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# Financial Systems and Growth: Evidence from Japan

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*This paper surveys the literature dealing with the relationship between financial system and growth from the empirical and theoretical perspectives. The exact relationship between the growth rate of an economy and its financial structure has been a long-debated issue. Apparently, there appears to be a wide range of empirical evidence, supported consistently by formal econometric research, that growth and financial structure are positively correlated. However, there is little agreement as to the direction of causation and the channels by which each influence the other. The growth issues vis-à-vis competing financial systems further complicate this debate. For a comparison between empirics and theory, we draw out the implications from Japanese experience.*

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## 1. Introduction

Since early twentieth century, economists have worked on a number of theoretical paradigms covering the relative merits and demerits of different financial systems, while analyzing their role in economic growth. Many recent studies on this subject establish the role played by financial systems in supporting the economic growth. But there are few dissenting views that caution us against being too hasty in ratifying this conclusion. The causal link between a well functioning financial system and growth, at best, has not yet been established.[i]

So far, varied and eclectic range of methodologies, such as cross-country, panel, and microeconomic approaches have been employed to understand the nature of this relationship. The cross-country studies examine a number of countries and aggregates, over long time periods and focus on long-run growth. The panel studies, on the other hand, rectify many statistical shortcomings associated with the cross-country studies and capture the time-series dimension of the data. The microeconomic pieces examine the particular channels through which finance may influence economic activity and also deals with causality concerns.

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However, the microeconomic studies operate under a number of maintained hypotheses, which are difficult to validate. Finally, one problem plaguing the entire study of finance and growth pertains to the proxies for financial development. Moreover, theory suggests that financial system influences growth by easing information and transaction costs and thereby improving the allocation of capital, corporate governance, risk management, and financial exchanges, the empirical studies do not directly measure these financial functions. Clearly, the theoretic and empiric sides of finance and growth argument are rather disjointed and there is a clear lack of a linear argument. This brief survey merges these differing hitherto-separated approaches, while examining the issues pertaining to finance-growth nexus. In this paper, we also deal with those aspects of the finance-growth literature, which are not covered in orthodox surveys of the realm.

The growth inducing role of differing financial systems and their respective efficiency could be looked at from the perspective of path dependency that sums up the evolutionary process leading up to the creation of a particular type of structure. In this light, the historical and cliometric research could play an important role. In this paper we address this issue by looking briefly at the Japanese experience, namely comparing the Japanese financial system"s role in generating economic growth during the pre-war and post-war periods.

## 2. Literature Survey

While analyzing the Industrial Revolution, Bagehot (1873) and Hicks (1969) Bencivenga, and Smith (1991) concur that the liquidity provided by UK"s capital markets was instrumental in furthering the Industrial Revolution. Robinson (1952), on the other hand, argues that the financial development was a result of "enterprise"-led robust economic growth.[ii]

Schumpeter (1911) opined that the services provided by financial intermediaries – mobilizing savings, evaluating projects, managing risk, monitoring managers, and facilitating transactions –stimulate technological innovation and economic development.

Gurley and Shaw [1968] were the pioneers who insisted that "..the rise of (financial intermediaries) institutional savers and investors" quickens the growth rate of debt relative to the growth rates of income and wealth.

McKinnon (1973), contrasting East Asian and Latin American experiences, argues that, financial systems did not operate on a demand following mechanism, but rather they are often repressed and which retards growth. He conclude that better financial system bolsters faster economic growth.[iii]

More recently, Rousseau and Sylla (2005) analyze US dataset covering the period

1790-1850 and on that basis argue that the earlier financial development in the US, prior to early 19th century, put the economy "on a trajectory of economic growth higher than that of other nations."[iv] King and Levine [1993a, b] supported Schumpeterian hypothesis by examining a cross-section of data from about 80 countries over the period 1960-1989. They conclude that "better financial systems stimulate faster productivity growth and growth in per capita output by funneling society"s resources to promising productivity-enhancing endeavours."[v]Demirgüç-Kunt and Maksimovic (1996) examine firm-level data from 30 countries and conclude that access to stock markets leads to faster growth. Employing data from externally financed US Industries, Rajan and Zingales (1998) also suggest a positive correlation between sophistication of financial systems on industrial growth. Levine (1997) also derives a positive first order relationship between financial development and economic growth, based on the theoretical reasoning and empirical evidence.[vi]

Greenwood and Smith (1997) argues that economic development creates the precondition for the adoption of those financial structures that support faster growth. Another group of studies focus on the contributions related with the innovation and growth and the methods of financing.[vii] Taken together these studies provide considerable support for a relationship between finance and growth. However serious questions are being raised about the consistency and quality of these cross-country dataset.

