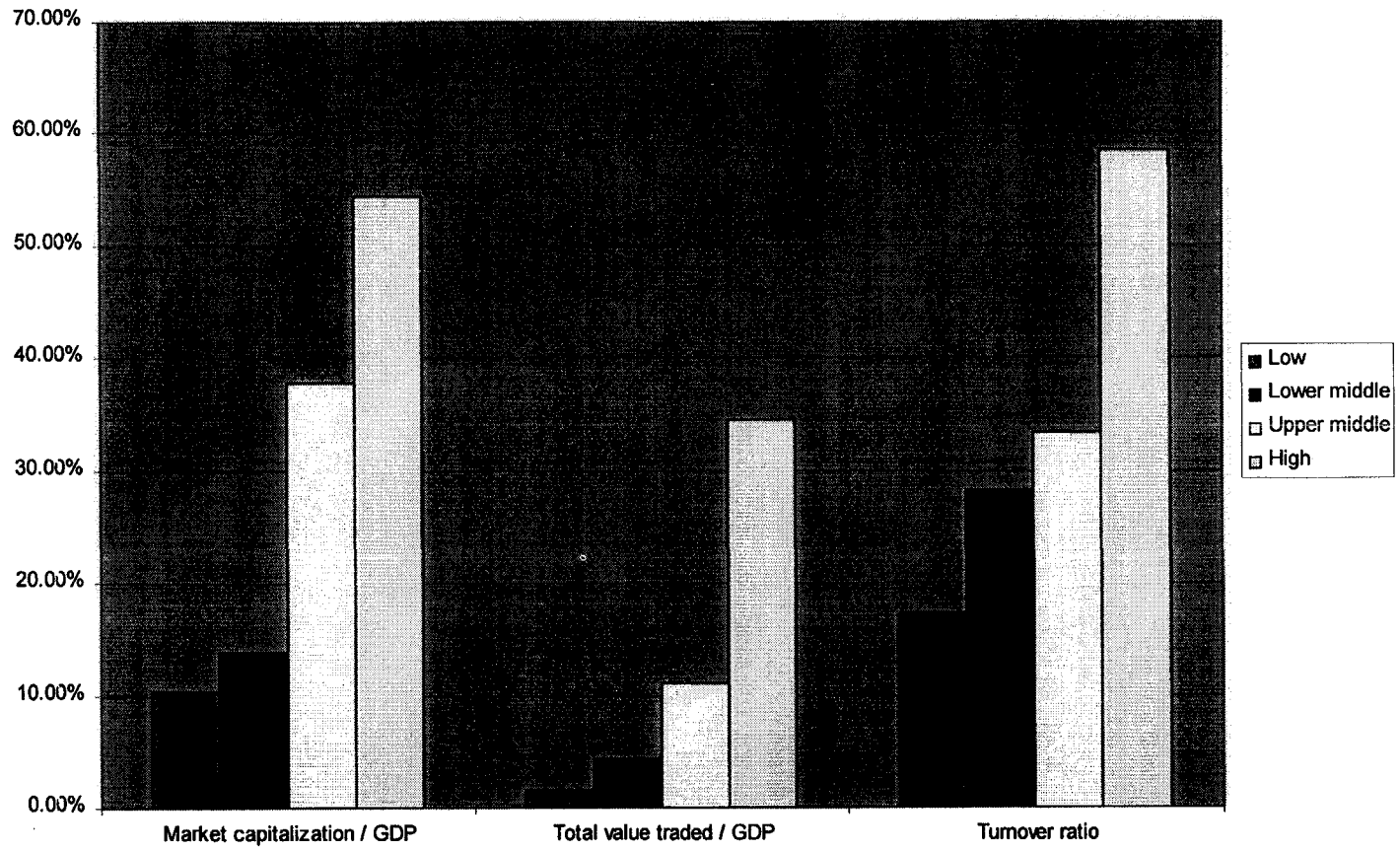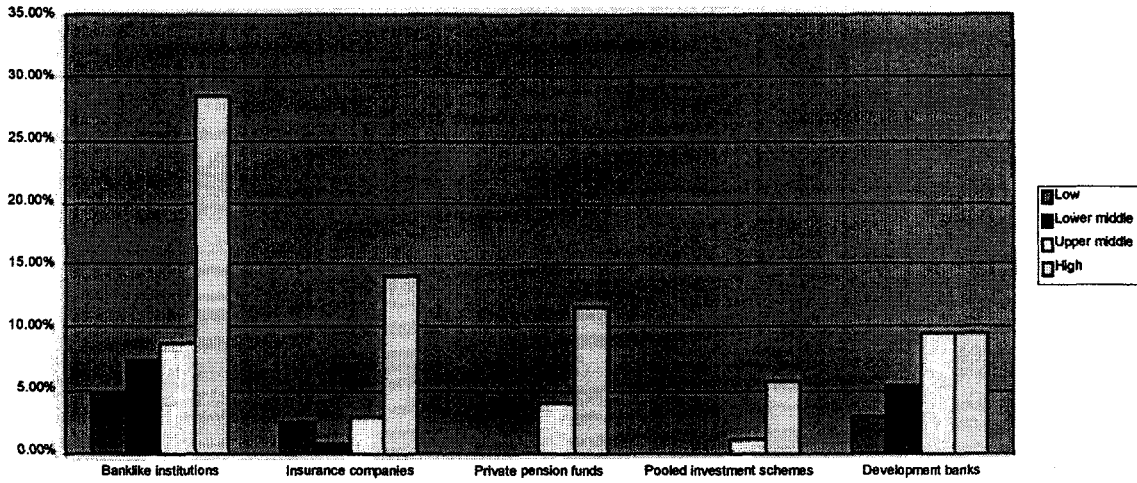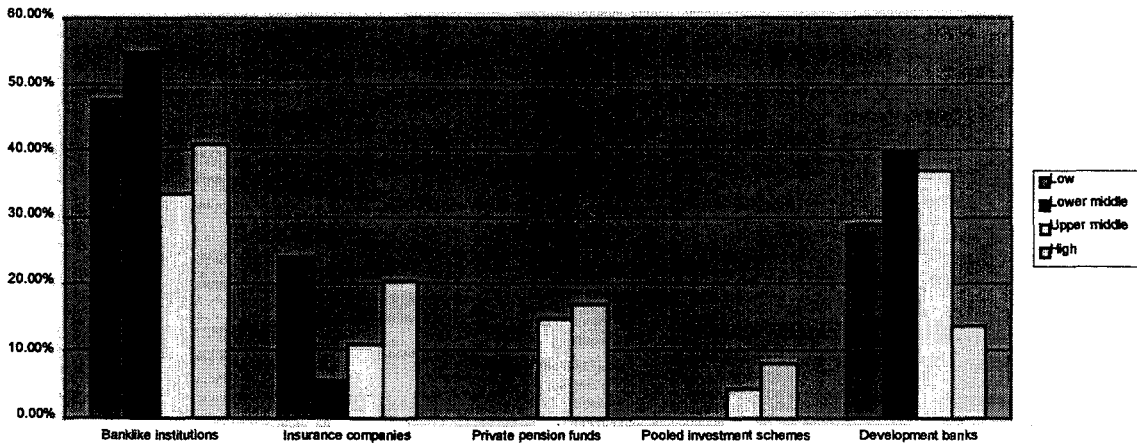
Figure 2: Equity Market Development in the 90s

