ISSN 0075-6407

KOBE

ECONOMIC & BUSINESS

REVIEW

47th

ANNUAL VOLUME

RESEARCH INSTITUTE FOR ECONOMICS
AND BUSINESS ADMINISTRATION
KOBE UNIVERSITY

2002

KOBE ECONOMIC & BUSINESS REVIEW

ISSN 0075-6407

KOBE ECONOMIC & BUSINESS REVIEW

47th

ANNUAL VOLUME

RESEARCH INSTITUTE FOR ECONOMICS
AND BUSINESS ADMINISTRATION
KOBE UNIVERSITY

2002

CONTENTS

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 1-3

THE THEORY OF INTERNATIONAL TRADE

RONALD W. JONES **University of Rochester**

It is a great honor and pleasure for me to receive this award from Kobe University. I especially wish to thank Seiichi Katayama for his work in making this possible. The steady stream of first-rate Japanese graduate students we have received at the University of Rochester since the formation of our group in 1957 has proved to be the backbone of our graduate program these many years. I personally am grateful for the opportunity to have had these students in class, to have supervised some of the excellent dissertations and, indeed, to have had the pleasure of working with four Japanese co-authors.

I fell in love with international trade theory early in my career — indeed as an undergraduate at Swarthmore College. This affair continued through four years at M.I.T. under the supervision of Bob Solow, Paul Samuelson and Charlie Kindleberger, in the first half of the decade that also subsequently saw Bob Mundell, Jaroslav Vanek, Egon Sohmen, Ron Findlay, and Jagdish Bhagwati as M.I.T. students. But perhaps the sources of the greatest influence on my work were to emerge at the University of Rochester. Lionel McKenzie had just taken over the department and was a huge supporter of the close relationship between the field of international trade theory and general equilibrium theory. Akira Takayama, our *ichi ban* graduate student, was already there when I arrived, and shortly thereafter from Kobe came Akihiro Amano, to whom I owe a great debt both for his substance and his style — indeed I should say I take my "hats" off to him. I believe that Prof. Mizutani was responsible for encouraging young economists from the Kansai area to take their degrees from Rochester. Sent from Kobe by Mizutani, Yasuo Uekawa was irrepressible as a student and seemed to have become a national treasure later in Japan. (I am pleased to see his wife and daughter here today. It is not possible for me to be in Kobe without remembering Yasuo's gracious and warm hospitality.) Nobuo Minabe showed how it

Corresponding Address
Ronald W. Jones
Department of Economics, University of Rochester
Rochester, NY 14627, USA
E-mail: jonr@troi.cc.rochester.edu
Tel: 1-585-275-2688

The original version of this paper was presented by the author when he was awarded the Honorary Degree by Kobe University on the 15th of July 2002.

was possible for Japanese students to publish in such major English-language journals as the *American Economic Review.* Fumio Dei and Katsuhiko Suzuki were high points in the next generation of trade students from Kobe. And the list goes on, with trade students from the Kanto area joining those from the Kansai, including Michihiro Ohyama, Motoshige Itoh, Makoto Yano, Kazuo Nishimura, Shumpei Takemori and, more recently, Hajime Kubota and Morihiro Yomogida.

Now it is time for me to reflect on my discipline. In searching for the key scenario that distinguishes the broad field of international economics from other fields in our profession I would select the scenario in which markets have *overlapping domains.* What I mean by this is that local agents are active as producers and consumers, with some markets being international, whereas others are purely national or regional. The nature of the *interactions* between these markets is our central concern. In neo-classical settings the principal national markets have been factor markets. In theory the possibility emerged that wage rates and other factor prices might be brought to equality between countries that share the same technology merely by their willingness to trade commodities in open global markets, despite the fact that foreigners are not allowed to compete directly in national factor markets. More generally stated, it is not just the case that countries can capture the celebrated gains from trade by producing some items for the world market, while deciding to preserve other markets (e.g. that for labor) for themselves. The problem is that active participation in world markets increases the degree of *dependence* that purely national markets have on the prices established in the world markets for traded goods. Therefore all countries tend to shy away from completely free trade. Tension and ambiguity describe the decisions that countries must make between receiving the gains from reaching out to world markets on the one hand and preserving some sovereignty and control over other markets on which countries wish to imprint their own sets of values on the other. In the theory of international trade we sometimes use the concept of autarky, with all markets national, as a convenient benchmark. However, our primary concern is to investigate interactions between world markets and purely national ones as well as to examine the effects of imposing different conditions (e.g. tariffs) on our own agents when they engage in international markets.

As opposed to some other fields in economics, a hall-mark of the models that we use to study international trade theory is their long half-life. We still find good use for Ricardian models of trade, especially when the international distribution of income is at issue, e.g. with present concerns about the differential impact of globalization on rich and poor countries. The Heckscher-Ohlin and Specific-Factors models have proved their worth in investigating intranational distribution issues — e.g. how the return to unskilled labor has fared compared with other factor rewards. Of course most fields in economics experience "revolutions" in ideas that threaten to unseat standard doctrine, and our field is no exception. In the international area in recent years we have had "new trade theory" and "new economic

geography". I would describe these as very useful *additions* to our standard body of theory, contributions that serve to *enrich* rather than to replace what came before.

I say this because a common strand running throughout all international trade theory is the importance and significance of extending the scope of trade, and this has an effect on the *nature of competition.* Admittedly, such international competition may not be perfect — there is room for monopolistic or oligopolistic competition, and the insights thereby obtained are important. However, if competition is to describe any set of markets, the description fits especially well the set of world-traded commodities. And with any type of competition cost asymmetries between countries are important, and therefore the *composition* of costs has a central role to play. This takes us back to basics — to looking at technology, factor supplies and wage rates. For example, a strong multi-national firm may face competition from only a few international players, but in its activities it may have to decide where in the world to locate production facilities, perhaps "fragments" of a previously vertically integrated production process. Surely its decision is based importantly on considerations of cost differentials among contending locations, even if profits are made in equilibrium so that commodity prices eventually do not settle at the level of average costs. And the existence of increasing returns and improvements in technologies may prove useful in explaining the lowering of the costs of service links connecting separate production fragments and thus allowing more geographical dispersion.

Our field of international trade theory is wide, it is deep, and it welcomes to its fold many of the disparate new developments in economic theory. It is still concerned with countries, with the interaction among markets with different domains, and with the importance of cost differentials. And I expect these issues will continue to engage our attention in the future.

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 5-22

THE FALL OF 'COMPANYISM' IN JAPANESE CORPORATE SYSTEM*

KENJI KOJIMA **Kobe University**

Abstract

This paper examines the effects of structural changes in financial system on corporate system, particularly finance and employment in Japan, and discusses the underlying problems and the future directions. Japanese corporate system can be characterized to be cooperative long-term relationships with factor suppliers in the absence of strong control by shareholders, so called 'companyism.' Companyism of large firms has worked well in the most of the post-war period. Since substantial economic growth can no longer be expected in Japan, long-term relationships with factor suppliers have been undergoing changes. Japanese firms have found it impossible to maintain existing employment relations. It has been getting harder for the firms to avoid drastic reduction of employees.

JEL Classification: G20; G32; J33
Keywords: Corporate finance; Financial systems; Labor relations; Japanese firms.

1 Introduction

Japan has been managing to avoid the worst of the pain from the collapse of its bubble economy earlier 1990s. In the 1980s, Japanese firms raised cheap equity-linked debt to investment in the expectation that the economy would continue to grow at a fair rate. But rather than reduce capacity since then, the firms borrowed to add more, encouraged by interest rates that were close to zero. Heavy spending in the 1980s have left Japanese firms

Corresponding Address
Kenji Kojima
Research Institute for Economics and Business Administration (RIEB), Kobe University
2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
E-mail: kojima@rieb.kobe-u.ac.jp
Phone/Fax: 81-78-803-7018

* Portions of this paper were presented at the 77th Annual Conference of Western Economic Association International (July 2002). I am grateful for participants at that conference for useful comments and suggestions. Financial supports from Ministry of Education and Science in Japan are gratefully acknowledged.

laden with debt. Although business sales have doubled since 1980, corporate debts are more than triple their level in that year. While healthy manufacturing sector is abundant in cash, the rest of the economy, particularly construction, property, retailing companies, is heavily indebted. Firms have been able to meet the interest charges on this debt mainly because the Bank of Japan has kept short-term interest rates at the bottom levels since 1994.

Japanese corporate system can be characterized to be cooperative long-term relationships with factor suppliers in the absence of strong control by shareholders, so called 'companyism.' Companyism of large firms has worked well in the most of the post-war period. But, the remarkable success of Japanese firms in that period has revealed its weakness. The managerial entrenchment against the capital markets has given rise to the expression of latent self-interests that were contained during the high-growth period. With their diminishing control over non-financial firms, the ability of banks to monitor and undertake corrective action is greatly reduced. It is weakening of vital control mechanism in the Japanese corporate governance system that can substitute for market for corporate control. Since Japanese major firms are no longer subject to substantial control from main banks, the lack of an effective control mechanism would be detrimental to corporate value maximization in the long run. The Japanese corporate finance is now in trouble: excess capacity and employees, declining profits. More bankruptcies seem inevitable, as Japanese banks become unable to withstand deteriorating their balance sheets. The only way to improve profitability and enhance corporate value of Japanese firms is drastic restructuring their business and resources.

Since substantial economic growth can no longer be expected in Japan, long-term relationships with factor suppliers have been undergoing changes. Japanese banks have begun to write off bad loans much more actively than before, and this in turn has forced firms to carry out restructuring more thoroughly, particularly in employment. Japanese firms have found it impossible to maintain existing employment relations, which place importance on seniority-based long-term employment. Under these circumstances, the firms have tried to maintain implicit long-term contracts. But it has been getting harder for the firms to avoid drastic reduction of employees.

This paper examines the effects of structural changes in financial system on corporate system, particularly finance and employment in Japan, and discusses the underlying problems and the future directions. The primary purpose of the study is twofold: to identify important features of changes in financial system in Japan and their effects on corporate finance and employment; to develop problems and insights concerning corporate management and capital market under institutional and regulatory environments.

This paper is organized as follows. The next section presents the major problems in the Japanese financial system, particularly bad loan problem. Section 3 describes major problems and changes in the Japanese corporate finance. In particular, it describes resolution of

cross-shareholdings and progress of corporate restructuring in Japanese firms. Section 4 discusses distinctive features and recent changes in the Japanese employment system. Some aspects of Japanese employment system have gradually changed over the last decade. Most of these changes are the result of changes in the structure of Japanese corporate management, which in turn can be traced to changes of Japanese financial system and technology.

2 Problems in Japanese Financial System

2.1 Bad Loan Problem

In the late 1980s, deregulation of interest rates, which raised the cost of funds to banks, caused the change of bank portfolio. Then the bank increased easy collateralized loans to investment in real estates. Prices of assets have been declining since the early 1990s in Japan. This decline of asset values has caused the large amount of bad loans to investments in real estates. Large amount of bad loans has deteriorated banks 'equity and major banks were unable to meet BIS (Bank for International Settlements) capital requirement. Japanese banks issued the subordinated debts to recover their capital-assets ratio. Non-performing loans to real estates have caused the serious problems with banks' own balance sheets. The capital adequacy ratios of major banks have risen thanks in part to the infusion of public funds and stood at an average of 12.2% at the end of fiscal 1998, 4.2 percentage points above the international standard of 8%. On the other hands, those ratios of some local banks and other financial institutions are below the required level, 4% (Economic Planning Agency, 2000b).

Many of Japanese banks are still in trouble with bad loans. Since the early 1990s, the banks have written down almost twice their entire capital and reserves in an attempt to dispose their bad loans. But those bad loans have stubbornly remained in the balance sheets. After the most recent crisis in 1997-98 the government set up a special body, the Financial Reconstruction Commission (FRC), to clean up the structure of financial system. The FRC has not completed its task by 2001. Japanese banks are still far from meeting the goals set out for them by the government in 1998; they remain burdened with bad debts, poor profitability and economic slowdown.

The outstanding balance of risk management loans at Japanese sixteen major banks decreased to 17.2 trillion yen at the end of fiscal 1999, after rising from 18.9 trillion yen at the end of fiscal 1997 to 30.2 trillion yen at the end of fiscal 1998. The cumulative total of their non-performing loans disposed and reserved built up from fiscal 1992 to fiscal 1999 reached 45 trillion yen. On the other hand, the balance of risk management loans at regional banks increased to 10.6 trillion yen at the end of fiscal 1999 from 7.4 trillion yen at the end of fiscal 1997. The cumulative total of their non-performing loans disposed and reserved built up from fiscal 1995 to fiscal 1998 came close to 10 trillion yen. This rise in the disposal

amount could be due to each bank's efforts to dispose of non-performing loans amid moves toward reorganization of the financial institutions, a deterioration of debtors' financial conditions, and a decline in land prices (Economic Planning Agency, 2000b).[1]

The accuracy of banks' self-assessment of non-performing loans has improved as a result of the intensive examination and inspection conducted by the Financial Supervisory Agency, and other government agencies. Internationally operating banks are disposing of their non-performing loans in accordance with guidelines provided to them by FRC in connection with injecting public funds into their capital base. The non-performing loan situation has become more transparent and disposal of non-performing loans is carried out more properly than in the previous phase of economic recovery in 1995-1996.

Part of the trouble is that Japanese banks are incorrectly classifying their loans. The loan books of The Long-Term Credit Bank and Nippon Credit Bank, two nationalized banks, illustrate the extent of such erroneous classification. They have been stripped of their deadbeat loans by the FRC, and then sold to third parties. But even after the official clean up, loans to companies such as a large department store that later went bankrupt, were classified on the books as good assets.

In addition, the banks have overestimated the value of the property backing many of their loans. Urban land prices for commercial use have fallen by as much as 75% in 1999 since their peak in the early 1990s, and they are expected to fall further (National Land Agency, 2000). This means that the banks have undervalued the portion of those loans without collateral, that is, the portion against which they need to hold reserves. The banks are estimated to have problem loans being substantially below the market value. The banks are unable to lift themselves out of trouble because they find it hard to make decent profits. The banks have to resort to such last-ditch measures largely because they are still losing money on their core lending business, and they have been unable to develop fresh fee-based business as an alternative source of revenue (Economist, January 27th 2001).

The economy is slightly recovering, but this is not helping the banks much. Most of the restructuring that is the basis for recovery is in firms, which are able to withstand some short-term troubles. So healthy firms are getting stronger while the bad ones remain weak. The healthy firms are also shifting fund-raising directly to the capital markets, with the result that the banks' clients are becoming increasingly concentrated on the problem firms.

---

1 The scope of disclosure of non-performing loans has been expanded gradually since fiscal 1992. In fiscal 1997, loans in arrears by three months or more and less than six months and restructured loans were added to the items that all banks must disclose along with loans to borrowers in legal bankruptcy and past due loans in arrears by six months or more. As a result, disclosure is now no a par with the SEC standard in the U.S. In fiscal 1998, the calculation standards for loans to borrowers in legal bankruptcy and past due loans in arrears six months or more were changed, and major banks disclosed bad loans under the Financial Reconstruction Law (Economic Planning Agency, 2000b).

