Federal Reserve Bank of Minneapolis
Research Department

Finance and Development: A Factual Study
Some Early Findings

Ricardo de O. Cavalcanti, Andres Erosa, and Edward C. Prescott

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Comments: This paper, or should we say proposal for a study, is a replacement for a last minute cancellation. We agreed to present what we have so far in the hope and expectation that we would receive valuable feedback that would result in an improved study.

Economic development requires large investment. Associated with the development of market economies is the development of market arrangements to finance these large investments. In England and Scotland in the hundred year period 1675–1775, quite sophisticated arrangements developed for the market financing of trade, which expanded dramatically during this period (see for example Price, 1989). In the early 1700s, England had security markets where not only stocks were traded but also options, bonds, bill of exchanges and even derivative securities. One view is that the development and use of these arrangements for the financing of trade played a key role not only in the expansion of foreign trade and growth in that period, but also in the industrial revolution which followed.

Goldsmith (1969), McKinnon (1973), and Shaw (1973) all assign an important role to the development of financial intermediation in economic development and have documented that financial claims of intermediaries against the private sector relative to gross domestic product increase with economic development. Additional evidence in support of the importance of financial development in economic development is provided by King and Levine (1992), who find that growth rates are correlated with many indicators of financial development in cross-country data. Not surprisingly then, given the resurgence of interest in economic development, theorists are developing growth models with the property that financial intermediation plays a key role. Examples of such models are those of Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), and Boyd and Smith (1992).

Not all view financial developments as being the key to economic development. Lucas (1988, p. 6) in his essay "On the Mechanics of Economic Development" states the view that financial matters are "badly-over stressed" in discussions of economic development. But, given the importance of the development question and the weakness of other explanations of why there is such

great disparity in income across countries and why some countries experience growth miracles while others do not, organizing the data in light of these theories is perhaps worthwhile.

What is important in these theoretical models is the financing of capital in the business sector. This lead us to focus on the following three quantities and how they vary with the level of economic development. The first quantity is the amount of the private business capital stock that is market financed, as distinct from the amount that is financed by households that own and operate their own businesses. The second quantity is the amount of resources that are used up in the market financing process. The third quantity is the cost per year of market financing per unit of capital that is market financed. Essentially this is the difference in the rate of return on market financed capital in the business sector and the rate of return realized by the households that are the ultimate financiers of this capital.

Associated with economic development there is an increase in claims on the private sector which exceeds the increase in the product of the economy. This has been documented by Goldsmith (1969) and others. However, this quantity is not a measure of how much market financing of the business capital stock is being done. As in national income and product accounting, a distinction must be made between final and intermediate product. With the NIPA system, aggregating firms has no effect upon final product but does reduce intermediate product if some of the output of one of the firms in the aggregate is an input to another firm in the aggregate. Similarly with our system, if a household lends to a firm which in turns lends to a second firm which uses the funds to finance a capital investment, market financing is the amount of the investment. This is the reason we do not include a claim of one business firm on another in our measure of market financing of the private capital stock.

We use the term market financing to include not only financial intermediation but also the financing of the corporate capital stock through the issuance of stocks and bonds. Not all of the

capital stock held by private businesses is financed through the market. The capital stock of farms and small businesses is in significant part financed directly by the owning households. The remaining part, however, is financed through the market. This often entails some households lending to a financial intermediary which in turns lends to a sole proprietorship. Except for that part financed by the government and by foreigners, all the private business capital stock is financed by households.

We also are interested in the total resources used by the economy to carry out market financing. Economists (see, for example, Davis 1965, Cameron 1967, McKinnon 1973, and Shaw 1973) have found that the differential between borrowing and lending rates tends to decline with economic development. This suggests that the efficiency of financial intermediation is associated with the level of economic development. In this study we do not focus on interest rate differentials to estimate the cost of market financing. Rather we use the total product of the financial and insurance sector as our estimate of the resources used in providing market financing. In this pilot study we find that the implicit price of market financing, or actually cost per unit of capital financed by the market, is a large number. This price exceeds $.05 per dollar of capital financed for a year. We also find that this price has been increasing throughout the postwar period in the United States and that the total amount of resources used in market financing is a large number exceeding 8 percent of U.S. gross domestic product in 1986.