Figure 3: Nonbank Intermediary Development Over the 90s

A: Claims of nonbank intermediaries on the private sector as share of GDP

B: Claims of nonbank intermediaries on the private sector as share of total nonbank claims on the private sector

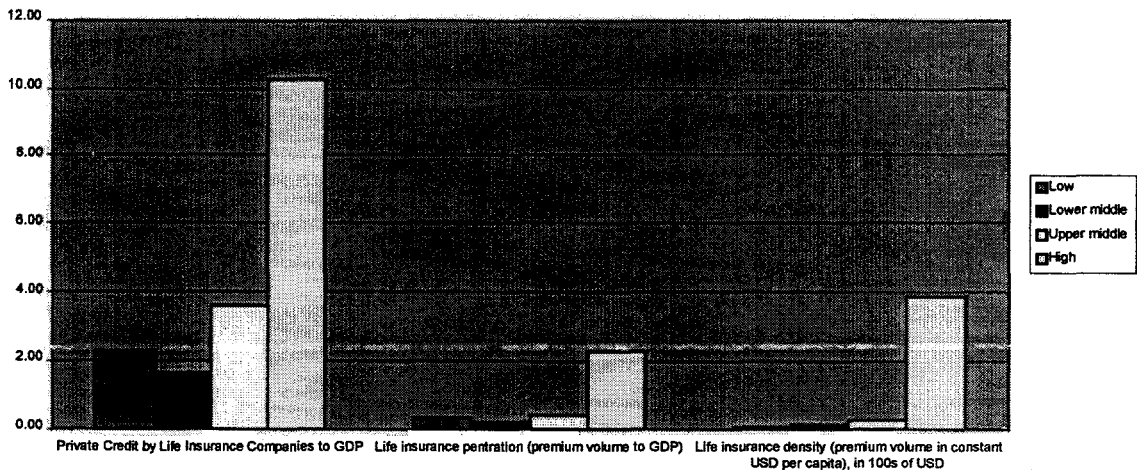## C: Life Insurance Development Across Income Groups
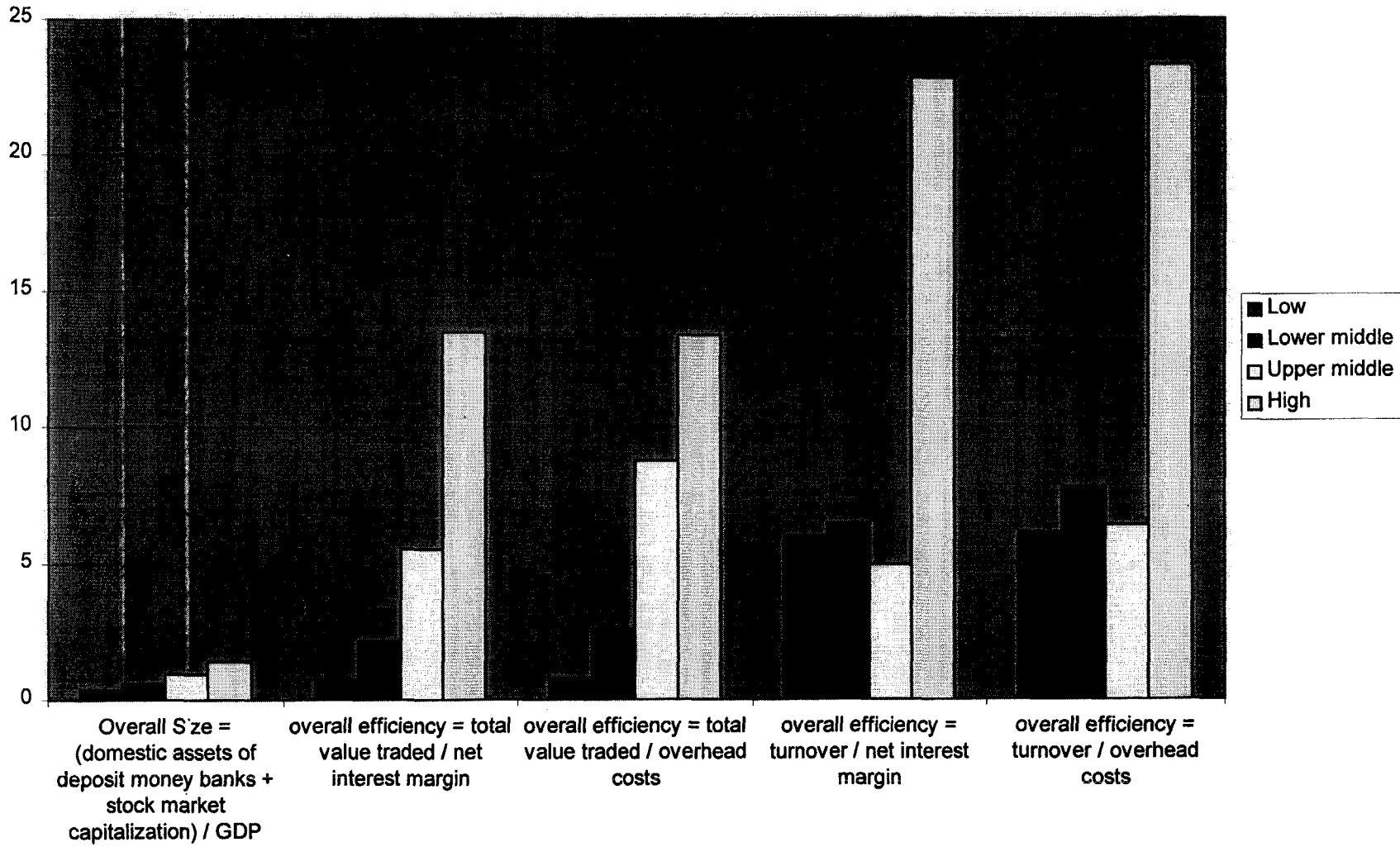
Figure 4: Overall Size and Efficiency of the Financial System