In sum, the empirical research is indicative of a correlation and causality between financial system and growth, but that does not make finance an essential prerequisite. Chinese experience suggests that, growth can be achieved even when the financial sector is largely underdeveloped. In this sense, finance has more of a supporting role.[viii]

## 3. Financial System Dichotomy And Growth[ix]

Another relevant element of the debate concerns the relative contribution of banks and financial markets in spurring growth. Historically scholars have argued that banks are easier to control, to further the developmental objectives. Especially after the pioneering work by Gerschenkron (1962), there have been attempts at associating the competing financial mechanisms with financial sophistication and level of development. In line with this argument, Boyd and Smith (1998) argue that banks are important at low levels of development while markets become more important as income rises. Similarly, Rajan and Zingales (1998) suggest that banks are less dependent than markets on legal system. Hence, banks can do better when the legal system is weak and markets perform better when the legal system is more developed.

Analyzing this contrast, Tadesse (2000), in a study of 36 countries from 1980-1995, does find a difference between bank-based and market-based financial systems. For underdeveloped financial sectors, bank based systems outperform market-based systems, while for developed financial sectors market-based systems outperform bank-based systems.

Levine and Zervos (1998) show that higher stock market liquidity or greater bank development lead to higher growth, irrespective of the development of the other. There is also some evidence to the view that financial markets and banks are complementary rather than substitutes. Demirgüç-Kunt and Maksimovic (1998) show that more developed stock markets tend to be associated with increased use of bank finance in developing countries.

Bank-based financial systems are particularly advantageous in weak institutional environments and during the early stages of development.

## 4. The Japanese Evidence

The "intimate financial relations between banks and their client firms" is the quintessential feature of post-war Japanese financial system. Also defined as bank-based system of relationship financing, the Japanese financial system became an archetypical reference point, in the raging debate about the efficiency and effectiveness of competing national financial models. In a definitive analytical work of epic proportions, Aoki and Patrick (1994) examine the basic characteristics of Japanese main-bank system.[x] One consensus that emerges from that seminal work is that, bank based systems are most appropriate for industrial financing, until a rather late stage of a country"s economic and financial development.[xi]

Yet, in historical terms, it would be wrong to construe Japanese case only as a beacon of bank-based institutional mechanism. In fact, our choice of incorporating Japanese case relies heavily on what happened there prior to 1927.[xii] On the basis of historical evidences, in this section we seek to construct an argument regarding the finance and growth debate. In Japan, the basis of prewar financial system differed considerably to what transpired in the post-war high growth years. Unlike post-war system where banks played a leading role, the prewar systemic arrangements, especially during the interwar period, were tentatively skewed towards stock market. Under this assumption, we did a simple comparison of inter temporal growth data. Though, admittedly such comparisons are fraught with serious errors and misinterpretation.

According to Horiuchi (2006), securities market played a leading role in corporate financing during 1920s and 1930s. Table 1 shows the structure of industrial sector financing from early 1930s to the mid-1980s. As per this table, securities financing, particularly in the form of stocks, was important to industrial financing during the 1930s, and during the period of wartime controls, loans from private financial institutions assumed greater significance. "It was not until the 1940s that loans supplied by private financial institutions came to dominate industrial finance in Japan."[xiii]

**Table 1: Composition of financing of Japanese non-financial firms**

(Average figure, %)

| | 1931-40 | 1941-44 | 1946-55 | 1956-65 | 1966-75 | 1976-85 |
|---|---|---|---|---|---|---|
| Retention | 37.0 | 28.2 | 37.0 | 41.1 | 43.8 | 58.8 |
| Loans from private financial institutions | 27.3 | 41.8 | 45.4 | 43.7 | 45.8 | 32.4 |
| (Loans from banks) | (21.1) | (45.8) | (31.7) | (26.1) | (23.9) | (20.3) |
| Loans from government financial institutions | 0.0 | 0.0 | 4.2 | 3.4 | 4.3 | 3.3 |
| Special account for public investment and loans | -0.9 | 1.2 | 2.6 | 0.9 | 0.6 | 1.1 |
| Bonds | 4.3 | 8.6 | 2.3 | 2.6 | 2.0 | 1.4 |
| Shares | 31.0 | 19.5 | 8.7 | 8.3 | 3.4 | 3.1 |
| Other | 1.3 | 0.1 | -0.2 | 0.0 | 0.1 | -0.1 |
| | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Note: The figures for "retention" are derived from the National Income Statistics, which are based on data prepared by the Economic Planning Agency. For this reason, these figures differ from the others figures, which are estimates prepared by the Bank of Japan, and should be regarded with care.