We emphasize that this is a factual study. We think better theory is needed to quantitatively assess the importance of different financial arrangements for economic development. Facts influence the development of theory every bit as much as theory development influences the way data is organized and reported. Most would agree that the growth facts played a crucial role in the development of neoclassical growth theory (see Solow 1970).

1. Methodology

Measuring the amount of market financing

Our conceptual framework begins with households and firms as in *The Theory of Value*. The capital stock is owned by the firms which are in turn owned by the households. In the case of a sole proprietorship the distinction between the household which owns the firm and the firm itself is somewhat arbitrary. In such cases, all debts of that combined entity are treated as being debt of the business up to the value of that business's capital stock. Thus, the part of the firm's capital stock that is financed by borrowing from financial intermediary firms we say is market financed. The remainder of this stock is financed by the household which owns the firm. Borrowing from other households is categorized as debt of the household. In the case of a corporate firm, all its capital is market financed either by debt or by equity.

These definitions along with data availability lead us to use the sum of the liabilities of the consolidated unincorporated businesses and households sectors and the amount of capital in the corporate sector as our estimate of market financed private capital. This is not a perfect measure. Some loans to households by financial intermediary firms are not financing capital in the non corporate business sector. However, the total amount of these loans is small given that we follow NIPA conventions and treat home ownership as a business firm which rents the house to its owner. Separating household borrowing for consumption and for financing businesses is necessarily arbitrary. Often households take out large home mortgages so that they have the funds they need to operate their businesses. In a sense, the house is serving as collateral for a loan to their business. Even in cases when a household borrows by increasing credit card debt, often it is to finance its business.

Measuring the resources used in market financing

Here we used as our estimate the total product of the finance and insurance (FI) sector. There are no good definitions much less good measures of the product of this sector.[1] Given this, the value of the output of the finance and insurance sector is obtained by measuring the value of the inputs to the sector. For a bank this comes down to defining its product as being the sum of the fees it charges and imputed banking services. In order for the net product to equal value added, the amount of banking services imputed must be equal to net interest income. An issue is what part of this imputed product is final and what part is intermediate. The U.S. NIPA system is to impute purchases of banking services to the party lending to the bank. When the lending party is a household, these imputed services are categorized as final product and there is a corresponding imputation of interest income in the national income account. On the other hand, the current U.N. NIPA systems is to impute purchases of banking services to the party borrowing from the bank. Given nearly all lending by banks is to businesses, virtually all of the product of banks is intermediate under the U.N. system and there is little imputed interest income. The new U.N. system selects a reference interest rate and it is the difference in that interest rate and the borrowing or lending rate times the quantity borrowed or lent that is the amount of imputed banking services purchased. The issue of what part of the product is final and what part is intermediate is a difficult one, but of secondary importance for this study. The convention used has only small consequence for the measurement of gross domestic product and none at all for measuring total product.

Total product of the finance and insurance sector is not a perfect measure of the amount of resources used. In 1986 the U.S. total product of the FI sector was about 10 percent of GDP. A breakdown of this product into subsectors is not published. Valued added for the FI sector and for

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[1]The only minor exception to this statement is Hornstein and Prescott (1992) who represent casualty insurance contracts as a commodity with a price. Even then, there is an element of market financing because premiums are typically paid prior to when claims are paid.

its subsectors are published. Table 1.1 reports the 1986 valued added for the FI sector and for its subsectors. The FI sector is not exclusively concerned with market financing of private capital, but most is. Banks clearing checks is essentially part of the provision of trade credit. If a country such as Brazil chooses to have an annual inflation rate exceeding 10,000 percent and as a result huge amount of resources are used to minimize floats, these resources are used up in the process of market financing. Indeed in high inflation Brazil in 1993 value added in the banking system was 10.5 percent of GDP (Simonsen and Cysne 1994) while it was only 2.5 percent in the low inflation United States. We include the insurance subsectors in our measure of resources used in market financing because this sector has event contingent liabilities and assets. Some resources used by businesses for market financing do not show up in the total product of the FI sector. For example, the resources used by a nonfinancial corporate finance department are not included in our measure.