Figure 5: Relative Size of Bank, Stock Markets and other Financial Institutions

Banks vs. Stockmarkets=Domestic assets of deposit money
banks / stock market capitalization

Banks vs. Other Fin. Instit.=Domestic assets of deposit money
banks / domestic assets of other fin. instit

Legend:
- Low
- Lower middle
- Upper middle
- High
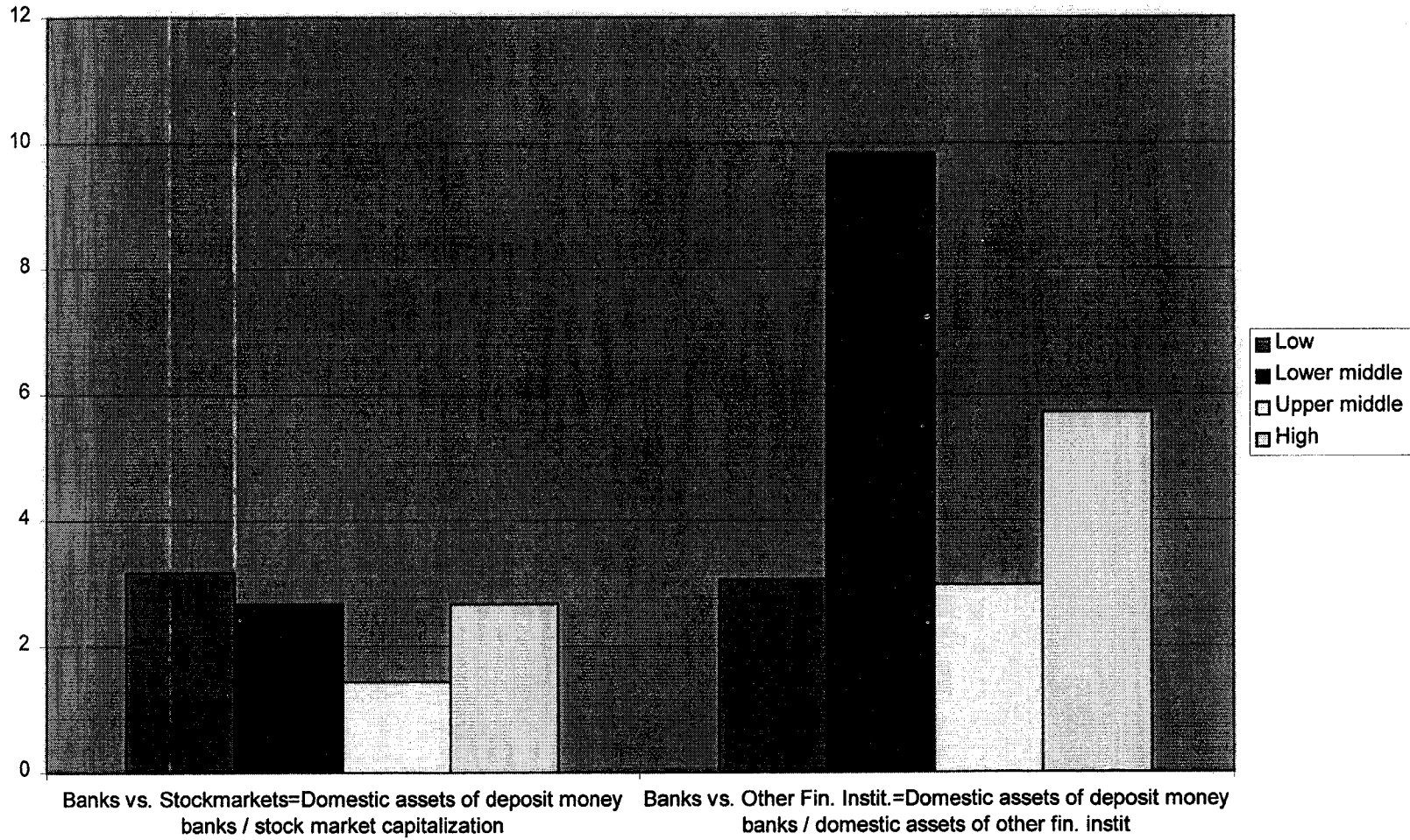
Figure 6: Activity of Banks, Stock Markets and Other Financial Institutions

Bank Credit vs. Trading (Claims of deposit money banks on private sector / total value traded)

Other Financial Institutions Credit vs. Trading (Claims of other fin. instit. On private sector / total value traded)