The banks have been able to disguise their problems because of the unrealized equity gains that they have on their balance sheets. But plunging stock markets are removing most of these because of introducing market-value-based accounting in 2001 meaning that unrealized securities losses will start being deducted from the capital. The banks will be less willing than ever to undertake write-offs of their bad loans with such losses to account for.

The banks and the rest of the economy are caught in a vicious cycle. Banks have been all too willing to forgive debt or to provide new credit lines in order to keep deadbeats on their feet, and this has hindered the structural reforms needed to revive the economy. This, in turn, is sapping the banks' own strength, leaving them reluctant to take on more risk by lending to the promising businesses that should be leading Japan economy out of slowdown (*The Economist*, January 27th 2001).

2.2 Corporate Bankruptcy

In November 1997, Yamaichi Securities, the Japan's fourth largest security firm, and Hokkaido Takushoku, a large city bank, went bankrupt. These bankruptcies had two important implications: that even large firms can fail, and that a main bank's implicit promise to rescue its major client firms is doubtful. The Japanese corporate finance is now in trouble: excess capacity, too much debt, falling demand, and declining profits.

Japan's heavily indebted firms are still struggling to increase the sales under constrains of rising burdens of debt. This is because the economy is not growing in nominal terms although growing in real terms. Since debts are always nominal, the ability of firms to service their loans rises only with nominal increases in profit, not with deflation-adjusted increases. Hence, cleaning up after Japan's asset-price bubble is getting harder. Many of financially distress firms need to be reorganized. Japanese banks need to deal with its exposure to bad loans, before it can commit with conviction to new lenders. But such workout is now under way and remains still debatable. Thus the rise in major bankruptcies has been far exceeded by a surge in debt forgiveness, as banks have written off debts to give a fresh start to otherwise viable firms, or have done just enough to allow the weak firm to survive. Although some forgiven firms may be worth saving, writing off debt in exchange for restructuring plans is rarely rewarded with a turnaround in the firm's wealth, particularly construction and retailing companies.[2] More bankruptcies seem inevitable, as firms become

2 The civil reorganization law that replaced the Composition Law was promulgated as the basic law to provide procedures to reorganize financial distressed firms in December 1999. The main features of the law, which went into effect on April 2000, are that (1) a firm facing financial distress can apply for court-mandated reorganization proceedings before it goes bankrupt, (2) it covers a wide-range of small and medium-sized firms, while the Corporate Reorganization Law covers only incorporated firms, (3) its procedure is simplified compared with the Corporate Reorganization Law, thus enabling prompt proceedings, and (4) the management can stay in control↗

unable to service their debts. Table 1 shows that number of bankruptcies and average amount of debt default have been growing since 1995. Without growth, the only way to improve the profitability of Japanese firms is drastic restructuring to remove excess capacity and employees, and unrelated businesses.

Furthermore, the listed firms have been required to make preparations for the introduction of new accounting standards, such as consolidated accounting, market-value-based accounting, and retirement-benefit accounting since April 1999.[3] Strict new accounting rules seem to have been the strong impact on recent corporate bankruptcy as well. A requirement to value assets at market, rather than book value, have made clear the extent of the problem in corporate finance.

Table 1. Bankruptcy of Japanese Firms Five-Year Average

	Number of Cases	Amount of Liabilities (100 million yen)	Average Amount of Liabilities (100 million yen)
1970-74	9,199	8,588	0.934
1975-79	15,725	23,650	1.540
1980-84	18,522	28,072	1.515
1985-89	13,260	26,845	2.025
1990-94	11,977	60,446	5.047
1995	15,108	92,411	6.116
1996	14,834	81,229	5.475
1997	16,464	140,447	8.530
1998	18,988	137,484	7.240
1999	15,352	136,214	8.872
2000	18,769	238,850	12.725

Sources: The Bank of Japan (1974, 1978, 1986, 1995), *Economic Statistics Annual, Toyo-Keizai Tokei Geppo* (Toyo-Keizai Statistics Monthly) (April 2001).
Source Note: Tokyo Shoko Research Ltd.

without losing the management position and thus continue reorganization effort even after the start of court-mandated proceedings. Since an application filed for court-mandated reorganization proceedings, unlike an application for the Composition Law, cannot be dropped after a court injunction, there are many firms wishing to file an application (Economic Planning Agency, 2000b).

3 Starting with the financial year beginning on April 1, 1999, (1) the scope of subsidiaries and affiliated companies will be expanded as a result of the introduction of the controlling standard instead of the conventional share-holding standard in the preparation of consolidated financial statement, (2) tax-effect accounting will be introduced to individual financial statements in addition to consolidated financial statements, (3) the disclosure of consolidated cash flow statements become mandatory. Starting in the financial year beginning on April 2000, financial assets, real estate for sale, securities other than cross-held shares, and pension assets and liabilities have to be evaluated at market values. It is scheduled that cross-held shares are evaluated at market values in the financial year beginning April 2001 (Economic Planning Agency, 2000b).

3 Changes in Japanese Corporate Finance

3.1 Cross-shareholdings

As shown in Table 2, the rapid growth of assets and low profitability of Japanese banks has led to concern about their capital adequacy. Japanese banks need to watch their financial

Table 2. Profit Performances of Commercial Banks in Germany, Japan, and the U.S.A Five-Years Average (Percentage)

Gross Profit Margin	Germany	Japan	U.S.A.
1980-84	2.24	1.75	1.99
1985-89	2.21	1.35	3.47
1990-94	2.10	1.23	3.35
1995	1.95	0.47	3.42
1996	1.80	0.40	3.39
1997	1.62	0.36	3.30
1998	1.45	0.39	3.18
1999	1.41	0.50	3.31
Pre-tax Return on Assets			
1980-84	0.54	0.53	0.90
1985-89	0.70	0.58	0.78
1990-94	0.54	0.26	1.10
1995	0.73	−0.16	1.80
1996	0.71	0.03	1.82
1997	0.68	−0.75	1.89
1998	0.54	−0.80	1.75
1999	0.40	0.29	2.03
Return on Equity			
1980-84	14.06	14.43	15.34
1985-89	12.11	16.41	11.13
1990-94	10.49	6.11	16.04
1995	9.58	−3.35	22.42
1996	10.52	0.60	22.03
1997	10.56	−14.95	22.39
1998	9.21	−12.37	20.63
1999	6.39	5.73	23.92
Equity to Assets			
1980-84	5.89	3.69	6.19
1985-89	6.84	3.64	6.50
1990-94	8.15	4.41	7.20
1995	7.66	4.90	8.01
1996	6.74	4.92	8.27
1997	6.43	4.99	8.43
1998	5.91	6.50	8.49
1999	6.33	5.02	8.49

Sources: The Bank of Japan (1974, 1978, 1986, 1994, 1996, 1997, 2000), *Comparative Economic and Financial Statistics: Japan and Other Countries.*
Source Note: Statistiches Bundesamt, *Unternehmen und Arbeitsstatten,* The Bank of Japan, *Syuyokigyo Keieibunseki* (Business Analysis on Main Enterprises in Japan), The U.S. Department of Commerce, *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*

performance carefully. In contrast to the low-margin, volume-oriented banking practices, Japanese banks are now restraining growth and carefully tracking the profitability of their relationships with clients. Increasingly, banks according to the profitability of the relationship with them are ranking clients. Just as industrial clients are now short listing the banks with which they do business, banks are now beginning to identify and terminate relationships with clients that do not provide them with sufficiently attractive rates of return.

The changing patterns of Japanese corporate finance and the competitive pressures on Japanese financial institutions to increase their return on assets has resulted in a separating of claims held against non-financial firms. Rather than being key shareholders, lead lenders, and primary vendors of financial services in long-term relationships with clients, Japanese banks are now being reduced to the position of minority stakeholder that must compete fiercely for a client's business on a transaction-by-transaction basis. For their part, Japanese banks, under pressure to meet BIS capital requirements are becoming more sensitive to performance on their equity investments. Japanese banks are now forced to liquidate some of their equity holdings to maintain adequate profitability.

Cross-shareholding has provided a defense against takeovers and strengthened the discretion of corporate managers. Large shareholders have given corporate managers considerable discretion and intervened only when the firm performs poorly. Reflecting on the characteristics of Japanese corporate system such as the accumulation of relationship-specific information, cross-shareholding has prevented outside parties without relationship-specific information from gaining control over firm management. There have been cases in which the interests of shareholders have not been respected so as to induce the excess assets and employments (Economic Planning Agency, 1996).

The sluggish economy in Japan has destabilized a number of traditional relationships and resulted in sales of shares previous held under cross-shareholding relationships. Many sales of stable-held shares were little more than efforts to book current period gains that could be used to boost sagging profits, and were followed by near immediate repurchases. Other sales represented only a fraction of stable held stock, not the entire amount; still others were sales to some other stable owner of the stock in question.

The bad loan problem has resulted in weakening Japanese banking system, causing substantive change in the cross-shareholding relationships. Falling asset price are weakening banks' balance sheets. Urban land prices for commercial use have fallen substantially since their peak in the early 1990s, and they are expected to fall further. Because they rarely make provisions for loans backed by real estates, the banks have found plunging land prices especially detrimental. As long as the banks keep the bad loans on their balance sheets, they end up setting aside more money to deal with their losses every year. Thus, the banks and non-financial firms to reduce their balance sheets have been selling substantial amounts of cross-held shares. Japanese banks are under increasing pressure to restructure and improve

performance. As a result, the banks are reconsidering holding large equity of client firms. As non-financial firms gradually sell their bank shares as their reliance on bank loans falls, the banks have less of an incentive to hold shares of non-financial firms for the purpose of strengthening business relationships. Decline in cross-shareholding is the fact that it is no longer as beneficial as it once was. Japanese firms are being forced to carry out corporate restructuring. Their capacity to share risk is disappearing, and the high costs of business relationships are beginning to make a serious drawback.

Cross-shareholding among firms with common interests made it hard for outsider shareholders to apply pressure on banks to lend more profitably. While the system worked reasonably well while the economy was growing and money was scarce, but now that the economy has got mature and money more plentiful, the system has become counterproductive. Furthermore, stable cross-shareholding isolates firm's executives from the control of stock market, depriving managers of an effective mechanism for checking against the accumulation of extra assets. Stable cross-shareholding insulates managers from short-term oriented investors, thereby enabling managers to carry out long-term investments. Cross-shareholding, however, leads to a lack of close monitoring on management, leaving it up to managers to discipline themselves. Japanese managers could be entrenched to run the firms as they want.

Pressure from liberalized and global capital markets has increased. The decrease in cross-shareholding has reduced the discretion of managers and strengthened the disciplines of the capital market. Cross-shareholdings of non-financial firms and financial institutions have decreased sharply. Then, foreign investors increased stock holdings drastically to enhance their influences on corporate management.

3.2 Corporate Finance

Most of the restructuring undertaken by Japanese firms in the 1990s failed to improve corporate profitability. Much of the improvement in firms' financial performance in the last decade was a reflection of inexpensive capital rather than improved efficiency. Japanese firms made excessive use of capital in the late 1980s, failing to take into serious consideration the long-run return for their investments.

In the bubble economy of the late 1980s, Japanese executives could look forward to an immediate impact on sales and asset growth of large-scale investment projects, ignoring the long-term risk to corporate profitability and to shareholder wealth. Japan's economy in the 1990s is one of Japan's worst and potentially long-lasting slowdown in the post-war period. Japanese major firms have been experiencing a substantial downward trend in profitability that has pushed returns on investment to their lowest levels in the postwar era. Now most of Japanese firms need to focus more on corporate value maximization. As well as cost reducing efforts, the firms make every effort to restructure business units and projects.

The retention of much of their cash flow and fewer growing investment opportunities in major businesses has produced considerable financial slack for Japanese major firms since the late 1980s. Coupled with freer access to international capital markets, this has led to distancing of Japanese non-financial firms from their banks, widening of managerial discretion over the allocation of resources, and a drive to diversification. Freedom from capital market discipline is prompting Japanese managers to deploy cash in ways more likely to benefit themselves and employees by maintaining jobs than to benefit shareholders. The problematic use of excess cash to speculate in capital markets and plunge into strategies of unrelated diversification is two major deployments ending in failure.

The remarkable success of Japanese firms in the post-war period has revealed its weakness. The managerial entrenchment against the capital markets has given rise to the expression of latent self-interests that were contained during the high-growth period. With their diminishing control over non-financial firms, the ability of banks to monitor and undertake corrective action is greatly reduced. It is weakening of vital control mechanism in Japanese corporate governance system that can substitute for market for corporate control. Since Japanese major firms are no longer subject to substantial control from main banks, the lack of an effective control mechanism would be detrimental to corporate value maximization in the long run.

Returns on investments (hereafter, ROI) of Japanese firms are considerably lower than those of the U.S. firms. As shown in Table 3 returns on assets have been consistently higher in the United States than in Japan since 1960.[4] It suggests that Japanese firms are much less profitable than their U.S. counterparts. The relatively low returns of Japanese firms have been attributed to differences in accounting practices, corporate tax rates, and exchange rates, capital structure, and cost of capital. Even after adjusting for differences in tax rates, accounting practices, and debt levels between the two countries, Japanese firms in most industries have consistently lower operating margin and return on assets than equivalent U.S. firms.

Capital structure policies and profit objectives of Japanese firms usually enhance their long-term corporate growth by allowing the savings from lower capital costs and return standards to be reinvested in cost reduction, capacity expansion, and product development. Investment decisions are not made on a discounted cash flow basis in most Japanese firms.

4 Brown, Soybel, and Stinckney (1994) compare the operating performance of Japanese and U.S. firms using financial statement data restated to a similar reporting basis during the period of 1985-88. The result show that neither country appears to generate systematically higher profit margin, but that U.S. firm has higher turnover assets and therefore higher rates of return on assets. Although financial statement ratios of Japanese and U.S. firms are not directly comparable because of the use of different accounting principles, their results suggest that alternative accounting principles do not seriously distort the comparability of financial statement data in both countries. Return on assets of U.S. firms are significantly higher than those of the Japanese for the year 1985 to 1988 do, primarily because turnover rates of assets are higher for U.S. firms.

Japanese managers usually view the cost of equity as the firm's expense to serve this source of capital, that is, dividends. With this view of cost-of-capital, it is easy to see why the market price of their stock has little impact on investment decisions of Japanese firms. Rather, barring market-imposed capital constraints, Japanese managers' investment decisions are guided by what they believe the cost of capital by what is quite different from prevalent financial theories in the U.S. apanese managers care about borrowing costs and they push their banks and securities firms to get the best terms.