Source: Horiuchi A. (2006). "How was the Bank-Based Financial System Formed in Japan?" Unpublished lecture note. Peking University. April 3-5. p.4.

Stressing this distinction Calder (1993: 29) writes "In contrast to the post-World War II years, Japanese corporations in the 1920s and 1930s had relied heavily on bond finance. Even in 1931 bonds provided 29.9 percent of external corporate funding and bank loans only 13.6 percent."

Table 2 shows changes in the financing pattern for "major" companies and averages of real growth rates (in terms of GNP) from the late 19th century to the interwar period. Although until the 1920s, the major firms were considerably dependent on bank borrowing, from the late 1920s to the mid-1930s, their bank borrowings became negative; clearly there was a substantial decrease in the outstanding amount of bank loans. During this period, the major companies relied on stocks and bonds to raise financing. This appears to be a drastic change in corporate financing pattern. However, the average real growth rate during this period remained at a little higher than those attained until the 1920s. Thus, the high dependence of companies on bank borrowing may not be the real cause of rapid economic growth seen during the earlier stages of Japan"s industrial development. Rather the fragility of the banking sector during the period before the 1920s means banks played limited role in propelling economic growth.

**Table 2 : Financing structure of "major" companies and Japan"s real growth rate**

| Period | Retention | Stock | Bonds | Borrowing from banks | Real GNP growth rate (annual rate) |
|---|---|---|---|---|---|
| 1897-1913 | 3.6 | 32.4 | 6.5 | 57.5 | 2.00 |
| 1914-1926 | 1.9 | 38.2 | 12.6 | 47.3 | 3.53 |
| 1927-1936 | 21.6 | 80.4 | 27.4 | -29.4 | 4.26 |
| 1937-1944 | 11.1 | 24.5 | 23.8 | 40.5 | 5.05* |

Sources: Same as Table 1, p.8.
Note: * Average for 1937-1940.

Combining financial theory with new data and case studies, Hoshi and Kashyap (2001), examine the history of the Japanese financial system, from its nineteenth century beginning through the collapse of the 1990s, which also pushed the sweeping reforms. They rather fervently argue that capital market was more important in pre-war Japan, than many would like to assume.

In order to validate the argument proposed by Hoshi and Kashyap, we prepared Table 3 that shows the total value traded of stock per GNP for the interwar and the postwar high growth periods. Just like the market capitalization ratio, stock market liquidity indicates that the Japanese stock market was more active in the interwar period than in the postwar high growth period.[xiv]

**Table 3: Relative importance of stock and bank loans, per nominal GNP**

| Period | 1928-1940 | 1960-1975 |
|---|---|---|
| Stocks | 0.98 (0.57) | 0.31 (0.08) |
| Total value traded (a) | 0.54 (0.19) (b) | 0.18 (0.09) |
| Bank loans | 0.57 (0.095) | 0.57 (0.04) |
| Percentage of shares owned by financial institutions (%) | 11.5 | 39.9 (c) |
| Real GNP annual growth rate | 4.57 (3.03) | 8.58 (3.88) |

Note: “Bank loans” are the outstanding amount of bank credit supplied by banks, not including credit cooperatives and other financial institutions. Figures in parentheses are standard deviations. (a), (b) and (c) are respectively the total value traded on the Tokyo Stock Exchange, the average of the period from 1928 to 1937, and the average of the period from 1965 to 1975.

In the prewar stock market, *zaibatsu* families and their holding companies played a dominant role by mainly controlling the corporate management. Thus the banking sector played only a limited role in corporate financing, mostly catering to companies with difficulties in the areas of information and governance.[xv]

In short, the empirics reviewed here suggest that during the last one century at different point of time, Japanese financial system in a proteanistic manner, showcased the characteristics of *laissez faire* type capital market based financial system, as also the bank-based set up that ensued thereafter. The growth rate differential is hard to comprehend, let alone the need to compare them, more so because they bore the imprints of vast array of exogenous shocks. The fragility of banks in the pre-war period led the major companies to venture into stock market financing. That decision clearly was not based on calculation regarding the growth potential of the competing systems, but was geared towards a systemic arrangement capable of stable financing, of mapping corporate need for funds. Even a cursory look at Japan’s post-war growth dynamics testifies to the exemplary performance of the bank-based financial system. If Japan embraced capital market-based system, would growth be any different? Such hypothetical questions are difficult to answer, though they find reference in a number of highly influential papers.