Legend: Low, Lower middle, Upper middle, High
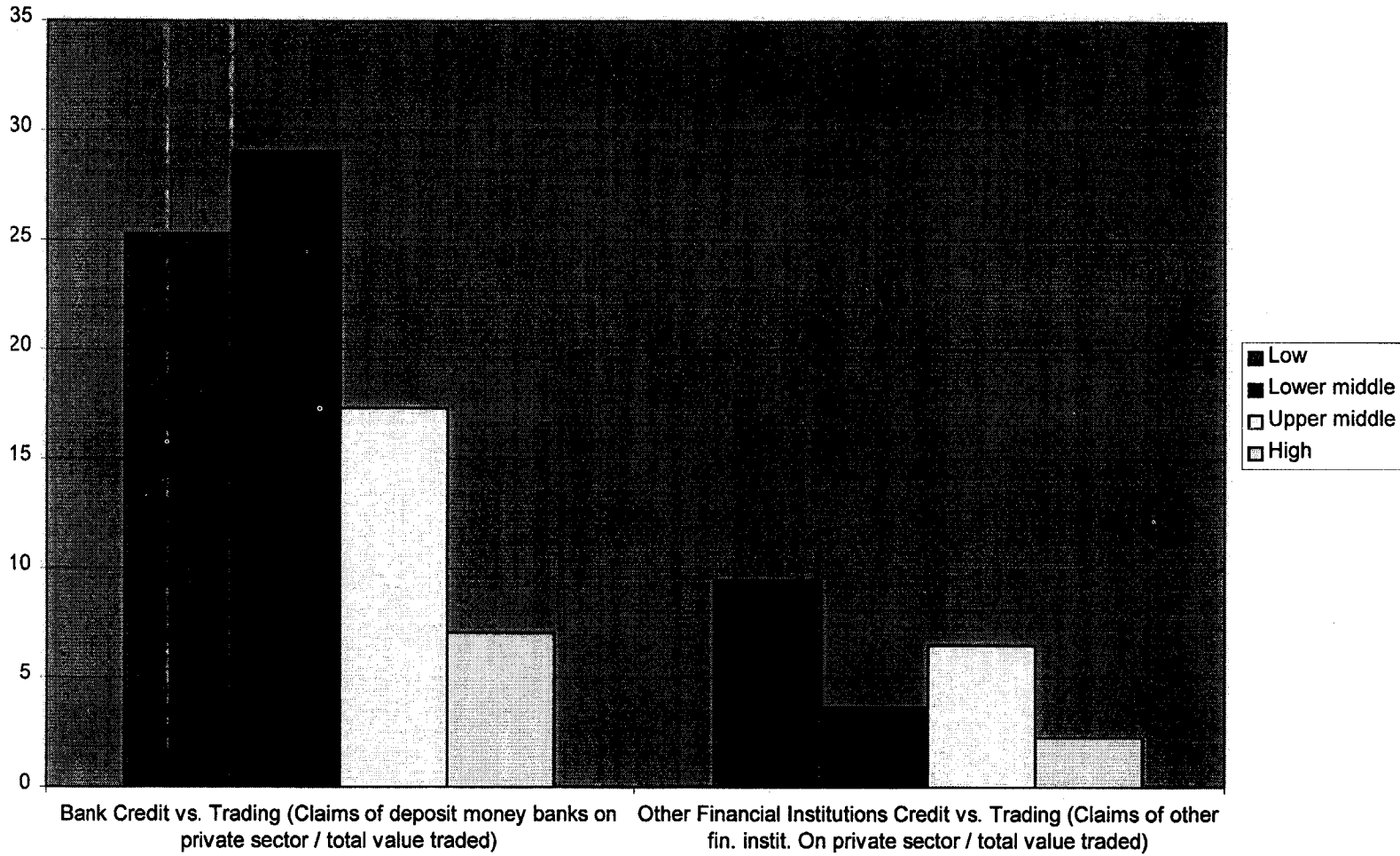
Figure 7: Efficiency of Stock Markets vs. Banks
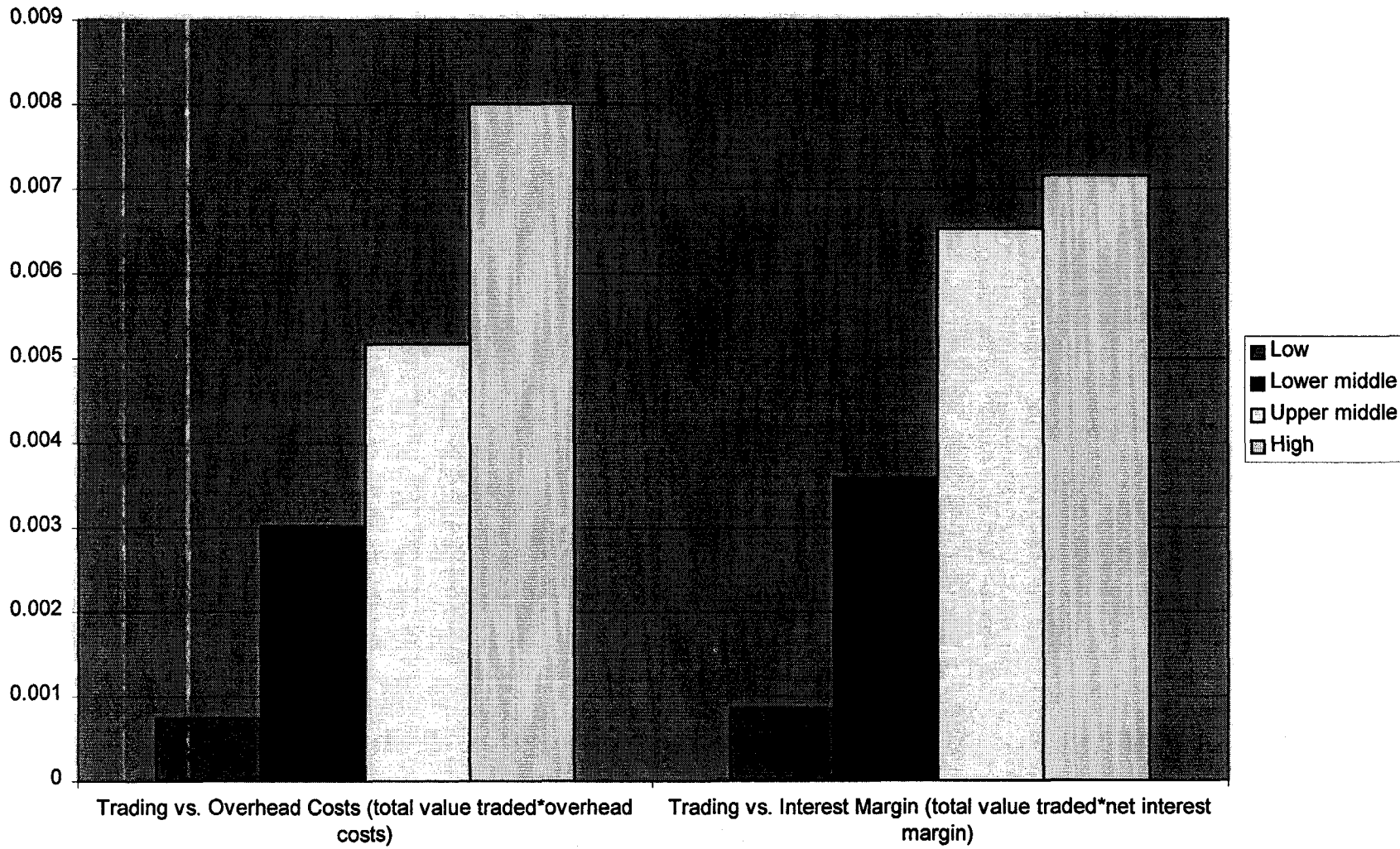