The most important criterion of Japanese firms has been long-term goal of maintaining and enhancing their positions in the Japanese industry. Serious considerations of ROI and capital costs thus play only a minor role in investment decisions of Japanese firms. If an investment is necessary to keep up with a competitor or offers an opportunity to grow, then the investment may be made. Strategy of major Japanese firms has been simply to increase recurring profits without giving proper consideration to the interests of shareholders. Thus, Japanese firms have continued to make investments that earn low returns, creating a situation in which extra assets with low return can easily build up under the strategy for long-term growth. Growths in market share and continued employment clearly have been two of the dominant corporate goals in Japanese firms for most of the post-war period. Annual

Table 3. Profitability of Manufacturing Firms in Germany, Japan, and the United States Five-Year Average (Percentage)

Return on Assets	Germany	Japan	U.S.A.
1960-64	3.00	3.19	6.28
1965-69	3.07	3.31	6.94
1970-74	1.87	2.60	5.92
1975-79	1.80	1.39	7.21
1980-84	0.97	2.16	5.68
1985-89	3.87	2.37	5.24
1990-94	2.66	1.65	3.24
1995	2.99	1.38	6.08
1996	2.74	1.58	6.48
1997	n.a.	1.43	6.59
Return on Sales	**Germany**	**Japan**	**U.S.A.**
1970-74	1.49	2.94	4.53
1975-79	1.29	1.37	5.20
1980-84	0.65	1.92	4.34
1985-89	2.54	2.24	4.66
1990-94	2.23	1.70	3.09
1995	1.95	1.31	5.72
1996	1.80	1.48	6.17
1997	n.a.	1.34	6.29

Sources: The Bank of Japan (1974, 1978, 1986, 1994, 1996, 1997, 1999), *Comparative Economic and Financial Statistics: Japan and Other Countries.*
Source Note: Statistiches Bundesamt, *Unternehmen und Arbeitsstatten,* The Bank of Japan, *Syuyokigyo Keieibunseki* (Business Analysis on Main Enterprises in Japan), The U.S. Department of Commerce, *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*
Note: Book values of assets in Japanese firms differ greatly from current values.

profitability has been considered an important financial goal, whether it is attaining an increase in annual profits or achieving certain level of profits to satisfy the requirement of generating adequate cash flow to cover debt interests of banks. But Japanese managers have not appeared to consider consistently their earning stream, return on equity, or capital structure with a viewpoint of corporate value maximization.

Japanese corporate finance is now in trouble: excess capacity and employees, declining profits. More bankruptcies seem inevitable, as Japanese banks become unable to withstand deteriorating their balance sheets. The only way to improve profitability and enhance corporate value of Japanese firms is drastic restructuring their business and resources. The numbers of firms moving to that direction have been increasing.

4 Changes in Japanese Employment System

4.1 Distinctive Features in Employment

It is generally agreed that Japanese employment system, the most salient features of which are seniority-based wages, lifetime employment, and enterprise unions, played an important role during the high growth period in postwar Japanese economy.

Lifetime employment refers to the practice in Japanese firms of selectively recruiting new school graduates and retaining them until a mandatory retirement age. Lifetime employment is not a contractual state, but a pervasive norm affecting the treatment of regular workers (Lincoln and McBride, 1987). The average length of service in Japanese firms is about eleven years. The ratio of workers with the length of service of less than one year to the total workers in Japanese industry is low at approximately eight percents, compared with twenty-six percent in the U.S. Since lifetime employment accounts for a large proportion in the other countries as well, the practice of long-term employment are not peculiar to Japan. The ratio of workers with a long length of services is higher in Japan than in other countries (Ministry of Labor, 1999a).

Workers, particularly white collar ones, are recruited at relatively low-level ports of entry into the firm, receive on-the-job training in firm-specific skills, and compete solely with one another for promotion into higher positions. Careful screening of new recruits for entry level positions, long tenure with the same firm, intensive on-the-job training, and filling higher positions through internal promotion are common in Japanese large firms. By encouraging lifetime careers within the same firm, competition for promotion among the employees, and skills not valued much in the labor market, firms can foster dependence and loyalty in employees. As far as skills are firm specific, seniority indicates skill and familiarity of the job in the particular firms better than the external job training and experience (Lincoln and McBride, 1987). The investment in firm-specific human capital increased the value of

long-term commitment. Their supervisors monitor the performances of workers, who are promoted to higher ranks as they satisfy certain criteria at each rank. The earnings of workers are ties to their ranks. The ranking hierarchy characterizes the employment practices in Japanese firms. Both workers and the firm commit to long-term relationships. Ranking hierarchy relies on long-term relationships between workers and the management.

Seniority-based wage and promotion system concerns the practice of primarily basing internal promotion and pay decision on the employee's age, seniority, and life stages. Wages increase based on age and the length of services in the seniority-based system. While full-time workers receive wage lower than their levels of productivity in the younger ages, they receive wages higher than their levels of productivity in the older ages. The higher wages in the older ages could be regarded as compensation for the lower wages they received in the younger ages.

Seniority-based wage system can also be regarded as a means of building up firm-specific skills with a firm. Wage system with highly progressive pay incurs a discrepancy between productivity and the various pay grades. If the pay schedule is structured so that young workers are paid less than their productivity would merit, and then make up for it after they have been with the firm for a certain length of working, they will be less likely to leave their jobs after only a short time. Seniority-based wage system is closely linked to the system of long-term employment. Wages below the worker's productivity level while he is young can be tolerated if a certain level of growth is expected in the firm, because future returns will be forthcoming in the form of higher wages. Young workers accepted wages, which were less than commensurate with their productivity, and then their wages caught up with and surpassed their level of productivity as they aged. Over the long run, the wages of individual workers were on a par with their productivity (Economic Planning Agency, 1996).

Lifetime employment, seniority-based wage, employee loyalty, and firm-specific human capital are considered complementary in Japanese large firms (Hashimoto and Raisian, 1989). First, this system helps a firm to build up firm-specific skills within its workforce. Second, this system reduces costs with job turnover. Job turnover means, for workers, the loss of firm-specific skills acquired within the firm, and the need to acquire new skills for a new job. Short-term turnover prevents firms to recover the cost of training and it generates new training costs. Third, this system reduces management costs. Long-term employment makes firms possible to keep track of employee capability and build up an organization to enhance productivity. Moreover, long-term employment encourages employees to identify more strongly with the firm and to be more royal to the firm (Economic Planning Agency, 1996).

While keeping fluctuations in the number of employees to a minimum, firm can regulate the amount of labor they use and the costs associated by adjusting wages and the number of working hours. In addition, there are two other mechanisms which are important to Japanese

labor market.

One is flexible deployment and transfers, which are made possible by intra-firm labor markets. Intra-firm labor markets in Japanese firms involve a great deal of job rotation for both production and office workers, and thus lead to the cultivation of a variety of skills in employees. The investment in human resources is the way in which Japanese firms maintain long-term employment and deployment and transfer of employees with a broad range of skills to responding to changing business conditions.

The other is utilization of irregular workers such as part-time and temporary workers, who play a role of buffer against the business fluctuation. The irregular workers are hired at times of brisk business and released again when business drops off, thus constituting a mechanism, which allows firms to regulate the amount of labor they use. Temporary and day workers account for 12% of the total workforce in 2000 (Statistical Bureau of Japan, February 2001). Japanese firms rely on irregular workers to provide more stable employment for regular workers. The jobs of temporary workers and regular workers in small firms are vulnerable to buffering by business fluctuations whereas regular workers in large firms are protected (Economic Planning Agency, 1996).

Employment relations observed in large, unionized Japanese manufacturing firms have based on implicit and ambiguous collective agreements between employers and enterprise unions with long-term relationships. Employment practices on the shop-floor in those firms have incorporated broadly and ambiguously defined jobs, high firm-specific human capital investment, periodic wage raises and promotions based not only on seniority but on subjective performance evaluations, various non-wage benefits beyond the legal obligation, and implicit long-tem employment guarantees for regular workers. Joint labor-management councils are widely used among large manufacturing firms in order to facilitate prior consultation, and most disputes over collective agreements are settled internally and informally without appealing to a legal third party (Moriguchi, 2000).

Implicit and ambiguous employment contracts in major manufacturing firms are complemented by joint labor-management councils and enterprise unions. The commitment to long-term employment has been reinforced by the absence of active labor markets. Moreover, the practices of long-term employment relationships have discouraged the development of labor markets for mid-career job changes. A well-organized labor market for managers has not developed in Japan. The majority of managers in Japanese firms are promoted internally, and the board of directors is just the finishing stage for the winners of internal tournament. Even when directors come from outside, they are most often dispatched by stable shareholders or retired government officials. The lack of managerial labor market makes it hard for Japanese managers to move from one firm to another, and improve the credibility of theirlong-term commitment.

4.2 Changes in Employment

Appreciation of the yen and intensive competition in overseas markets has made labor costs in Japan extremely expensive by comparison. In order to reduce labor costs, Japanese firms have set up operations abroad and carried out restructuring at home, but these efforts will have to be accompanied by changes in the employment systems that have been in use to date. Japanese firms have been able to avoid drastic reductions of workforces by limiting hiring of new graduates, but there have been cases in recent years in which workers have not actually been able to remain in the particular firm for an entire career. The firms have coped by resorting to such measures as out-placement of employees at affiliated firms and by forgoing pay rise for high-paid older workers eroding the seniority-based wage system (Economic Planning Agency, 1996).

Since substantial economic growth can no longer be expected in the post-bubble period, long-term relationships have been undergoing changes. Financial institutions have recently begun to write off bad loans much more actively than before, and this in turn has pushed firms to carry out restructuring more thoroughly, even in the area of employment. Some firms have found it impossible to maintain existing employment relations, which place importance on seniority system. Under these circumstances, the firms will have to devise ways to reduce the risk associated with long-term contracts, taking no newly hired employees. The labor turnovers for both men and women in the second half of the 1980s and the 1990s were higher than in the period between the second half of the 1970s and the first half of the 1980s. For both men and women, the younger one is, the higher the labor turnover is (Ministry of Labor, 2000).

Diversification of personnel hiring is spreading in Japanese firms. Although the employment rate of new graduates is still prevalent, the recruitment of mid-career is increasing. Utilizing short-term employment and outsourcing jobs required special skills is also increasing. Japanese firms have recently begun trying to make active use of external labor market. At the same time, many firms faced to rising labor costs, have cut back on hiring of new graduates in order to assure the jobs of current employees.

Japanese firms have been focusing on restructuring themselves to downsize the assets and numbers of employments. Restructuring efforts place the emphasis on reduction of excessive corporate resources such as assets and employees. Japanese firms are increasing the proportion of part-time workers to adjust to the fluctuation of their businesses. The rate of unemployment has been increasing as firms regard the current levels of employments as an excess level, particularly middle-aged white-collar workers. The rate of unemployment due to bankruptcy, dismissal, and early retirement is higher in the middle-aged workers. Moreover, blue-collar workers are considered to be excessive levels of employments reflecting a decline in production in the manufacturing and construction industries. Levels of employments in

clerical workers and middle managers have been considered to be excessive, but Japanese firms have been slow in adjusting their employments and kept them on the payrolls. Japanese firms are concerned about excessive levels of employments and reduction of employments of clerical and managerial positions (Economic Planning Agency, 2000a).

Although major Japanese firms still maintain the practice of lifetime employment, the decline in the economic growth has affected the employment policy. Japanese firms slashed primarily part-time workers during the period immediately after the collapse of the bubble economy. The levels of full-time workers are getting to be excessive and are required reduced (Ministry of Labor, 1999a).

As far as the size of the firm has expanded and the numbers of young workers exceeded those of older workers, the seniority-based wage can sustain. Since the numbers of older workers exceeded, it has been difficult to keep wages under the seniority-based wage and the flattening of the wage structure is expected to continue. The seniority-based wage is closely related to lifetime employment. Workers tend to stay in the same firm as long as possible under the seniority-based wages. The flattening of the seniority-based wage system can weaken incentives of workers to stay in the same firms and encourage them to seek other job opportunities outside. The proportion of workers wishing to change jobs has increased, particularly among young workers. This trend can certainly change the practice of lifetime employment in Japanese industry (Economic Planning Agency, 2000b).

Taking advantage of the benefits of long-term employment and enhancing human resources, major Japanese firms must reform employment practices that are capable of responding to changing environments. It is required for the firms to make more flexible use of wage systems, in which performance-based wages and corporate-value-related incentives such as stock options. As a consequence, wage structure in major Japanese firms has been shifting from the seniority-based wage to the performance-based one. First, the move toward placing an emphasis on capability and achievements with respect to wages is increasing. The proportion of the firm planning to attach importance to the performance-based wage system in determining the wages of their regular workers was 40% in 1993, and the figure increased to 50% in 1999 (Ministry of Labor, 1999b). Along with progress made in the shift from the seniority-based wage system to the one based on the performance-based system, the wage differential between the young and older workers will narrow. At the same time, it will widen the differential within the same generation. As the background of the increasing moves to place an emphasis on the merit system in performance evaluation, there are many workers who see the necessity of self-improvement.

The environment surrounding employment is changing. The progress in information technology has a great impact on the environment surrounding employment and has asked individuals to acquire skills. The structural shift toward knowledge-intensive industries has changed the significance of efforts to build up firm-specific skills in the particular firm. The

relative importance of building up firm-specific skills has declined, and firms now find it preferable to hire technical engineers directly from outside labor markets (Economic Planning Agency, 1996). In addition, demand for workers capable of coping with the rapid technological innovation with regard to information has been rising sharply. The capability to utilize information is one of the most important skills one has to acquire in order to adapt to technological changes.

Demand for white-collar workers, specifically those in the mid- and older-age groups, has apparently declined as the IT revolution has lowered information costs. The Labor Survey indicates that administrative employees have recently decreased. The amount of young employees has also decreased as firms have tried to hold down the employment of new graduates. However, the mid-and older-age groups have also seen declining employment. A surplus of white-collar workers began to rise in 1997 and has remained at a high level. While information-related job offers have been increasing, the number of temporary employees has been increasing since the middle of 1999. This indicates that the IT revolution has led to an increase in jobs that can be undertaken by temporary employees rather than regular employees who are more familiar with their environments. Dairy hours workers spend on learning and studying during off-duty hours are increasing. The need to enhance their knowledge and skills among workers can be increasing (Economic Planning Agency, 2000c).

References

Bank of Japan (1974, 1978, 1986, 1994, 1996, 1997, 1999, 2000), *Comparative Economic and Financial Statistics: Japan and Other Countries,* Tokiwa Sohgoh Service.

Bank of Japan (1974, 1978, 1986, 1995), *Economic Statistics Annual,* Tokiwa Sohgoh Service.

Brown, P. R., V. E. Soybel, and C.P. Stickney (1994), "Achieving Comparability of U.S. and Japanese Financial Statement Data," *Japan and the World Economy,* 6, 51-72.