It is safe to say that, during the post-war resurgence banks were better suited to the government led developmental goals. Though one feels the system was retained for too long, long after it outlived its utility.

## 5. Conclusion

The various strands of literature on finance and growth present a disjointed view of theoretical, econometric and historical propositions. While the different methodologies have distinct strengths and weaknesses, they produce remarkably consistent results. The empirical research seconds some of the basic arguments regarding the precise nature of finance and growth nexus, but they are not simultaneously tested on theoretical ground. The main conclusions that we gather from these studies are as follows:

- The empirical research does indicate a correlation between financial system and growth, but it is riddled with serious methodological problems. The cross-country research needs to be supplanted with time series evidence, in order to enhance the credibility, by capturing the transition across a longer time for a given country.
- Countries with better-developed financial systems tend to grow faster. The size of the banking system and the liquidity of stock markets are each positively linked with economic growth.[xvi]
- Better-functioning financial systems ease the external financing constraints that impede firm and industrial expansion.
- There are evidences that support finance led growth hypothesis, however this causality is not absolute.
- Finance is not the only determinant of growth.[xvii]

It would be wise to underline the fallibility of these tentative conclusions. These findings may certainly be refuted, improved, and clarified by future work. To the extent that financial systems exert a first-order influence on economic growth, this motivates research into the determinants of well-functioning financial systems.

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Endnote:

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[i] In one of the earlier attempts at defining the causality issue, Goldsmith (1969), gleaned through the data from thirty-five countries between 1860 and 1963 and deduced, a "rough parallelism …between economic and financial development" in the long run, and the "indications….that periods of more rapid economic growth have been accompanied, though not without exception, by an above average rate of financial development"; Levine (1997), Rajan and Zingales (2003) support this view, *inter alios.*

[ii] In the finance-growth debate, causality continues to be one of the most contentious issues.

[iii] McKinnon (1973) compiled the case studies of Argentina, Brazil, Chile, Germany, Korea, Indonesia and Taiwan.

[iv] Rousseau and Sylla (2005:21).

[v] King and Levine (1993b:540).

[vi] The functional approach, according to Levine (1997) focuses on the ties between growth and the quality of the functions provided by the financial systems. He discourages a narrow focus on one financial instrument, or a particular institution.

[vii] For example, Saint-Paul (1992) emphasizes the importance of technological choice in finance-growth debate.

[viii] Analyzing Chinese growth, Allen et al (2002) contend that "China is an important counterexample to the findings in the law, finance, and growth literature: neither its legal nor financial system is well developed by existing standards, yet it has one of the fastest growing economies…With much poorer applicable legal and financial mechanisms, the informal sector grows much faster than the formal sector, and

provides most of the economy"s growth. There exist effective informal financing channels and governance mechanisms, such as those based on reputation and relationships, to support this growth."

[ix] In a somewhat crude classification, financial system are said to be of two types: bank-based and market-based. [For detailed discussion see Allen and Gale (2000), Levine (2002)] In recent years, the concept of dichotomy has come under sharp criticism, mainly for two reasons. Firstly, efforts to compare various financial systems have unveiled the wide variety and uniqueness of national financial systems. Another related realization corresponds to the fact that most of the economies use a pragmatic mix of financial markets and institutions and for all practical purposes, do not belong to these two extremes. Despite the fallibility of this concept, it does provide a very useful marker for a country like Japan, considered an archetype of the so-called bank-based financial system.

[x] The main bank relationship describes a set of informal arrangements that had developed without the explicitly legal or regulatory basis, which constitutes a system of corporate financing and governance.

[xi] This conclusion reaffirms the basic underpinnings of the Gerschenkron hypothesis, though in a totally different context and milieu. Mayer (1990) also builds a similar case by pointing out the fact that bank financing played significant role in almost every industrial country.

[xii] Owing to the banking crisis of 1927, the policy makers sought to dispel even minor possibility of instability by strictly enforcing the newly adopted legal framework and vigorously promoting the mergers among banks through explicit administrative guidance, and by force during the war years. Also see Horiuchi and Sharma (2005).

[xiii] Horiuchi (2006).

[xiv] Horiuchi (2006:19); According to Levine (2002: 419) the stock market liquidity, measured by the total value traded per GNP, is significant in explaining cross-country real economic growth.

[xv] Fujino and Teranishi (2000).

[xvi] Simultaneity bias does not seem to be the cause of this result.

[xvii] Chinese growth juggernaut, achieved in absence of well functioning financial sector, suggests that besides financial system, there are other important determinants of growth. For detailed discussion, see Allen et al (2002).