Figure 8: Financial Structure Index
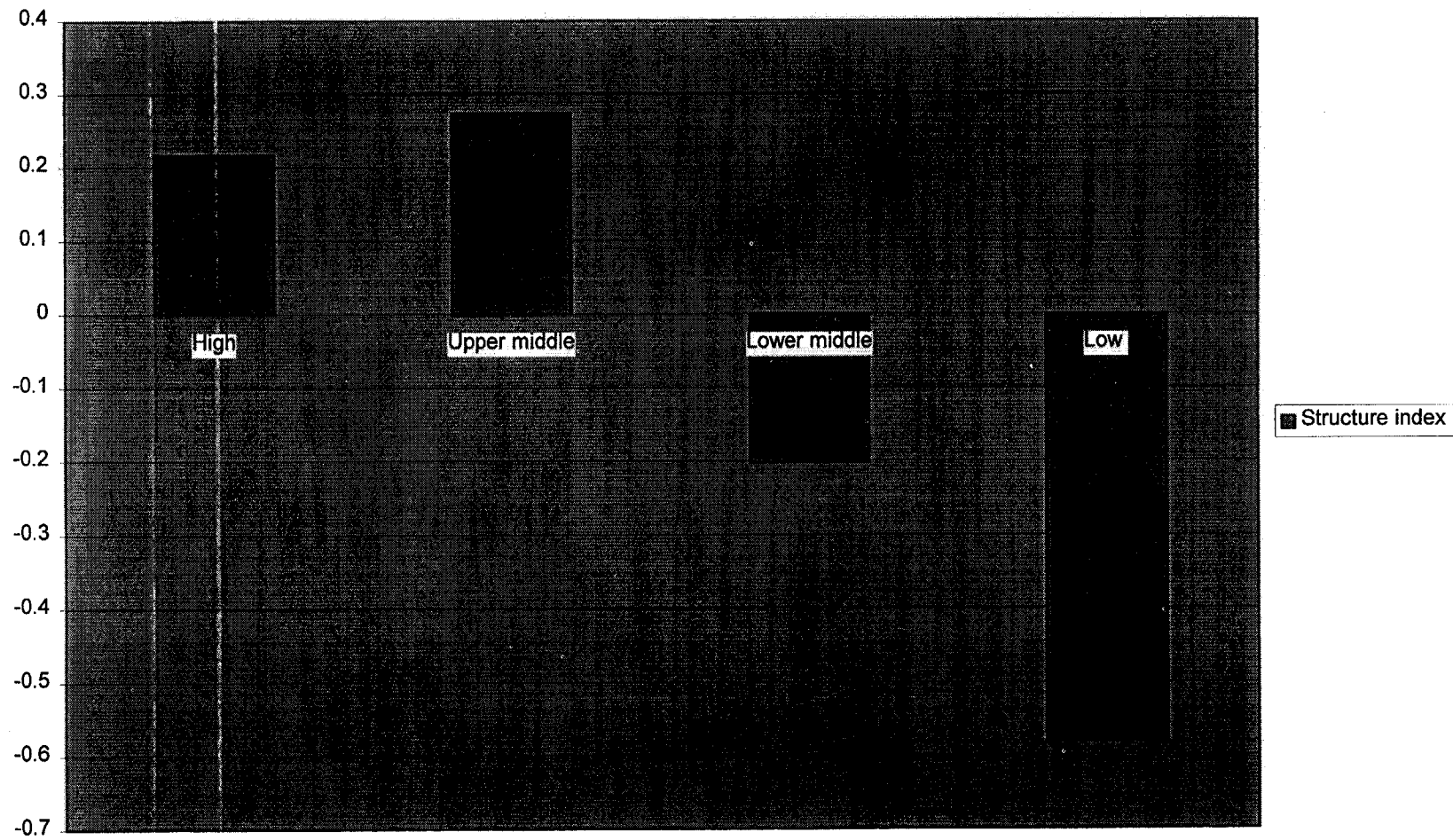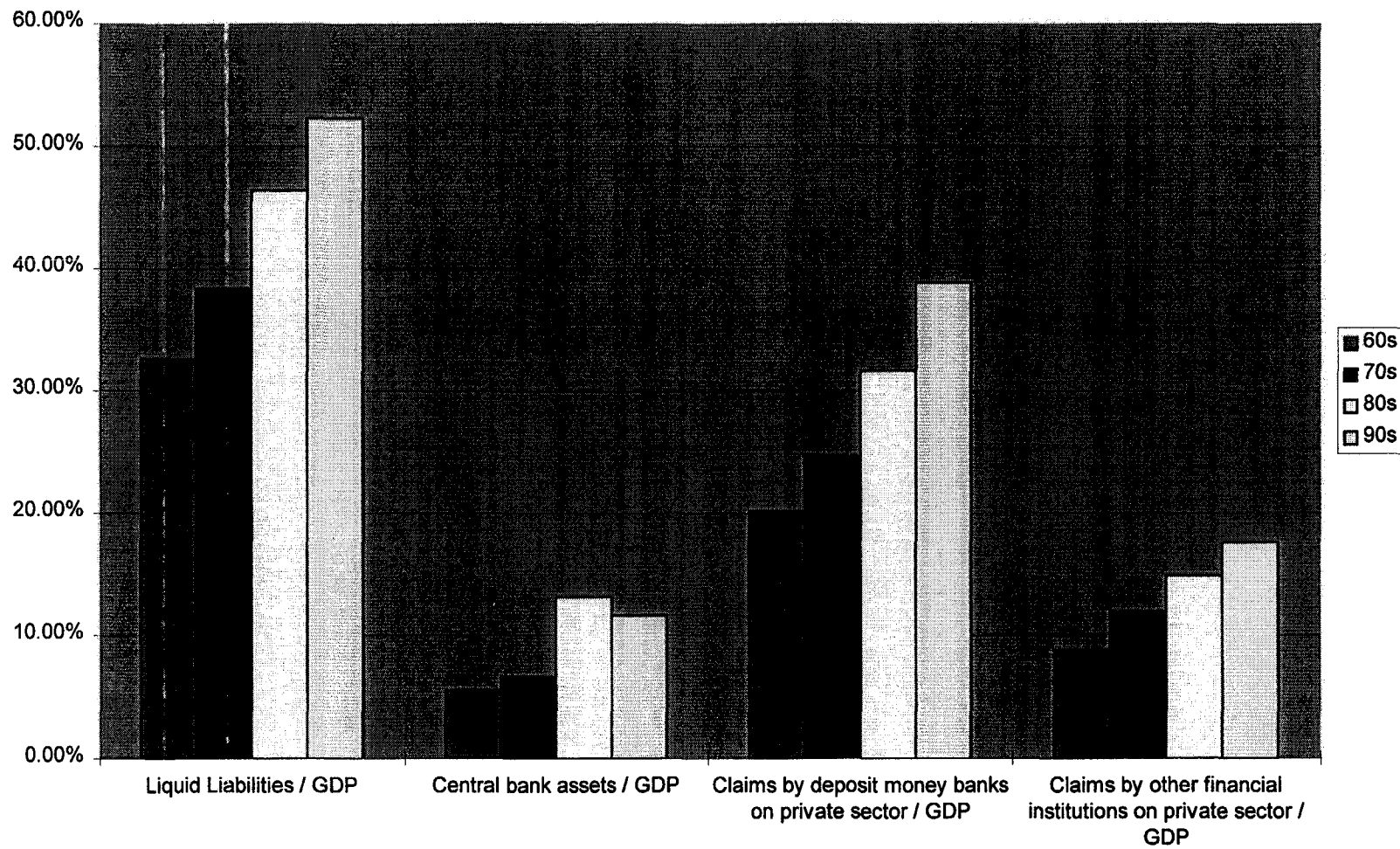
Figure 1A: Financial Intermediary Development Over Time