Economic Planning Agency (1996), *Economic Survey of Japan 1995-1996,* Printing Bureau Ministry of Finance

Economic Planning Agency (2000a), *Economic Survey of Japan 1998-1999,* Printing Bureau Ministry of Finance

Economic Planning Agency (2000b), *Economic Survey of Japan 1999-2000,* Printing Bureau Ministry of Finance

Economic Planning Agency (2000c), *Kokumin Seikatsu Hakusho Heisei-11nen-ban* (White Paper on the National Lifestyle Fiscal Year 1999), Printing Bureau Ministry of Finance

Hashimoto, M. and J. Raisian (1989), "Investments in Employer-Employee Attachments by Japanese and U.S. Workers in Firms of Varying Size," *Journal of the Japanese and International Economies,* 3, 31-48.

Lincoln, J. R. and K. McBride (1987), "Japanese Industrial Organization in Comparative Perspective," *Annual Review of Sociology,* 13, 289-312.

Ministry of Labor (1999a) *Rohdo Hakusho Heisei-12nen-ban* (White Paper on Labor Fiscal Year 1999),

Japanese Labor Research Institute.

Ministry of Labor (1999b) *Koyo Kanri Chosa Hokoku* (Report on the Survey of Employment Management 1999), Japanese Labor Research Institute.

Ministry of Labor (2000), *Rohdo Hakusho Heisei-12nen-ban* (White Paper on Labor Fiscal Year 2000), Japanese Labor Research Institute.

Moriguchi, C. (2000), "The Evolution of Employment Relations in U.S. and Japanese Manufacturing Firms, 1900-1960: A Comparative Historical and Institutional Analysis," working paper, NBER.

National Lands Agency (2000), *Tochi Hakusho Heisei-12nen-ban* (White Paper on Lands Fiscal Year 2000), Printing Bureau Ministry of Finance.

Statistics Bureau of Japan (February 2001), *Monthly Statistics of Japan February 2001,* Japanese Statistical Association.

The Economist (January 27th 2001).

Toyo-Keizai Tokei Geppo (Toyo-Keizai Statistics Monthly) (April 2001).

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 23-66

CREATION OF NEW ENTERPRISES AND DEVELOPMENT OF EXISTENT ENTERPRISES IN EAST ASIA AND LATIN AMERICA

AKIO HOSONO **Kobe University**

Abstract

This paper intends to address the relationship between financial depth and development of private enterprises by classifying the growth of business activities into two parts: one part that is due to the creation of new firms and the other part, due to the expansion of existing firms. After examining the previous studies related to this issue, the paper compares East Asia and Latin America in terms of these two aspects of corporate growth and their relations to financial depth or financial development. It compares the evolution of financial depth and related indicators of East Asia and Latin America and analyzes their implications on new firms formation and expansion of existing enterprises. It finds that shallow financial depth in Latin America affects considerably development of private enterprises in the region, where economic growth and export is much less dynamic in comparison with East Asia.

JEL Classification: D2, G2, G3, O1, O2
Keywords: Latin America, East Asia, enterprises, financial depth, entrepreneurship

Introduction

Many Latin American countries have experienced unprecedented, comprehensive and drastic economic reforms in the 1990s. Nevertheless, the IDB (2001) pointed out that in the 1990s "economic growth in the region had been disappointing." There has been extensive research addressing the issue of the effects of reforms on the growth, the most recent of which is that prepared by the IDB entitled "*Competitiveness: the Business of Growth.*" (IDB 2001) This study hypothesized that reforms can strengthen competitiveness, which will subsequently guarantee sustained growth. ECLAC (2000) and the World Bank (1998) have

Corresponding Address:
Akio Hosono
Research Institute for Economics and Business Administration (RIEB), Kobe University
2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
E-mail: hosono@rieb.kobe-u.ac.jp
Phone/Fax: 81-78-803-7006

also discussed issues related to such reforms and continued levels of growth.

The present paper intends to address the issue from a different perspective, by questioning the inaction of the enterprises of the region, in terms of neglecting to take full advantage of the reforms of the last decade and of other new phenomena, such as globalization, regional integration and technological development, which have characterized the 90s. Private sector initiatives matter considerably, as not only is this sector essential to sustained economic growth, but subsequent to the above-mentioned reforms, the private sector should be the principal actor in economic activities. As such, given the lack of initiative taken by these regions to exploit the advantages of such reforms and new opportunities, there is need to analyze the existing constraints.

Another distinctive feature of this research is the use of the East Asian experience as a benchmark for comparison. Some studies have compared Latin American countries with East Asian economies, but there has been no research thus far on the aspects of reforms and growth which this paper is attempting to analyze.

I am commencing this research on the basis of one of the most important factors which affect corporate activities and growth, that is finance. Financial development is considered to be an essential element for growth by many authors. As a matter of fact, when we compare Latin America and East Asia, it was discovered that one of the most striking differences is that of financial depth.

According to the cited IDB report, "the major problem faced by businesses in Latin America and the Caribbean is accessing financial markets." "On average, the ratio of credit to the private sector to GDP in the 1990s was close to 33 percent, roughly a third of the size of the average credit markets in East Asia...." "Estimates suggest that, on average, a large firm can increase assets by nearly 5 to 8 percent for every 10 percent increase in the financial depth of its host country."

Although there exists significant research on the relationship between growth and finance, the majority of such research is based on econometric regressions which analyze the relationship between variables. Currently there are studies which offer some clarification on the black-box of the relationship, that is, how financial depth concretely affects corporate activities, but such studies are indeed scarce. This paper intends to address this point by classifying the growth of business activities into two parts: one part that is due to the creation of new firms and the other part, due to the expansion of existing firms. Chapters 3 and 4 will compare East Asia and Latin America in terms of these two aspects of corporate growth and their relations to financial depth or financial development. Chapter 1 will review research related to finance and growth and will also present some relevant stylized facts. Chapter 2 will compare the evolution of financial depth and related indicators of East Asia and Latin America and Chapter 5 will discuss the policy implications of the findings in this paper.

1. The Objective of the Study and a Review of Related Studies.

1.1 The Objective of the Study.

As was mentioned in the Introduction, the main objective of this study is to analyze the effects of reforms in the 1990s in Latin America on the sustainability of growth, by focusing on the relationship between financial development and the response of enterprise to new business environments as well as the opportunities generated by reforms and other new factors of the 1990s such as globalization, regional integration and technological change. Two major features of the study are:

(a) its attempt to open to some extent the black box of correlation between finance on the one hand and new firm creation and expansion of existing firms on the other; and
(b) it also intends to analyze Latin American experiences using cases of East Asian economies' as a benchmark. This approach is illustrated in a simplified way, as shown in Figure 1-1

Thus the review of related studies should be made, by mainly regarding the following four areas:

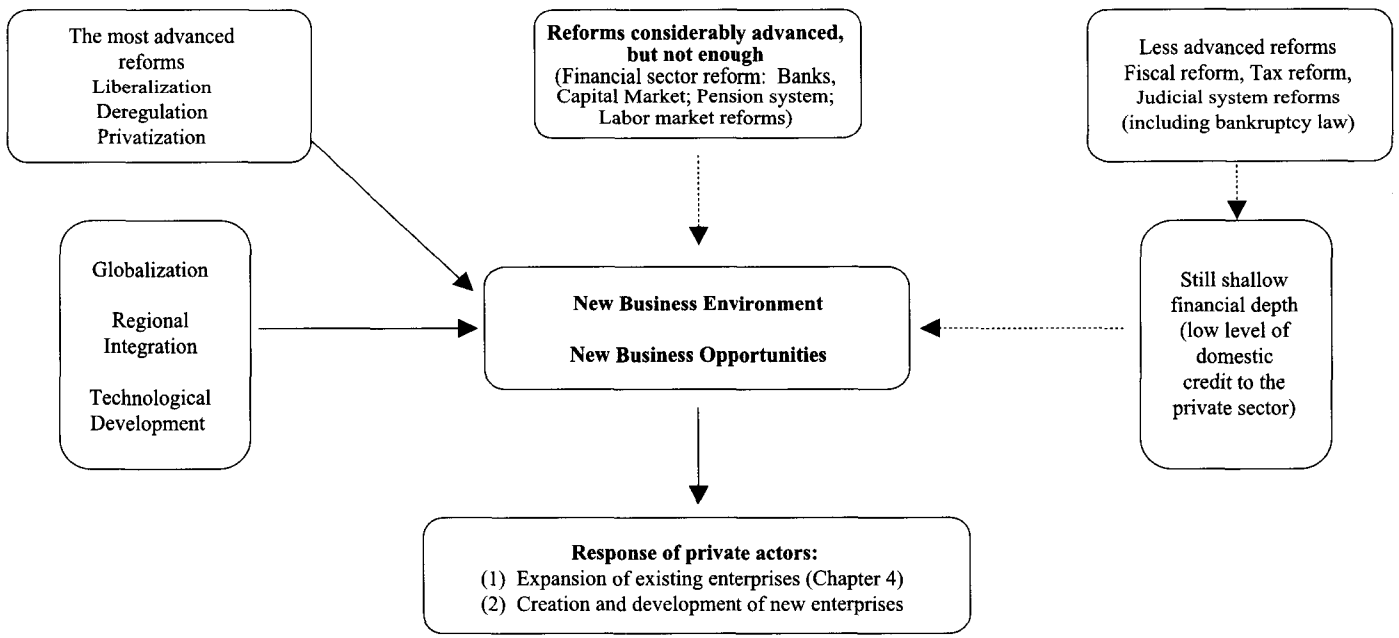
(a) effects of reforms on growth;
(b) the relationship between financial development, among other financial depths, and growth;
(c) a comparative study of development in Latin America and East Asia; and
(d) new firms creation and expansion of existing firms.

1.2 Effects of reforms on growth.

In recent times, several studies have been done with regard to the effects of reforms of Latin America in 80s and 90s. Among others, we should refer to the studies of three international organizations, namely the IDB's studies: *Latin America after a Decade of Reforms* (IDB 1997) and *Competitiveness: Business of Growth* (IDB 2001), the World Bank's study: *The Long March: New Agenda for Reform in Latin America* (Burki and Perry 1998) and the UN ECLAC's studies: *Growth, Employment and Equity: The Impact of the Economic Reforms in Latin America and the Caribbean* (Stallings and Peres 2000) and *Economic Reforms, Growth and Employment* (Weilner, Jurgen 2001)

All of these studies analyze macroeconomic aspects of the relationship between reforms and growth. In addition, the most recent study of the IDB analyzes the implications of

Figure 1-1.
Reforms, New Business Environment, New Business Opportunities and Responses of Private Actors (Expansion of Existing Firms and Creation of New Firms)



(Note: Dotted arrows indicate constraints until reforms are completed)

reforms on competitiveness including new aspects such as the capacity to innovate (Part V of the study) as well as industrial and investment policies. (Part VI of the study). The World Bank's recent study also discusses some new aspects such as intra-industry trade and the role of knowledge and the institution. On the other hand, ECLAC's study discuses the impact of reforms on industrial sectors ("macro/meso-level" analysis).

This paper focuses on the response of the enterprises to a new environment and to the opportunities created by reforms. In this sense, it tries to analyze using a different angle, the relationship between the above-mentioned factors and the sustainability of growth, paying much attention to new firm creation and expansion of existing firms. Therefore this paper is meant to act as a complement to the above-cited studies. The characteristics of this paper's approach in comparison with those of previous studies is shown in Figure 1-2. This figure is prepared just for illustrative purposes and does not pretend to make a rigorous comparison of approaches.

1.3 Relationship between financial development, financial depth and growth

1.3.1 General analysis on relationship between financial development, depth and growth.

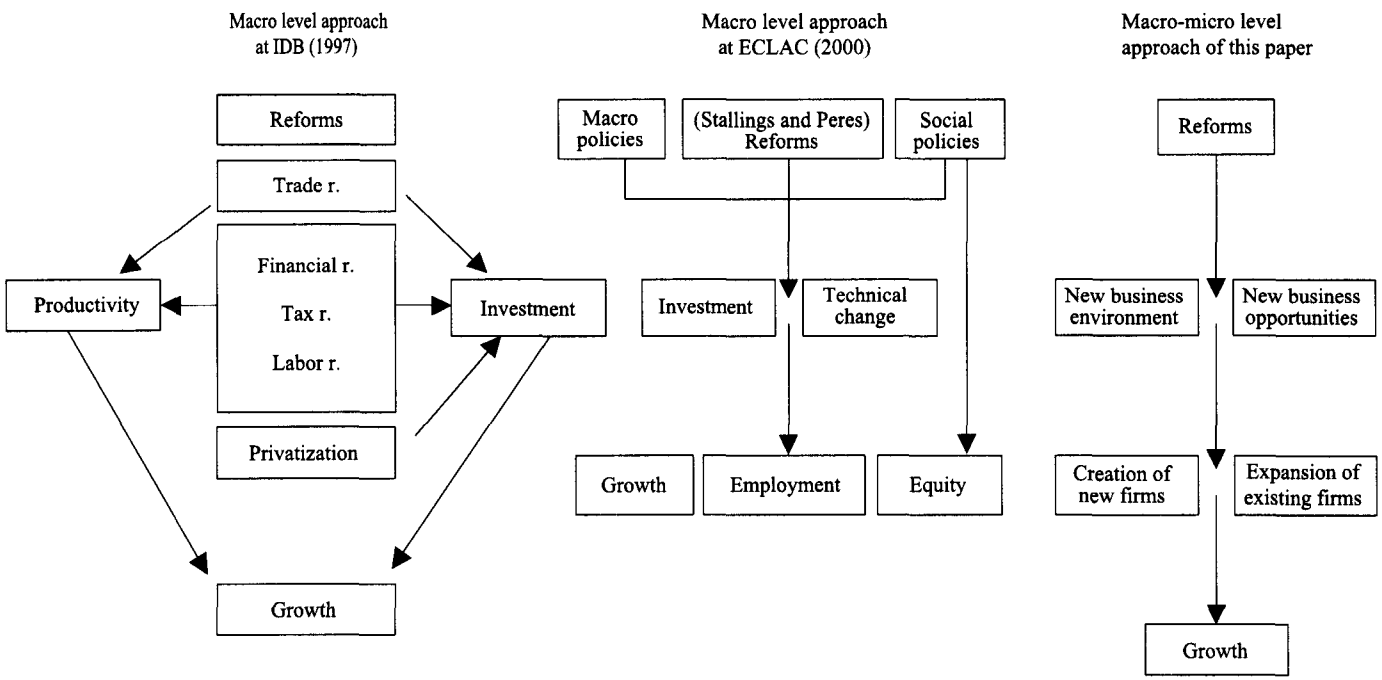
Many empirical studies have confirmed that deeper financial depth is positively correlated to higher economic growth. A positive relationship between initial financial intermediation depth and subsequent long-run growth performance was found by King and Levine (1993a, 1993b). Levine, Loyaza, and Beck (2000) have also presented robust evidence that financial development and depth lead to an improved growth performance. This information was provided using data panels of 74 countries with non-overlapping five-year averages covering the period 1960-95.