Table 1.1

Values Added in Finance and Insurance:

Billions of Dollars: U.S. 1986

Total	**215**
Banking	80
Other Credit Agencies	15
Security Dealers and Brokers	30
Insurance Carriers	50
Insurance Agents and Brokers	25
Other Investment Companies	16

One issue is why combined corporate equity financing with debt financing? These are alternative means of financing and on margin, they must be equal for the minimization of finance costs. Perhaps there is a relation between resources used in market financing and the relative

importance of equity financing. For this reason we report the amounts of these two types of market financing separately as well as the amount of nonmarket financing.

2. Findings for Japan and the United States

In this section we report, for the U.S. and Japan, the share of the capital stock which is market financed and the amount of resources used up in market financing. These data are reported for selected years.

We organize the data in the following way. There are three sectors in our framework: household, corporate, and government. We construct balance sheets so that each claim in one sector is identified with a liability in another sector. Our definition of the household sector differs from the standard NIPA concept. Our household sector includes the unincorporated business sector as well as the NIPA household sector. The reason we treat these two NIPA sectors as one is that an unincorporated business and a household which owns and operates that business face a single budget constraint. Our approach coincides with the way that Japanese national balance sheets are reported (Economic Planning Agency 1993).

We do not distinguish between financial and nonfinancial corporations. All tangible capital of the consolidated corporate sector is market capital. The remaining market capital is held by households and is equal to the amount that households owe to corporations. We report the balance sheets for the household and corporate sectors. The government sector assets are its capital stock and its claims on the other two sectors of the economy. The liabilities of the government sector are government debts owned by households and corporations.

Tables 1 to 4 report the balance sheets of the household and corporate sectors for the U.S. and Japan. Market capital for these economies is presented in Tables 5 and 6. We find that market capital in the household sector relative to GDP is roughly the same in both countries. For instance, this number is 59 percent in 1975 for the U.S., and 58 percent in 1980 for Japan. Regarding market

capital in the corporate sector, we find higher numbers ϕ for Japan than for the U.S. While this quantity for the U.S. is constant at about one GDP in the period 1959 to 1986, there is an upward trend in Japan. Table 4 shows that the value of land held by Japanese corporations more than doubled from 1970 to 1990. This accounts for the upward trend in corporate market capital in Japan.

Tables 5 and 6 also report total product of the finance and insurance sector relative to GDP for U.S. and Japan, respectively. Some common features are noticeable. Total product is a big number (above 6 percent) and features an upward trend for the period studied. In the 80's this increase is more pronounced in the U.S.

Finally, Tables 5 and 6 report the ratio of the total product of finance and insurance sector to market capital for each country. Notice that this ratio is much higher in the U.S.. Further this ratio has increased in the U.S., while it has decreased in Japan. This decline in Japan may be the result of increasing land values.

Table 1

Household Sector Balance Sheet for Selected Years: U.S.

	Stock/GNP		
	1959	1975	1986
Total Assets	3.86	3.64	4.15
Tangible Assets	1.95	2.06	2.09
Residential structures	.81	.84	.86
Land	.52	.54	.63
Plant, equipment, and inventories	.24	.31	.24
Consumer durables	.38	.37	.36
Debt Assets	1.10	1.17	1.54
Financial corporate debt	.64	.72	.81
Pension fund reserves	.17	.27	.48
Nonfinancial corporate debt	.09	.08	.07
Government debt	.20	.10	.18
Equity Assets	.81	.41	.52
Total Liabilities	.45	.60	.70
Owed to			
Financial corporations	.39	.55	.65
Nonfinancial corporations	.05	.04	.04
Government	.01	.01	.01
Net Worth	3.41	3.04	3.45

SOURCE: Diaz-Gimenez et al (1992).

Table 2

Corporate Sector Balance Sheet for Selected Years: U.S.

	Stock/GNP		
	1959	1975	1986
Total Assets	1.76	2.05	2.24
Tangible Assets	.97	1.06	1.02
Residential structures	.01	.02	.01
Land	.16	.10	.12
Plant, equipment, and inventories	.80	.94	.89
Debt Assets	.79	.99	1.22
Household debt held by financial corporations	.39	.65	.65
Household debt held by nonfinancial corporations	.05	.04	.04
Government debt	.35	.30	.53
Total Liabilities	.96	1.12	1.44
Owed to households by			
Financial corporations			
Nonfinancial corporations	.81	.99	1.29
Owed to Government	.09	.08	.07
	.06	.05	.08
Net Worth	.80	.93	.80
Market value of equities held by households	.81	.47	.52
Imputed unassigned net liabilities	−.01	.52	.28

SOURCE: Diaz-Gimenez et al (1992).