Financial development in the 60s

Financial development in the 70s

Financial development in the 80s

Financial development in the 90s
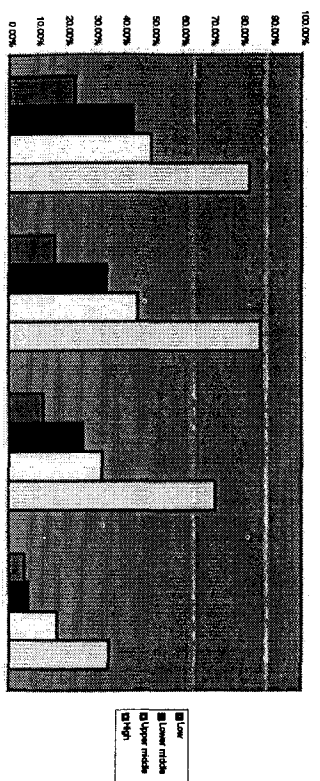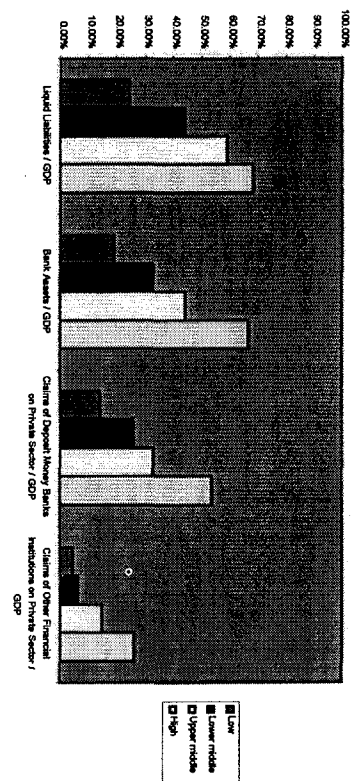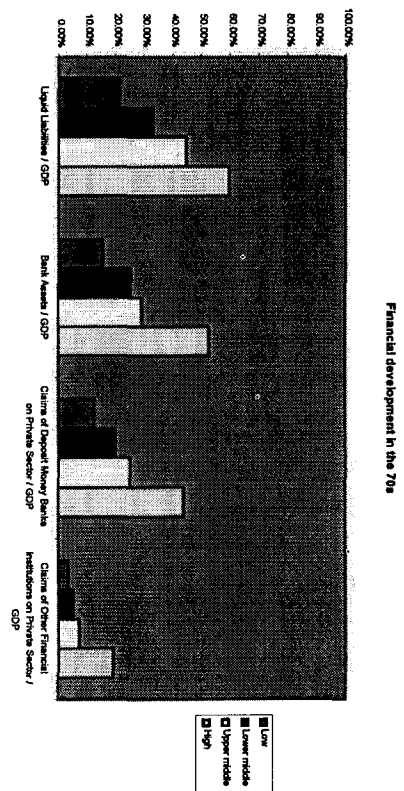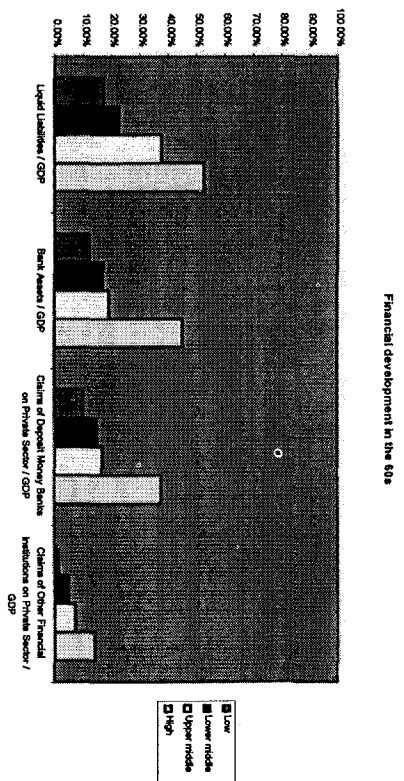
Figure 2A: Financial Intermediary Development Over Time