A recent World Bank study mentions that there is a solid body of empirical research which strongly suggests that improvements in financial arrangements precede and contribute to economic performance, as opposed to the view that finance merely follows and adapts to real economic progress. It also emphasizes that the widespread desire to see an effectively functioning financial system is warranted by its clear causal link to growth, macroeconomic stability, and poverty reduction. (World Bank 2002, p.31) We have several articles and documents that survey basic and recent literature on financial development and growth.[1]

---

1 For a comprehensive review of literature on financial development and growth, see following publications: Chapter 4 on financial system of World Bank (2002), *World Development Report 2002;* World Bank (2001), *Finance for Growth: Policy Choice for a Volatile World* (World Bank Policy Research Report); Khan, Mohsin S. and Abdelhak S.Senhadji (2000), *Financial Development and Economic Growth: An Overview* (IMF Working Paper); World Bank (1989) *World Development Report 1989*

Figure 1-2. Comparison of Approach of Studies on Reforms and Sustainability of Growth



Levine, Ross and Maria Carkovic (2001) reassess the relationship between stock markets, banks and economic growth, given differing theoretical predictions about the impact of stock markets, banks and economic growth. They concluded that the results are consistent with the view that stock markets and banks independently influence long-run growth and the positive link between financial development and growth does not seem to be linked to outliers, omitted variable bias, or endogeneity.

1.3.2 Financial crisis, financial depth and growth with special reference to Latin America.

On the other hand, Loayza and Ranciere (2001) show that credit booms do precede banking crisis and that the relationship between financial intermediation and growth is negative in the years surrounding banking crisis. They cite the study of De Gregorio and Guidotti (1995) which presents evidence that in cross-sectional regressions involving a worldwide sample of countries, financial intermediation is positively linked with growth. Conversely, in panel regressions for only Latin American countries, the relationship is negative. De Gregorio and Guidotti suggest that their results for Latin America may reflect the lasting impact of the repeated financial crisis that the region has suffered. (Loayza and Ranciere 2001, p.5)

Loayza and Ranciere (2001) conclude that the dynamic relationship between economic growth and financial intermediation is negative around financial crisis. They point out furthermore that the positive link between "long-run" economic growth and financial deepening is smaller in countries that have suffered from banking crisis than in the rest. Using recent econometric methods for the estimation of dynamic models with panel data, Loayza and Ranciere (2001) find that a positive long run relationship between financial intermediation and output growth co-exists with a mostly negative relationship. They propose that this is as a result of an empirical explanation for the apparent contradiction between the crisis literature and the endogenous-growth literature on the effects of financial deepening. (p.21)

On the other hand, in a recent study carried out by the IDB (IDB 2001, p.57), econometric results confirm the positive influence of financial reform on credit expansion for 18 Latin American countries over 1985-99. The size of the financial sector as measured by the ratio of private credit to GDP is significantly related to the financial liberalization index constructed after controlling for other relevant factors.

Bekaert, Geert, Campbell F. Harvey and Christian Lundblad (2002) conclude that equity market liberalization (allowing foreign investors to transact in local securities and vice versa) did increase economic growth. Some of the liberalization effect can be accounted for by coincidental macroeconomic reforms as well as financial development. However their analysis shows that even after controlling for a broad range of variables, a statistically significant and economically important role is played by equity market liberalization.

1.3.3 Industrial structure, domestic finance and growth.

Raghuram G. and Luigi Zingales found evidence that is consistent with the hypothesis that industries which rely heavily on external finance grow faster in countries with better-developed financial systems. They use data drawn from a panel of 42 countries and 36 industries over 1980s. Furthermore, they show that the effect of financial development on industrial growth runs mostly through a growth in the number of establishments rather than through a growth in the average size of establishment. So financial development improves disproportionately to the prospects of young firms in industries that rely heavily on external finance. (Beck, Thorsten and Ross Levine, 2000, p.8)

Beck, Thorsten and Ross Levine (2000) find that industries that are heavy users of external finance grow faster in countries with higher overall levels of financial development and in countries that rigorously protect the rights of outside investors. Moreover, their findings show that the overall level of financial development along with strong creditor rights, shareholder rights, and contract enforcement mechanisms foster new firm formation. (p.27)

1.3.4 Financial development, new firms creation and expansion of existing firms.

Rajan, Raghuram G. and Luigi Zingales (1998) assert that industrial growth is comprised of a part due to the creation of new firms and the other part that is due to the expansion of existing firms. As was mentioned above, they show that the effect of financial development on industrial growth runs mostly through a growth in the number of establishments rather than through growth on the average size of establishments.

Beck, Thorsten and Ross Levine (2000) found that economies thriving with overall financial development (development of market-based and banked-based systems) stimulates the establishment of new firms, which is consistent with Schumperterian view of creative destruction.

1.4 Comparative study of development of East Asia and Latin America.

The World Bank study on the "East Asian Miracle" was the first comprehensive analysis on the high performance of East Asian countries for approximately three decades from the 60s or 70s through the beginning of 90s. (World Bank 1993) Although this study focuses on East Asian High Performing Economies, it frequently draws comparisons with the experiences of other regions. Therefore this study could be considered as one of the early comparative studies on development of East Asia and Latin America. Subsequently, given the encouragement provided by such a comparative study, some other studies related to both regions have been carried out.

1.5 Entrepreneurship and new firms creation.

Although there have been several important studies regarding this subject, the most recent study is OECD's *Science, Technology and Industry Outlook: Drivers of growth: Information technology, Innovation and Entrepreneurship* (OECD 2001). Another recent and comprehensive study regarding the creation and development of new firms, was conducted by Kantis, Hugo, Masahiko Ishida and Masahiko Komori (2002) and is entitled *Entrepreneurship in Emerging Economies: The Creation and Development of New Firms in Latin America and East Asia.*[2]

2. Financial Depth and Related Indicators: Comparison of Latin America and East Asia

2.1 Financial sector reform, liberalization and financial depth

The financial development in terms of "domestic credit to the private sector" in Latin American countries is lagging behind considerably in comparison with East Asia. In 1999, the average domestic credit to the private sector as a percentage of GDP in Latin America remained at the level of 29.4, while this indicator in East Asia rose to 104.1. (See Table 2-2) Furthermore, this value of "domestic credit to the private sector" in Latin America is very shallow in comparison with that of the average of middle income countries (58.3 in 1999) and with the average of high income countries (129.3, same year).

Latin American countries implemented a wide-range of financial sector reforms and liberalization in the 90s, which undoubtedly improved the financial depth in Latin America. According to a recent study carried out by the IDB (IDB 2001, p.57), econometric results confirm the positive influence of financial reform on credit expansion for 18 Latin American countries over 1985-99. The size of the financial sector as measured by the ratio of private credit to GDP is significantly related to the financial liberalization index constructed after controlling for other relevant factors.

Nevertheless, the same study finds that on average, the ratio of credit to the private sector to GDP in the 1990s was close to 33 percent, roughly a third of the size of the average credit markets in East Asia and the developed countries. Estimates made by the IDB (2001) suggest that, on average, a large firm can increase its assets by nearly 5 to 8 percent for every 10 percent increase in the financial depth of its host country. Therefore, companies in countries with tight credit constraints face severe impediments to expansion. The study

2 The concept of entrepreneurship generally refers to enterprising individuals who display the readiness to take risks with new or innovative ideas to generate new products and services. In most cases focus is on the ability of individuals to start up new ventures, the quantity and quality of start-up firms, and the ease with which enterprises can enter and exit the market. (OECD 2001)

concludes that while these findings suggest that financial reform has in fact had a significant impact on the development of Latin American financial sectors, there still are several issues that need to be addressed. Table 2.1 shows the changes of financial depth of major Latin American countries before and after the financial liberalization.

2.2 Financial depth and increased role of private sector in Latin America compared with East Asia

In addition, in the context of the reforms of the 90s in Latin America, we should remember that, due to the intensive process of privatization in 90s, the private sector was supposed to be the main actor of investment. Private fixed investment as a percentage of gross domestic fixed investment increased from 74.3 to 79.8 in Latin America, while this indicator decreased from 63.3 to 50.2 in East Asia. (See Table 2-2)

Table 2-1. Financial Depth Before and After the Financial Liberalization in Latin America

	Argentina	Brazil	Colombia	Mexico	Peru
Deposit Money Banks					
1. Preliberalization period (1980-1990)					
End-of-Period ratios Credit/GDP	9.6	13.6	13.3	15.4	5.3
2. Postliberalization period					
a. Credit expansion period	1991-98	1991-94	1991-98	1991-94	1991-98
End-of-Period ratios Credit/GDP	24.2	33.4	16.9	34.1	27.3
b. Credit slowdown period	1999-2000	1995-99	1999-2000	1995-2000	1999-2000
End-of-Period ratios Credit/GDP	23.4	26.7	18.1	13.1	25.8

Source: Barajas, Adolfo and Roberto Steiner, 2002 based on International Financial Statistics, and authors' calculations

Table 2-2. Comparison of Domestic Credit to Private Sector and Private Fixed Investment between Latin America and East Asia

	Domestic credit to private sector (% of GDP)		Private fixed investment (% of gross domestic fixed investment)	
	1990	1999	1990	1998
Argentina	15.6	25.0	67.4	91.5
Brazil	38.9	34.5	76.7	82.9
Chile	47.2	67.5	79.5	87.7
Mexico	17.5	16.2	—	92.1
Hong Kong	165.1	159.4	—	
Korea	65.5	93.4	88.1	79.5
Malaysia	69.4	144.0	64.5	65.4
Singapore	97.5	115.3	—	
Thailand	83.4	130.1	84.8	66.2
Latin America and the Caribbean	28.5	29.4	74.3	79.8
East Asia and the Pacific	71.4	104.1	63.3	50.2

Source: World Bank, World Development Indicator, 2001.

This means that in Latin America, the size of domestic credit to the private sector remained considerably low in terms of international comparisons, precisely when the private sector is expected to accomplish a much more active role in economic activities in the region, because of the deep economic reforms which were implemented in the 90s, especially privatization and deregulation.

The World Bank (1993, p.275) compared the two regions from a larger perspective. Financial depth (coefficient of M2 to GDP) was deeper in High Performing East Asian economies (HPEAs) than Latin American countries in three decades beginning in the 1960s. In East Asian economies, it increased from around 35 percent in the 60s (1960-70) and 48 percent in the 70s (1971-80) to almost 70 percent in the 80s (1981-90). As was mentioned above, this indicator continues to increase in the 90s. In Latin America, it increased from 20 percent in the 60s and 28 percent in the 70s to 38 percent in the 80s. The study concludes that in East Asia, the combination of rapid growth of financial assets in the banking system with rising savings during the past two decades has meant that banks have played an increasingly important role in capital allocation. (p.275)

2.3 Financial depth and the fiscal deficit in Latin America and East Asia

Another aspect of reforms of the 90s which has implications for the level of financial

Table 2-3. Domestic Credit Provided by the Banking Sector, Domestic Credit to Private Sector and Interest Rate Spread as well as Fiscal Deficit in Latin America and East Asia
(All indicators expressed as a percentage of GDP)

	Domestic credit provided by banking sector		Domestic credit to private sector		Interest rate spread (lending minus deposit rate percentage points)		Overall budget balance (figures in the parenthesis are interest payment of central government as percentage of current revenue)	
	1990	1999	1990	1999	1990	1999	1990	1998
Argentina	32.4	35.6	15.6	25.0	—	3.0	−0.4	−1.5(16.2)
Brazil	89.8	51.8	38.9	34.5	—	—	−5.8	−7.3(14.4)
Chile	73.0	72.5	47.2	67.5	8.6	4.1	0.8	0.4 (3.0)
Mexico	36.6	28.8	17.5	16.2	—	16.3	−2.5	−1.4(16.5)
Hong Kong	156.3	140.8	165.1	159.4	3.3	4.0	—	—
Korea	65.7	96.6	65.5	93.4	—	1.4	−0.7	−1.3 (2.5)
Malaysia	75.7	151.6	69.4	144.0	1.3	3.2	−2.0	+2.9(10.2)
Singapore	75.7	94.7	97.5	115.3	2.7	4.1	+10.8	+3.4 (2.9)
Thailand	91.1	141.9	83.4	130.1	2.2	4.3	+4.6	−7.7 (1.2)
Latin America and the Caribbean	59.2	41.6	28.5	29.4	—	—	−3.5	−4.2(12.2)
East Asia and the Pacific	73.4	114.5	71.4	104.1	—	—	−0.8	−3.0 (9.9)
Middle income countries	65.0	70.5	45.4	58.3	—	—	−2.5	−3.0(11.6)
High income countries	137.2	147.8	110.9	129.3	—	—	−3.0	−1.1 (8.6)

Source: World Bank, World Development Indicator, 2001.

depth, is a persistent fiscal deficit, in spite of efforts of fiscal reform in Latin America. As known, a fiscal deficit produces crowding out and restricts finance to private sectors. Here we should take into account not only the level of the fiscal deficit compared with GDP, but also the relative size of the fiscal deficit compared with financial depth. Crowding out would take place even with a lower fiscal deficit if the financial depth is shallow. This is what happened in Mexico and some other Latin American countries, where a fiscal deficit is not as high with international comparisons, but it still does affect loans to the private sector due the overall shallow financial depth. Therefore a fiscal deficit has been causing crowding out in these countries. Banks have invested a large amount of resources in government bonds and have been able to make a considerable amount of earnings, but were still not motivated enough to expand their lending to the private sector. This aspect will be discussed in later using the case of Mexico.

In spite of the fact that Latin American countries have made strong efforts to reduce fiscal deficits, the low level of domestic credit for the private sector is still related to some extent to the fiscal deficit in the government budget, because of the "crowding out" mentioned above. In East Asia the opposite type of combination is observed: lower fiscal deficit is accompanied by a deeper overall financial depth. Therefore, the effects of "crowding out" is stronger in Latin America than East Asia. It is confirmed by the Table 2-3.

Table 2-4. Latin America and East Asia: Recent Credit Slowdowns
Credit to the Private Sector by the Banking System (except where otherwise indicated)

	Slowdown period	Credit/GDP at end of slowdown	Difference vs. most recent peak	Average yearly fall from peak
Latin American countries				
Argentina	1999-2000	24.1	−0.7	−0.3
Brazil	1995-99	32.4	−6.4	−1.3
Deposit Money Banks		26.7	−6.7	−1.3
Colombia	1999-2000	25.7	−9.5	−4.8
Deposit Money Banks		17.9	−4.7	−2.3
Chile	1985-91	40.0	−29.6	−4.2
Deposit Money Banks		38.0	−18.0	−2.6
Mexico	1995-2000	13.1	−5.5	−1.8
Deposit Money Banks		11.4	−19.3	−3.2
Peru	1999-2000	25.8	−1.5	−0.7
Venezuela	1983-95	8.0	−56.0	−4.3
Deposit Money Banks		5.9	−23.4	−1.8
East Asian Countries				
Indonesia	1997-99	49.3	−32.2	−10.7
Korea (Deposit Money Banks)	1997-98	43.2	−1.4	−1.4
Thailand	1998-2000	101.1	−35.6	−11.9

Source: Barajas, Adolfo and Roberto Steiner, 2002 based on International Financial Statistics, Bank of Korea and authors' calculations.