Table 3

Household Sector Balance Sheet for Selected Years: Japan

	Stock/GNP		
	1970	1980	1990
Total Assets	3.73	5.25	7.29
Tangible Assets	1.98	2.78	4.29
Land, forest, and fisheries	1.59	2.08	3.67
Pure fixed assets and inventories	.40	.70	.63
Debt Assets	.87	1.32	1.93
Financial corporate debt	.81	1.21	1.79
Nonfinancial corporate debt	.04	.05	.06
Government debt	.01	.06	.07
Equity Assets	.88	1.14	1.07
Total Liabilities	.41	.59	.82
Owed to			
Financial corporations	.26	.45	.66
Nonfinancial corporations	.15	.13	.14
Government	.01	.01	.02
Net Worth	3.31	4.65	6.47

SOURCE: Appendix and Economic Planning Agency (1993).

Table 4

Corporate Sector Balance Sheet for Selected Years: Japan

	Stock/GNP		
	1970	1980	1990
Total Assets	1.89	2.92	4.52
Tangible Assets	1.33	1.79	2.82
Land, forest, and mines	.65	.83	1.76
Pure fixed assets and inventories	.69	.96	1.07
Debt Assets	.55	1.13	1.70
Household debt held by financial corporations	.26	.45	.66
Household debt held by nonfinancial corporations	.15	.13	.14
Government debt	.15	.55	.89
Total Liabilities	1.14	1.80	2.75
Owed to households by			
Financial corporations			
Nonfinancial corporations	.81	1.21	1.79
Owed to Government	.04	.05	.06
	.29	.54	.89
Net Worth	.75	1.13	1.77
Equities held by			
Households	.88	1.14	1.07
Government	.00	.00	.00
Imputed unassigned net liabilities	−.13	−.01	.70

SOURCE: Appendix and Economic Planning Agency (1993).

Table 5

Resources Used and Implicit Price of Market Financing for Selected Years: U.S.

	Relative to GNP		
	1959	1975	1986
Total Tangible Assets in the Private Sector	2.72	2.99	2.99
Owner Financed Capital	1.31	1.34	1.28
Market Financed Capital	1.41	1.65	1.71
in the household sector	.44	.59	.69
in the corporate sector	.97	1.06	1.02
Total Product of the Financial and Insurance Sector	6.30%	7.53%	9.92%
Total Product/Market Capital Ratio	4.47%	4.56%	5.80%

SOURCE: Appendix and Diaz-Gimenez et al (1992).

Table 6

Resources Used and Implicit Price of Market Financing for Selected Years: Japan

	Relative to GNP		
	1959	1975	1986
Total Tangible Assets in the Private Sector	3.31	4.57	7.11
Owner Financed Capital	1.57	2.2	3.49
Market Financed Capital	1.74	2.37	3.62
in the household sector	.41	.58	.80
in the corporate sector	1.33	1.79	2.82
Total Product of the Financial and Insurance Sector	6.12%	7.46%	7.81%
Total Product/Market Capital Ratio	3.52%	3.15%	2.16%

SOURCE: Appendix and Economic Planning Agency (1993).

Some Additional Findings

Table 7

Total Product and Per Capita GDP for Selected Countries in 1985

Country	Total Product[a] % of GDP	GDP Per Capita[b] PPP 1985 U.S. $
Austria	7.16	11172
Benin	2.37	1067
Burkina Faso	2.48	516
Canada	3.44	15695
Denmark	4.06	12884
Ecuador	3.14	2885
El Salvador	3.64	1727
Finland	5.17	12128
Germany, Fed R.	8.19	12543
Ghana	1.92	759
Japan	7.63	12004
Netherlands	7.33	11570
Nigeria	4.42	860
Norway	5.37	14227
Peru	4.96	2481
Portugal	7.57	5026
Rwanda	2.40	731
Sri Lanka	4.24	2152
Sudan	2.91	1027
Sweden	5.18	13313
United States	9.60	16559
Venezuela	4.20	6037
Zimbabwe	5.81	1178

[a]National Accounts Statistics, United Nations.
[b]Summers and Heston's data set (1993).

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