Bar chart legend: 60s, 70s, 80s, 90s

X-axis categories: Liquid Liabilities / GDP, Central bank assets / GDP, Claims by deposit money banks on private sector / GDP, Claims by other financial institutions on private sector / GDP

Y-axis: 0.00% to 60.00%

Figure 3A: Equity Market Development Over Time

Stock markets in the 70s

Stock markets in the 80s

Stock markets in the 90s
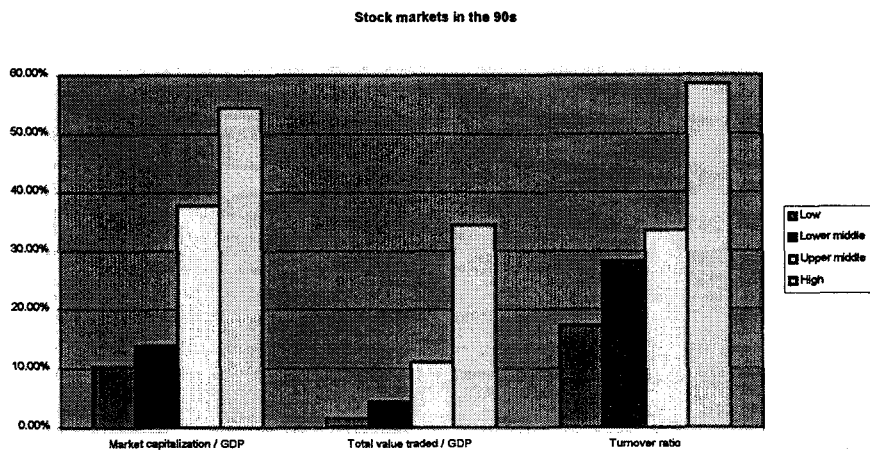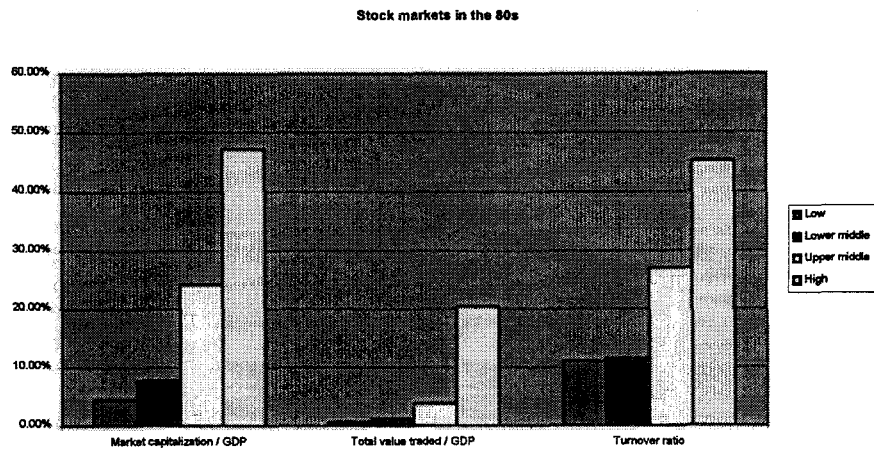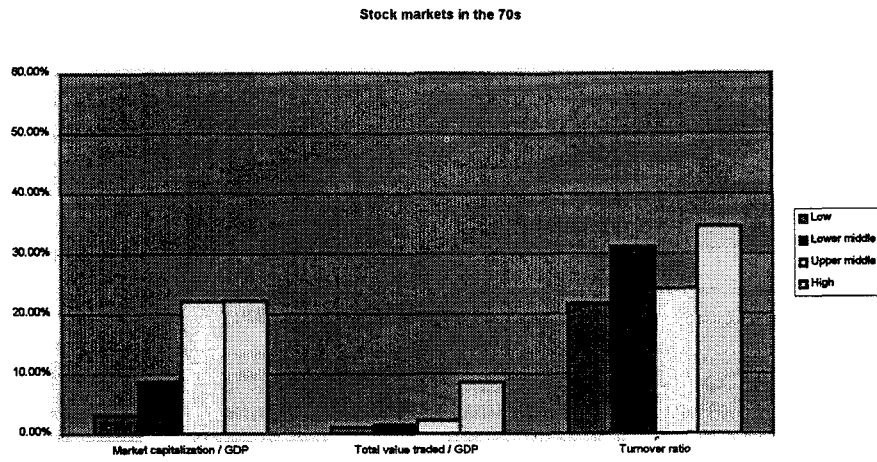
Figure 4A: Equity Market Development Over Time