We must add that the size of the financial depth such as "domestic credit provided by banking sector" and the "domestic credit to private sector" is not very stable. They are considerably volatile, especially in the period of crisis and reforms. Barajas and Stein (2002, p.17) demonstrate how these indicators changed in the 90s. However, the magnitude of the difference between East Asian and Latin American leading economies still remains. (Table 2-4)

2.4 Development of capital market

The low coefficient of domestic credit to the private sector relative to GDP is not compensated by other means of financing in Latin America. We should point out that the capital market is considerably less developed in Latin America as compared with that of East Asia. (See Table 2-5)

2.5 Financial depth and growth in Latin America and East Asia

As was discussed in Chapter 1, several authors found a high correlation between indicators of financial depth and growth. Nevertheless, in today's age of globalization, national and international actors have greater and better access to international financing through loans from foreign banks and directly from international capital market through the issue of bonds, ADRs, etc. These sources of financing could be the determinants of the shallow domestic financial depth in Latin America.

Table 2-5. Market Capitalization, Value Traded and Listed Domestic Companies in Latin America and East Asia

	Market capitalization (% of GDP)		Value traded (% of GDP)		Turnover ratio		Listed domestic companies	
	1990	1999	1990	1999	1990	1999	1990	2000
Argentina	2.3	29.6	0.6	2.7	33.6	4.8	179	127
Brazil	3.5	30.3	1.2	11.6	23.3	43.5	581	459
Chile	45.0	101.1	2.6	10.2	6.3	9.4	215	258
Mexico	12.5	31.8	4.6	7.5	44.0	32.3	199	179
Hong Kong	111.5	383.2	46.3	154.1	43.1	51.4	284	695
Korea	43.8	75.8	30.1	180.3	61.3	233.2	669	704
Malaysia	110.4	184.0	24.7	61.4	24.6	44.6	282	795
Singapore	93.6	233.6	55.4	115.4		66.9	150	355
Thailand	28.0	46.9	26.8	33.5	92.6	53.2	214	381
Latin America and the Caribbean	7.7	29.7	2.1	7.3	29.7	20.8	1,748	1,938
East Asia and the Pacific	21.3	52.4	13.2	68.1	117.2	139.4	1,443	3,754
Middle income countries	21.2	41.1	8.0	30.6	78.3	81.6	4,914	16,539
High income countries	55.3	138.7	31.8	120.9	49.3	94.0	17,064	24,741

The level of demand of "domestic credit to the private sector" for growth could vary among countries because of the following factors. First of all, if the FDI of transnational corporations is high, demand for domestic credit could be lower, as FDI will provide investments and generate growth. Both East Asia and Latin America experienced FDI-led growth during the 90s. As a matter of fact these two regions were the main destination of FDI among developing regions.

Furthermore, there is some empirical evidence that in countries which are rich in natural resources, less financial depth is needed to grow as compared to countries with a low endowment of such resources. It is understood that this differential stems from the fact that the development of natural resources is normally carried out with foreign resources. In most of the cases, projects in this field are undertaken by transnational enterprises which have access to international finance. It is therefore said that, in countries that are rich in natural resources, domestic financial development is not as deep in the cases of countries which are not well-endowed with natural resources.

Moreover, as financing in the international market is much more available now, financial deepening (domestic finance to private sector) is evidently less necessary, if the country is endowed heavily with natural resources and development (exploration, development, production and commercialization) can be carried out by finance from sources in international market. Large copper mines, iron ore mines, bauxite, alumina and aluminum, pulp and paper, oil and natural gas, oil refining and petrochemical industries developed by investments and/or finance by transnational companies are typical cases of these kind of sectors.

Gylfason, Thorvaldur and Gylfi Zoega (2001, p.22) identify a direct link between natural resources and economic growth, through saving and investment. They point out that an abundance of natural resources may hamper the emergence of a well-developed financial system.[3] Having this relationship in mind, one of the conclusions of a recent study by Levine, Ross and Maria Carkovic (2001, p.3; pp.28-29) holds some interest. They found that Chile does not fall neatly along the regression plane corresponding to the estimated relationship between stock markets, banks and economic growth and also that Chile has much less liquid markets and less developed banks than other rapidly growing economies such as Taiwan, Hong Kong, Thailand, Singapore and Malaysia, even after controlling for many other growth determinants.

Similarly, in countries for which growth depends strongly on foreign direct investments by transnational companies, as in the cases of automobile production as well as some auto parts production, maquiladora type assemble processes (especially, apparel and electronics),

3 With regard to this aspect, they argue as follows: When a large part of national wealth is stored in a natural resource, renewable or not, there is less need for financial intermediation to conduct day-to-day transactions. Dissaving can take the form of more rapid depletion of the resource and saving can take the form of less rapid depletion or of more rapid renewal in the case of renewable natural resources.

public services such as electricity and telecommunication, financial deepening (domestic finance to private sector) is less necessary as compared with other cases.

On the other hand, if the industrial structure of a country is characterized by a high weight of sectors which are heavy users of "external finance," the country needs greater financial depth. These sectors would benefit from greater disproportionate financial development than sectors that are not naturally heavy users of "external finance." In this scenario, the term "external finance" is used to indicate any type of finance other than self-financing by the company. Rajan and Zingales (1998) found evidence consistent with the hypothesis that sectors which rely more heavily on "external finance" grow faster in countries with a better-developed financial system. According to their study, such sectors are drugs, plastic products, office and computing products, radios, professional and scientific goods, electric machinery, glass, other industry, ships, machinery, textile, motor vehicles, petroleum and coal products, transportation equipment. (These correspond to approximately one third of all sectors and have an indicator of "external dependence" higher than 0.3)

Additionally, the need for financial deepening could be higher when the country needs to develop clusters of supporting industries (subcontracting firms, firms for outsourcing) and strengthen supply chains around large national or transnational companies.

The above-mentioned factors can somewhat explain the remarkable differences in financial depth between Latin American countries and East Asia countries. East Asian countries had to develop a financial system to satisfy their financial needs and to advance a "catching-up-product-cycle-phase," which involved the diversification and expansion of their industrial base.

Furthermore fore-runners of the East Asian region such as Korea, Taiwan and Hong Kong did not have easy access to international finance and FDI was not mobilized enough, when they carried out their early industrialization process. On the other hand late-comers of the region such as Thailand, Malaysia, The Philippines and Indonesia were able to get a larger amount of international finance because they started this phase of the process when international capital flow increased enormously. Therefore, the latter countries preferred financial liberalization to get abundant external finance, while the former countries had no other alternative than to develop their own domestic financial system. The latter countries however, also tried to expand the size of the domestic financial market, in spite of the possibilities of access to international financial market through financial liberalization, in order to finance national enterprises, especially small and medium businesses. The comparison between Latin America and East Asia discussed above is summarized as shown in Table 2-6.

In summary, it could be pointed out that less financial depth does not matter considerably, if a country remains as a natural resources exporting country or if abundant FDI flows into the country. It would begin to matter if the country should try to shift its strategy of development from natural resources-based growth, to that of more diversified economic

activities. As the World Bank (2000) emphasizes, the transition from natural resource-based development to knowledge-based development is one of the leading concerns of Latin American countries in recent years. (World Bank, 2002) Professor Michel Porter also pointed out that based on international comparisons, countries shifted from a factor-based phase, to an investment-based phase and to an innovation-based phase as their levels of income increased.[4] However, it is not new industrial policy that is needed for such transitions to take place in Latin America, but rather a taking stock of measures to improve their financial system, in order for companies with a potential for high growth to expand their scale and scope of activities and for dynamic new companies to be created, in response to these new emerging opportunities.

Having discussed the demand side of financial development, we should briefly discuss the supply side of domestic financing, which is obviously closely related to the rate of saving, but at the same time, restricted by the fiscal deficit as a result of crowding out as was discussed above. In addition, the legal system as it relates to bankruptcy law, collateral law (recuperation of collateral of loans) as well as the efficiency and predictability of the judicial system facilitates strong financial development. These aspects are summarized in the Table 2-7

Table 2-6. Demand of Domestic Finance, Availability of International Finance and Characteristics of Industrial Sectors

Sectors	Natural resources/ Commodities *(Demand of domestic finance is lower)*	Diversified and differentiated manufactured products *(Demand of domestic finance increases along with the formation of supply chains and participation of SMEs)*
Period of 70s and 80s: Low availability of international finance	*Relatively low demand of domestic finance*	*Very high demand of domestic finance* Japan, Korea, Taiwan in their industrialization process
Period of 90s: High availability of international finance	*Very low demand of domestic finance* Mexico, Chile, Brazil	*Relatively high demand of domestic finance* Thailand, Malaysia

4 In addition to these phases, other phases, such as "natural resource-based phases" and "catching-up-product-cycle-phases" could be included, bearing in mind the abovementioned experiences of Latin America and East Asia. It should be convenient to distinguish this "catching-up-product-cycle-phase" from the simple "factors-based phase" of Professor Michel Porter. The former could be considered an intermediate phase between the latter and the "innovation-based phase" of Professor Porter. Furthermore, we should recognize that in some countries different phases overlap.

Table 2-7. Conditions for Increase of Supply of Domestic Finance

Sectors	Improved judicial system (Property rights, bankruptcy law, predictability of judicial process, etc.)	Judicial system still to be improved
High fiscal deficits	Brazil	Peru, Argentina
Low fiscal deficits	Chile; Leading East Asian economies	Mexico; Other East Asian economies

2.6 Micro-enterprise, micro-credit and "missing middle"

Latin American countries have made serious efforts to establish and strengthen micro-credit institutions for the poor and informal micro-enterprises, and as such a few clarifications regarding micro-enterprises and micro-credit is required. We need to distinguish the formation of new enterprises seeking new opportunities and those which originated from necessity or subsistence. Some Latin American countries are among the highest ranked in the world, in terms of number of new enterprises created. Nevertheless new firms for necessity or subsistence are not necessarily formed because of the high expected rates of return based on new opportunities which justify the formation of the firms, but are formed even if the rate of return is lower than the market interest rate.[5] They will be financed by own savings or more probably by micro-credit. Therefore enhancement of micro-credit institutions does not necessarily imply that real financial deepening is taking place. The formal financial development should allow enterprises to be formed in response to new opportunities.

In some countries, we observe bipolar phenomena in which micro-enterprises proliferate and large enterprises expand. In these cases enterprises of middle size, or small and medium enterprises are generally missing. This "missing middle" syndrome is caused by lower financial deepening of formal financial systems on the one hand and by the enhancement of

5 According to the Global Entrepreneurship Monitor's 2001 Executive Report, about 1.4 billion working-age individuals (20 to 64 years old) live in the 29 countries surveyed by the Global Entrepreneurship Monitor in 2001. Slightly less than 10 percent of these people are, at any point of time, in the process of creating and growing new businesses. About 54 percent (i.e., 80 million people) of those involved in creating and growing new firms claimed they were pursuing a business opportunity for personal interest, often at the same time they were working in a regular job. These efforts are referred to as "oportunity entrepreneurship", reflecting the voluntary nature of participation. In contrast, about 43 percent (i.e., 63 million people) reported they were invlolved because they had "no better choice for work". Such efforts are referred to as "necessity entrepreneurship" reflecting to the individuals' perception that such actions presented the best option available for employment but not necessarily the preferred option. According to the same report, four countries ranked highest in opportunity entrepreneurship (in alphabetical order): Australia, Mexico, New Zealand and the United States. Five countries ranked among the highest group for necessity entrepreneurship (in alphabetical order): Brazil, India, Korea, Mexico and Poland. The analysis indicated that developing countries generally have a higher prevalence rate for necessity entrepreneurship. Global Entrepreneurship Monitor (2001)

micro-credit institutions for micro-enterprises as well as improved access for large enterprises to international financial and/or capital market on the other hand. We should also add that, in this situation, even successful micro-enterprises remain as they are because of scarceness of finance for upgrading them to formal dynamic small and medium enterprises.

2.7 The case of Mexico: Moderate growth in spite of extremely shallow financial depth

2.7.1 Shallow financial depth and its causes

Although the coefficient of domestic credit to the private sector is reported to be 16 percent (World Bank 2001), the "effective" domestic credit to the private sector is estimated at 11 percent of GDP, if we exclude the "titulos de IPAB" which are inactive. After the Mexican crisis banks have to be very cautious, as they lost their capital during this crisis which has forced them to recapitalize. Such banks have invested in Treasury Bonds, with rates of interest that have been very attractive until recently. On the other hand, the demand of the private sector for credit has decreased due to the recent recession, even though the interest rates have been recently lowered.

Given the constraints of domestic credit to the private sector, the following three sources have been widely used as alternative sources of finance: foreign credits, suppliers' credit and non-bank financial intermediaries called SOFOLES. However, foreign credits, as financial sources, have not been as important and the surplus of the capital account has not been as significant, but foreign direct investment has been quite substantial. As exporting companies can use trade credits and suppliers' credits and exports correspond to 30 percent of GDP in Mexico, the economic growth can be attained as far as exports continues to expand.

2.7.2 Consequences of low level of domestic credit to private sector

At any rate, the major source of financing for enterprises is retention of profits, that is "internal finance." It means that private sector investments depend very much on the level of profits due to difficulties in accessing "external finance" (banks credits and/or direct financing in the capital market). This form of financing is very procyclical. Until now, the principal source of growth in Mexico has been trade in NAFTA. As mentioned above, exporting companies can use trade credits and suppliers' credits as sources of financing and export corresponds to 30 percent of GDP, the economic growth was attained as far as export continued to expand. But the country would face limited growth, because NAFTA could have been causing an effect of "one-shot" nature.

On the other hand, as there has been a lack of domestic credit to the private sector in Mexico, sectors which are able to grow have been those that can use some kind of credit.

As was mentioned above, the export sector was the major sector experiencing growth because they used suppliers' credit, trade credit and credits from abroad. Recently availability of consumer credits (credit cards, loan of foreign retailers such as foreign supermarkets) is expanding so that consumption of those who can use consumer credits is also increasing.

Therefore regarding this process, the following two issues should be addressed now:

(a) Although scarceness of credits to private sector have not been serious constraints of growth, it will be so now because Mexico cannot depend always on export sector for its growth; and

(b) Credit should be allocated in more balanced ways among sectors and much more actors should get access to such credits. If there exists some sectors (for example, service sector and SMEs) which have difficulties gaining access to credits, it would produce less balanced growth and less socially dynamic development.

2.7.3 Remaining issues

Banks have been able to recapitalize and are now in a condition to increase their credits to private sectors. Nevertheless there are still some problems to be solved. Although the Treasury bond rate has been decreased from 17 percent in February 2001 to 5 percent in April 2002, the spread still remains to be high. Factors such as lack of competition and inefficiency of banking operations as well as costs of regulation or problems related to recuperation of credits are main impediments to the lowering of the spread. On the other hand, until now, lack of credit has not been the cause of high spread, because the demand for credit has been low due to the high rate of interest.

The problem of recovery of collaterals is caused by the very slow judicial process and the fact that each State has different form of applying the Civil Code. Because of these problems, particularly the slow judicial process, banks prefer to look for extra-official solutions, although creditors remain in unfavorable negotiating conditions. However there has been some improvement because the legal framework has been strengthened. Recently the "Ley de Concurso Mercantil" (Bankruptcy Law) and Law of Collateral was promulgated and a system similar to that of the United States is now being introduced. Nevertheless it will still take time to solve these problems related to the recovery of collaterals.

3. The Creation and Development of New Firms and their Accessibility to Finance

The creation and development of new firms is one of the most important driving forces behind economic growth and is closely related to accessibility to finance. As was pointed out earlier in Chapter 1, when we classify growth into two parts, creation of new firms and

expansion of existing firms, we find that the former is more seriously affected by the constraints of finance. It is at this point that we should assess the extent to which shallower financial depth in Latin American countries, as was discussed in Chapter 2, affects the creation and development of new firms in Latin America in comparison with East Asian economies. This aspect has been analyzed in a recent comprehensive research carried out by the IDB[6], and much of this chapter can be attributed to this Study. The findings of this Study as related to accessibility to financing, coincide with what many authors have emphasized as weak aspects of the Latin American environment for the starting up of enterprises, especially those that are based on technology. Let us first take a close look at the magnitude of the differences between the regions in this aspect.

3.1 Start-up and early development phases of new firms and their accessibility to finance

The IDB Study found that access to external sources for financing is clearly higher in East Asia than Latin America, both at the start up stage, and at the early development stage. At the start up stage, the role of venture capital, as well as of business angels, in East Asia is double that of Latin America (6% vis-à-vis 3% for venture capital, 16% vis-à-vis 8% for angel investors). Bank loans are also more frequently used in the former than the latter (23% vis-à-vis 18%). Even loans from public institutions, a resource used less frequently compared to other financing sources, are used much more commonly in East Asia than Latin America (10% vis-à-vis 2%). In addition to this basic difference, the Study found that more dynamic firms use these sources to a much greater extent. Furthermore, compared to their East Asian counterparts, more Latin American entrepreneurs mentioned the limited or total lack of access to external financing as a significant factor.

The Study also made it clear that sources of external financing in Latin America do not necessarily meet the needs of the region's entrepreneurs. When consulted about why they did not use external financing sources, two thirds of the Latin American entrepreneurs stressed that those sources did not suit their needs in terms of high interest rates, requirement of collateral, etc. However, half of them preferred to avoid sources of external financing,

6 IDB (2002) As the subtitle of this Study indicates, it focuses on the creation and development of new firms in Latin America and East Asia. The Study analyzes data drawn from surveys of more than 1,200 new entrepreneurs in East Asia and Latin America. East Asian economies covered by the Study are Japan, Korea, Singapore, Taiwan Province of China. Latin American countries included in the Study are Argentina, Brazil, Costa Rica, Mexico and Peru. The author of this paper participated in the Study as senior adviser. His article (Hosono 2002) is included in the Study. A part of this Chapter was written on the base of this article. Some of the figures referred to hereinafter do not appear in the published version of the Study of IDB because they were taken directly from the data set compiled by the Study's coordination team. This Chapter also includes other information not contained in the Study.

because they wanted to maintain control of their business, did not want to take on more debt, and/or they lacked faith in institutions, according to the Study. As regards East Asian entrepreneurs, on the other hand, less than one out of five said that they preferred to avoid the use of external financial sources or that they considered them inappropriate to their needs, according to the same Study. (See Tables 3-1 and 3-2)

At the early development stage, the strong differences regarding accessibility to financing between the two regions are even more pronounced than at the start up stage. The predominant role of personal savings decreases at this advanced stage, when the need for external finance increases because of the more expanded scale of business. In fact, the number of firms using bank loans and public institutions at the early development stage is almost twice as great than during the previous stage (start up stage) in East Asia, while in Latin America only a small increase is observed. This impressive difference at the advanced stage reflects the enhanced access of East Asian entrepreneurs to the above-mentioned sources of external financing as compared to their Latin American counterparts. The two most important sources of financing at this stage for dynamic enterprises in East Asia are loans from commercial banks and national public institutions. The percentage of dynamic firms in

Table 3-1. East Asia: Where to Get Financing at a Start-up Stage

	Total	Dynamic group (%)	Less dynamic group (%)
Internal sources	77.2	76.5	79.2
Personal savings of founding partners	67.4	66.7	69.5
Relatives/friends	33.5	33.7	33.1
Personal credit cards	9.8	10.6	7.4
External sources	39.9	42.3	32.8
Private investors who are not relatives/friends (angels)	16.1	17.4	12.1
Venture capitals	5.7	5.9	5.1
Banks: Loans	22.9	24.8	17.1
Banks: Overdrafts	5.6	6.1	4.3
National public institutions: Loans, guarantees	10.3	12.1	5.1
National public institutions: Grants	5.5	5.3	17.1
Local governments: Loans, guarantees	5.0	5.8	4.3
Local governments: Grants	3.1	3.1	5.1
Other sources	37.0	36.8	37.8
Clients (advances)	10.2	10.2	10.1
Suppliers (trade credits)	17.1	15.6	21.4
Factoring	2.9	2.9	2.7
Postponement of tax payment	3.0	2.9	3.5
Postponement of payment for services	2.9	1.8	6.2
Postponement of wages payment	2.2	1.4	4.7
Buying secondhand equipment instead of new	23.0	23.2	22.2
Others	2.6	2.3	3.4

Source: Prepared on the base of the statistics compiled by IDB (2002)

this region that use bank loans (40% for bank loans and 24% for loans from public institutions) is substantially higher than the case of Latin American firms (24% and 4% respectively).

As for corporate venture capital, its role increases for dynamic firms in East Asia at this advanced stage, while in Latin America it decreases (11% vis-à-vis 1%). On the other hand, although the role of business angels tends to decrease during the early development stage in both regions, it is still relatively more important for dynamic firms in East Asia than in Latin America (15% vis-à-vis 7%). (See Tables 3-3 and 3-4)

The findings of the Study are generally consistent with the results of other recent studies related to the start up of enterprises. For example, the start up index constructed by Professor Andrew M. Warner (2000) reflects loan availability (with little collateral), venture capital financing availability and "the ease of activating new business". Latin American countries obviously rank significantly lower on this index compared to East Asian countries (the highest score is the United States with 2.02, and the lowest is Ecuador with −2.01): Brazil −0.59, Argentina −0.82, Mexico −1.23 and Peru −1.53 as compared to Singapore 1.31, Taiwan 1.04, Korea 0.19 and Japan −0.21. In terms of loan availability (obtaining a loan with only

Table 3-2. Latin America: Where to Get Financing at a Start-up Stage

	Total	Dynamic group (%)	Less dynamic group (%)
Internal sources	86.3	89.4	80.3
Personal savings of founding partners	82.8	87.2	74.3
Relatives/friends	25.1	24.1	27.1
Personal credit cards	9.2	10.2	7.3
External sources	32.4	34.5	28.4
Private investors who are not relatives/friends (angels)	8.0	9.2	5.5
Venture capitals	2.8	3.5	1.4
Banks: Loans	17.8	18.7	16.1
Banks: Overdrafts	12.9	13.0	12.8
National public institutions: Loans, guarantees	1.9	2.1	1.4
National public institutions: Grants	0.9	0.9	0.9
Local governments: Loans, guarantees	0.8	0.9	0.5
Local governments: Grants	1.1	1.4	0.5
Other sources	59	61.9	53.2
Clients (advances)	19.7	19.6	19.7
Suppliers (trade credits)	35.1	39.2	27.1
Factoring	4.5	5.4	2.81
Postponement of tax payment	11.1	11.1	1.0
Postponement of payment for services	3.3	3.3	3.2
Postponement of wages payment	3.43	3.3	3.7
Buying secondhand equipment instead of new	0.6	33.6	24.8
Others	3.9	3.8	4.1

Source: Same as Table 3-1

a good business plan and no collateral), the score for Latin American countries is generally lower than in East Asian countries: Brazil 3.4, Argentina 2.9, Mexico 2.4 and Peru 2.0 as compared to Taiwan 4.3, Singapore 4.2, Japan 3.4 and Korea 3.3. Furthermore, as regards to the availability of venture capital ("entrepreneurs with innovative but risky projects can generally find venture capital"), the score of Latin American countries is considerably lower than that of East Asian countries: Argentina 3.2, Brazil 3.1, Mexico 2.9, and Peru 2.4 as compared to Korea 5.0, Singapore 4.9, Taiwan 4.8 and Japan 4.0. An important contribution of the Study is that it made clear how the weakness in the financial system affects firms at the start up and the early development stages. This confirms what many scholars have argued: "Well functioning banks spur technological innovation by identifying and funding those entrepreneurs with the best chance of successfully developing new products and implementing innovative production processes" (World Bank, 2002: p.75).

3.2 Consequences of the difficulty of access to finance

An even more important and original contribution of the Study, however, is the fact that it clarified the way Latin American entrepreneurs respond to the problem of access to external

Table 3-3. East Asia: Where to Get Financing at an Early Development Stage

	Dynamic group (%)	Less dynamic group (%)
Internal sources	60.4	65.3
Personal savings of founding partners	54.3	56.0
Relatives/friends	23.6	25.6
Personal credit cards	10.0	13.6
External sources	57.3	44.4
Private investors who are not relatives/friends (angels)	14.8	18.5
Venture capitals	10.6	6.1
Banks: Loans	39.9	28.0
Banks: Overdrafts	9.7	4.0
National public institutions: Loans, guarantees	23.5	12.4
National public institutions: Grants	8.3	4.5
Local governments: Loans, guarantees	12.8	6.0
Local governments: Grants	5.0	5.2
Other sources	36.9	36.7
Clients (advances)	10.4	15.1
Suppliers (trade credits)	19.5	23.5
Factoring	5.7	5.2
Postponement of tax payment	4.3	3.2
Postponement of payment for services	3.2	5.2
Postponement of wages payment	2.7	3.2
Buying secondhand equipment instead of new	17.2	17.6
Others	2.8	1.2

Source: Same as Table 3-1

financing. Frequently, they look for alternative finance sources, and if they cannot get enough funding to start up a business, they downsize it. In fact, in addition to personal savings and loans from relatives, a Latin American entrepreneur uses other sources of financing more frequently than his/her counterparts in East Asia: suppliers credits (39% vis-à-vis 16%), advances from clients (20% vis-à-vis 10%) as well as postponement of tax payments (11% vis-à-vis 3%) at the start up phase. Although in both regions, personal savings is the predominant source of financing at start up, it is more important in Latin America than in East Asia (87% vis-à-vis 67%). Furthermore, the Study made it clear that in Latin America, most of the dynamic entrepreneurs who face problems with access to financing at the start up phase begin on a smaller scale than that needed to be competitive (61% vis-à-vis 48% in East Asia). They also ask for support from clients/suppliers (59% vis-à-vis 42% in East Asia), start with a lower level of technology (57% vis-à-vis 22% in East Asia), and/or purchase second hand equipment (34% vis-à-vis 23% in East Asia). (See Tables 3-4 and 3-5)

Although further research needs to be done to confirm this situation, this unfavorable scenario for Latin American entrepreneurs compared with their East Asia counterparts seems to at least partially explain why the time gap between initial motivation and start up is significantly shorter in East Asia than in Latin America: the average time in the former

Table 3-4. Latin America: Where to Get Financing at an Early Development Stage

	Dynamic group (%)	Less dynamic group (%)
Internal sources	67.9	61.2
Personal savings of founding partners	63.7	55.3
Relatives/friends	21.0	14.4
Personal credit cards	9.1	9.6
External sources	37.8	35.1
Private investors who are not relatives/friends (angels)	6.5	1.6
Venture capitals	1.3	0.5
Banks: Loans	23.8	21.8
Banks: Overdrafts	18.1	19.1
National public institutions: Loans, guarantees	1.1	1.6
National public institutions: Grants	1.3	0.5
Local governments: Loans, guarantees	1.0	0.5
Local governments: Grants	1.3	0.5
Other sources	65.0	55.3
Clients (advances)	19.7	20.7
Suppliers (trade credits)	43.5	35.1
Factoring	9.1	1.6
Postponement of tax payment	13.2	11.2
Postponement of payment for services	4.7	1.6
Postponement of wages payment	4.4	2.7
Buying secondhand equipment instead of new	27.5	20.7
Others	7.3	3.7

Source: Same as Table 3-1

region is about half of that of the latter (2.6 years vis-à-vis 4.6 years). And this unfavorable situation could be closely related to the fact that East Asian dynamic new ventures start with higher initial sales and they grow faster than Latin American firms do.

In addition to the differences explained above (financial aspects), there are obviously several other reasons that could explain this significant difference between the two regions. For example, the difference in industrial structure could be one of the most significant causes. These differences include the different types of goods and services that dynamic new ventures produce in East Asia and Latin America; the fact that subcontracting is more intensively and widely used in East Asia; and the larger share of the manufacturing industry in the economy in East Asia. In fact, the presence of knowledge-based new firms is higher in East Asia.