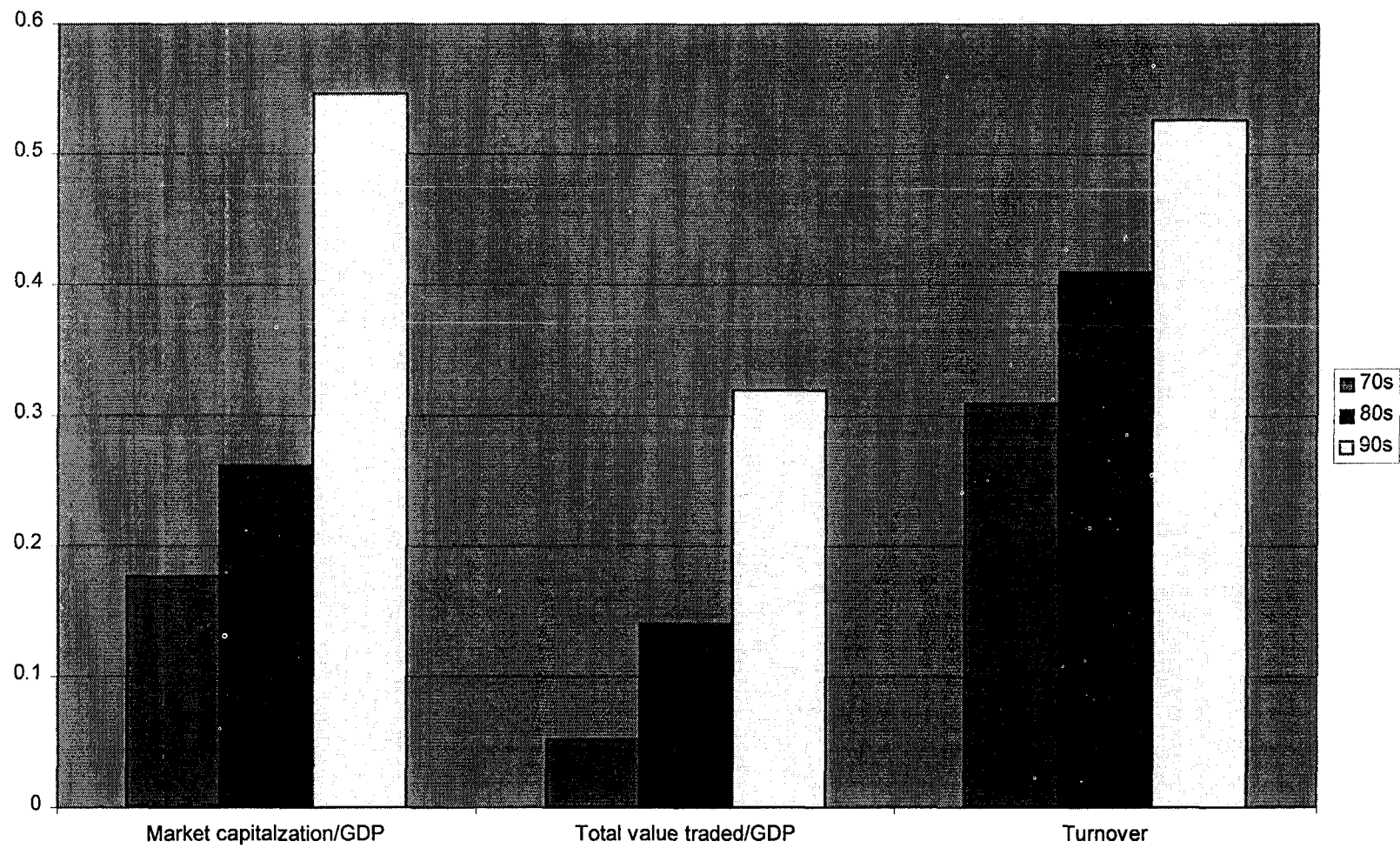# Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2124	Social Exclusion and Land Administration in Orissa, India	Robin Mearns Saurabh Sinha	May 1999	G. Burnett 82111
WPS2125	Developing Country Agriculture and The New Trade Agenda	Bernard Hoekman Kym Anderson	May 1999	L. Tabada 36896
WPS2126	Liberté, Egalité, Fraternité: Exploring the Role of Governance In Fertility Decline	Monica Das Gupta	May 1999	M. Das Gupta 31983
WPS2127	Lifeboat Ethic versus Corporate Ethic: Social and Demographic Implications of Stem and Joint Families	Monica Das Gupta	May 1999	M. Das Gupta 31983
WPS2128	Learning Outcomes and School Cost-Effectiveness in Mexico: The PARE Program	Gladys Lopez Acevedo	May 1999	M. Geller 85155
WPS2129	Agricultural Extension: Generic Challenges and Some Ingredients for Solutions	Gershon Feder Anthony Willett Willem Zijp	May 1999	P. Kokila 33716
WPS2130	Deep Integration, Nondiscrimination, and Euro-Mediterranean Free Trade	Bernard Hoekman Denise Eby Konan	May 1999	L. Tabada 36896
WPS2131	Efficiency Wage and Union Effects In Labor Demand and Wage Structure in Mexico: An Application Of Quantile Analysis	William F. Maloney Eduardo Pontual Ribeiro	May 1999	T. Gomez 32127
WPS2132	A Regime-Switching Approach to Studying Speculative Attacks: A Focus on European Monetary System Crises	Maria Soledad Martinez Peria	June 1999	A. Yaptenco 38526
WPS2133	Resolution of Corporate Distress: Evidence from East China's Financial Crisis	Stijn Claessens Simeon Djankov Leora Klapper	June 1999	R. Vo 33722
WPS2134	Interlinkage, Limited Liability, and Strategic Interaction	Kaushik Basu Clive Bell Pinaki Bose	June 1999	M. Mason 30809
WPS2135	Hungary's Integration into European Union Markets: Production and Trade Restructuring	Bartlomiej Kaminski	June 1999	L. Tabada 36896

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2136	An Empirical Analysis of Competition, Privatization, and Regulation in Telecommunications Markets in Africa and Latin America	Scott J. Wallsten	June 1999	P. Sintim-Aboagye 38526
WPS2137	Globalization and National Development at the End of the 20th Century: Tensions and Challenges	Andrés Solimano	June 1999	D. Cortijo 84005
WPS2138	Multilateral Disciplines for Investment-Related Policies	Bernard Hoekman Kamal Saggi	June 1999	L. Tabada 36896
WPS2139	Small States, Small Problems?	William Easterly Aart Kraay	June 1999	K. Labrie 31001
WPS2140	Gender Bias in China, the Republic Of Korea, and India 1920–90: Effects of War, Famine, and Fertility Decline	Monica Das Gupta Li Shuzhuo	June 1999	M. Das Gupta 31983
WPS2141	Capital Flows, Macroeconomic Management, and the Financial System: Turkey, 1989–97	Oya Celasun Cevdet Denizer Dong He	July 1999	L. Nathaniel 89569
WPS2142	Adjusting to Trade Policy Reform	Steven J. Matusz David Tarr	July 1999	L. Tabada 36896

7/16