However, on the other hand we must recognize that further efforts are also needed in

Table 3-5. East Asia: Alternatives if Initial Funding is Insufficient

	Dynamic group (%)	Less dynamic group (%)
The new firm started smaller than what was considered desirable to be competitive	47.6	65.9
The new firm started later than it should have for it to be competitive	22.9	30.0
A partner was needed	45.8	44.7
The new firm started with a less than desirable level of technology	21.6	28.4
Large client or supplier support was needed	42.0	44.9
Others	16.8	13.9
The limited access did not have any important effects	44.6	51.8

Source: Same as Table 3-1

Table 3-6. Latin America: Alternatives if Initial Funding is Insufficient

	Dynamic group (%)	Less dynamic group (%)
The new firm started smaller than what was considered desirable to be competitive	61.4	56.7
The new firm started later than it should have for it to be competitive	37.9	37.5
A partner was needed	12.2	8.7
The new firm started with a less than desirable level of technology	56.5	48.1
Large client or supplier support was needed	59.4	48.6
Others	7.3	9.6
The limited access did not have any important effects	32.3	28.8

Source: Same as Table 3-1

Table 3-7. Evolution of Sales of Dynamic Enterprises since Launch
(Percentages of enterprises with sales over US$1 million)

	East Asia (%)	Latin America (%)
First year	23	9
Third Year	64	25
Year 2000	83	36

Source: Same as Table 3-1

some countries within East Asia in order to improve the business environment for small and medium enterprises (SMEs) in general, and dynamic firms in particular. A recent study by the United Nations Conference on Trade and Development (UNCTAD, 1998) mentions that there is evidence of a "missing middle," referring to the core group of dynamic SMEs that typically employ 20 to 300 employees, growing at average rates which is at least double the rate of economic growth, and are more likely to be internationally active. This means that there is a shortage of the middle sized, growth-oriented SMEs that make an important contribution to development. The same study concludes that while the leading economies in East Asia (Japan, Korea, Singapore and Taiwan) were able to allow their SME sectors to evolve and develop over relatively long periods of time, other countries in the region tend to face a more urgent need to ensure that they have internationally competitive and viable SME sectors.[7]

Given the financial constraints in Latin America in comparison with East Asia, at the time of business start up, among the economic factors that influence the decision to begin, the level of family income/assets is more important in Latin America than in East Asia (50% vis-à-vis 31% for dynamic firms). For Latin American dynamic firms the personal savings of founding partners are more important for the start up stage than for their East Asian counterparts (87% vis-à-vis 67%). This stronger presence of families in the entrepreneurial process in Latin America than in East Asia could be attributed to several factors. Such factors may include more restricted access to bank loans, a general lack of financing from venture capital, angels and other sources, and socio-cultural factors.

Given these differences between the two regions regarding such factors, we could presume that the possibility of starting a business in Latin America would be considerably limited for those potential entrepreneurs who do not have a strong family business tradition or high levels of income/asset within close family circles. We could safely state that the opportunity to start a business in Latin America is unequally distributed among potential entrepreneurs.

As a matter of fact, the IDB Study on entrepreneurship found that the presence of dynamic entrepreneurs from the lower-middle class and lower-class families is much lower in Latin America than in East Asia (IDB 2002, p.14). In fact, entrepreneurs from the lower-middle and lower class correspond to 47 percent in East Asia as compared to 30 percent in Latin America. In the latter, 70 percent came from upper-class families, the

7 According to the same Study, among the countries studied in Asia, the phenomenon of the missing middle was most marked in Indonesia and the Philippines. The relatively small dynamic firms (with less than 100 employees) made up only about 8 percent of the output in Indonesia and 14 percent in the Philippines. This can be contrasted with small farms (those with less than 100 employees) contributing one-third of the output in Japan, and two-fifths in Taiwan. The Study mentions: "The under-representation of this component of an entrepreneurial engine means that growth opportunities are being foregone." It also states: "This was probably less important to the leading countries as they developed, but for countries developing now in a more internationally competitive world, SMEs provide an important source of renewing competitive advantage." (UNCTAD, 1998: 17)

upper-middle class or the middle class. Another distinctive feature in East Asia is the lesser presence of entrepreneurs with parents who were entrepreneurs or self-employed. That means that family tradition is less important in East Asia as a determining factor in terms of the decision to become an entrepreneur.

All these factors seem to suggest that entrepreneurship serves as a stronger channel of social mobility in East Asia than in Latin America. In other words, if potential entrepreneurs from the lower class families were given an equally supportive environment for starting their businesses, there would be more new enterprises in Latin America and at the same time greater social mobility could be promoted through them.

4. Expansion of Existing Firms: Their Responses to Economic Reforms and Other New Factors of 90s

Shallow financial depth affects the structure of the sources of finance that are available to existing firms. Firstly, this aspect of shallow financial depth as related to sources of finance in Latin America will be compared to East Asia, then the influence of limited sources of finance on the expansion of existing firms in Latin America as compared to East Asia will be assessed from three different angles. The three angles are:

(a) Size of large firms in Latin America as compared with East Asian counterparts;
(b) Scale of outgoing FDI by Latin American firms compared with outgoing FDI by East Asian firms; and
(c) Expansion of business by Latin American firms in East Asia compared with business of East Asian firms in Latin America.

Such evidence suggests that shallow financial depth could be one of the major factors affecting the expansion of Latin American firms, even though it may not be the only factor. (Sections 2 through 4) On the other hand, we can confirm that some Latin American firms have effectively responded to a new business environment and opportunities produced by reforms, globalization and regional integration in 90s. This means that if they and other firms were given improved availability to financial resources, their expansion could have been more intensive. (Section 5)

4.1 Shallow financial depth and sources of finance for firms

Obviously, shallow financial depth for companies (domestic credit to private sector) is a constraint for the finance available to businesses in Latin American countries. The companies tend to depend on their own savings (retention of profits) and/or sources that are different

from financial institutions, such as suppliers' credit. Therefore, as Barajas and Steiner point out, "it is generally believed that Latin American firms finance most of their investment with their own resources" (Barajas and Steiner, 2002, p.4)

Although we have no access to reliable comparable data regarding this aspect for these countries, as Barajas and Steiner put it, we have some statistics that suggest the general belief. For example, a case study for Colombia showed that in the first half of the 1990s financing of firms came from profit withholding (33 percent), new equity (12 percent) and loans (55 percent). However no differentiations were made as to the origin of these loans, in order to isolate those from financial institutions as opposed to other sources, such as suppliers. (Steiner and Salazar, 1998 cited by Barajas and Steiner, 2002, p.4) A more recent study indicates that in 1999 around 19 percent of manufacturing firm's liabilities was with financial institutions. Singh made a comparative analysis of the top 100 firms of leading emerging countries in 1980s. He found that in Brazil and Mexico, the percentage of internal finance (retained profit) is higher (46.0 percent and 23.1 percent respectively) than the corresponding figures in Korea, Thailand (15.8 percent and 14.7 percent). In Malaysia, the figure (29.7%) was higher than Mexico. In the same study, Singh found that the ratio of debt compared to net assets in Brazil and Mexico was lower (8.4 percent and 8.6 percent respectively) than Korea, Thailand and Malaysia (39.7 percent, 55.8 percent and 10.3 percent). This means that in these Latin American countries large firms depend less on banks than large firms in East Asia. (Singh, 1995, p.51)

A detailed survey regarding sources of finance for firms of different sizes is carried out every three months in Mexico. We must recognize that the finance that comes from the withholding of profits of the firm itself is not covered in this survey. Nevertheless it contains very relevant information for this study. First of all, it is important to note that in Mexico, 72.5 percent of firms surveyed do not use bank credits (in the first trimester of 2002; same for the following figures unless mentioned otherwise). Although the percentage of firms which do not use bank credits are higher among smaller firms as is shown in Table 4-1, 66.1 percent of large firms do not use credits of banks.[8]

Now, as for sources of finance for all firms, 56.4 percent comes from suppliers, 19.7 percent from commercial banks, 3.8 percent from foreign banks, 12.2 percent from other firms belonging to the same group, 23.2 percent from development banks, 3.3 percent from parent companies and the rest (1.4 percent) stem from other liabilities. It should be mentioned that even for large companies and AAA companies, the largest source of finance is suppliers credit (46.8 percent and 32.5 percent respectively), while they depend more on

8 The classification of enterprises are made on the base of value in 1997. Small firms are those with sales values of 1-100 million pesos, medium firms with 101-500 million pesos, large firms with 501-5,000 million pesos and AAA (triple A rated) firms with 5,000 million pesos. The composition of samples are 38.2% for small firms, 35.4% for medium-sized firms, 22.5% for large firms and 3.9% for AAA firms.

domestic and foreign banks than smaller companies. (23.7 percent and 8.6 percent in the case of large companies and 37.5 percent and 7.5 percent in the case of AAA companies)

Table 4-1. Mexico: Results of the Survey on the Credit Market: First Quarter 2002 1/

	Total	By size of enterprises 2/				By type of enterprises 3/	
		S	M	L	AAA	Export	Non-Export
Sources of financing	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Suppliers	56.4	62.4	59.1	46.8	32.5	55.4	57.5
Commercial banks	19.7	14.3	20.7	23.7	37.5	19.6	19.9
Foreign banks	3.8	2.9	1.3	8.6	7.5	3.5	4.0
Others firms in corporation	12.2	12.5	12.5	11.5	10.0	11.4	13.0
Development banks	3.2	4.3	2.6	2.2	2.5	4.6	1.6
Parent company	3.3	2.5	3.0	6.5	0.0	4.6	1.9
Other liabilities	1.4	1.1	0.8	0.7	10.0	0.9	2.1
Firms that used bank credit	27.5	21.2	27.8	33.9	55.2	29.6	25.6
For							
Working capital	68.7	65.1	81.4	62.3	60.0	66.3	71.3
Liability restructuring	11.8	12.7	10.2	11.3	15.0	13.9	9.6
Foreign trade transactions	7.2	7.9	1.7	11.3	10.0	7.9	6.4
Investment purposes	9.7	11.1	5.1	11.3	15.0	8.9	10.6
Other purposes	2.6	3.2	1.6	3.8	0.0	3.0	2.1
Firms that did not use bank credit	72.5	78.8	72.2	66.1	44.8	70.4	74.4
Reasons							
High interest rates	26.6	28.7	25.2	26.6	11.8	24.7	28.6
Demand problems for their products	4.7	5.4	5.0	3.1	0.0	4.0	5.5
Bank's unwillingness to lend	19.9	24.2	14.4	17.2	17.6	21.5	18.2
Economic uncertainty	19.2	14.8	23.0	23.4	29.4	20.2	18.2
Financial restructuring difficulties	11.1	7.6	15.1	10.9	23.5	11.7	10.5
Application rejected	8.4	11.3	5.0	7.8	0.0	7.6	9.1
Past-due loan portfolio	4.5	4.0	6.5	3.1	0.0	4.9	4.1
Market competition difficulties	4.7	4.0	5.0	6.3	5.9	4.9	4.5
Others	0.9	0.0	0.8	1.6	11.8	0.5	1.3
Firms that grant some type of financing	74.3	76.9	74.6	73.0	55.2	83.5	65.9
To							
Clients	80.4	84.2	79.4	77.9	60.0	78.3	83.1
Suppliers	9.1	10.1	10.1	5.8	5.0	12.2	5.1
Other firms in corporation	10.5	5.7	10.5	16.3	35.0	9.5	11.8
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average maturity of financing granted (days)							
Clients	55.0	55.0	55.0	59.0	43.0	46.0	67.0
Suppliers	40.0	35.0	40.0	55.0	45.0	44.0	26.0
Other firms in corporation	69.0	80.0	62.0	61.0	88.0	58.0	80.0

1/ Nationwide sample with responses from at least 500 firms. The reply of this survey is voluntary and confidential.
2/ S: Firms sales in 1997, 1-100 million pesos.
M: Firms sales in 1997, 101-500 million pesos.
L: Firms sales in 1997, 501-5,000 million pesos.
AAA: Firms sales in 1997, over 5,000 million pesos.
3/ Non export firms are those that do not have any activity with foreign trade as well as those that only import goods and services.

The difficulty of access to the credit provided by banks is confirmed by this survey, as among firms not using the credit of banks, about 28 percent of them responded that they are not able to use it because the application of credits are rejected or banks are unwilling to lend. In the case of small companies, the percentage is higher (37 percent). Another significant reason behind the firms'lack of using bank credit is because of high interest rates. (26.6 percent of firms not using bank credit) All these financial constraints also affect the investments of companies. According to the same statistics, Mexican companies use a much lesser percentage of their credits from banks for their investments. Companies which obtain credits from banks used the funds mostly for working capital (68.7 percent) and much less for investment (9.7 percent). It is worthwhile to note that this tendency is not so different even in the cases of large and AAA companies. (62.3 percent vs. 11.3 percent for large companies and 60.0 percent vs. 15.0 percent for AAA companies.) (See Table 4.1)

Although we do not have statistical information of East Asian countries that can be compared strictly with the above-mentioned survey of Mexico, the credit of banks as a source of finance for firms appears to be more important in Korea. The coefficients of banks' credits to the amount of total assets of large and small/medium enterprises were 27.0 percent and 31.4 percent respectively in 1987-90. (Cho and Kim, 1995) On the other hand, Table 4.2 shows that Korean firms depend considerably on the capital market for their source of finance and less on interfirm finance.

4.2 Financial depth and size of firms

The constraints of accessibility to finance would affect the expansion of firms. A recent IDB study on the size of enterprises of different regions seems to be highly relevant from this perspective. (IDB 2001, pp.35-42) The largest firms in Latin America are very small in comparison with other regions in the world. Among seven regions, Latin America comes in last in average size in terms of total assets of the countries' 25 largest companies. The average size of the assets of Latin American countries is approximately US$1,200 million, while that of East Asian countries is about US$4,500 million. This IDB study got a very impressive conclusion. "The financial depth (measured as the ratio between total credit to the private sector and the GDP) is a very robust determinant of the size of large companies. Given the estimated coefficients, an increase of the standard deviation in the financial depth of a country (which equals 46 percent of GDP) is associated with an increase of between 26 percent and 44 percent in the size of its large companies. The magnitude of this effect is surprising because presumably, large companies would have better possibilities of having access not only to domestic but also to international financial markets. Consequently, it is to be expected that the effects will be even more pronounced for medium-sized and small companies." (p.40)

In this regard, the empirical studies on the case of Chile are interesting because Chile is the unique country in Latin America, which experienced a remarkable financial development in the last two decades. The analysis of Gallego, Francisco and Norman Loayza (2000) confirms that in the 1990s firm investment has been less constrained than in the 1980s. (p.29) As is well known, the 1990s was a period of significantly higher financial development than any time before in Chile. They also review literature on the effect of financial development at the aggregate level on the firms' financial structure and access to credit and equity markets. It is pointed out that to the extent that firms face constraints on or high costs of external financing, their investment depends not only on its profitability but is limited by both the availability of internal resources and the balance-sheet composition of the firm. Medina and Valdes (1998) find that in a sample of stock-traded firms in Chile, firms' financial constraints do affect their investment behavior, particularly in firms not regarded as "investment grade".

4.3 Comparison of outgoing FDI by Latin American firms and East Asian firms

4.3.1 Intra-regional FDI in Latin America

The increase of intra-regional foreign direct investment (FDI) by Latin American firms is a new phenomenon in the 90s. This reflects that Latin American firms are expanding their

Table 4-2. Korea: Source of Finance of Enterprises 2/

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 1/
Short-term bonds	6.4	−2.6	9.0	16.5	4.8	14.9	17.5	4.1	−41.2	19.3
CP	4.1	−4.0	7.9	14.7	5.0	16.1	17.5	4.1	−41.2	19.3
Long-term bonds	20.6	26.4	14.4	20.3	17.6	18.7	19.3	26.7	164.7	21.1
Bonds issued abroad	20.1	25.4	12.5	15.0	14.4	15.3	16.9	22.9	161.9	21.7
Corporate bonds	0.0	0.0	0.0	3.8	1.9	2.6	2.1	3.3	0.9	−1.0
Shares	11.8	10.0	12.2	14.0	15.0	14.4	11.3	0.8	47.7	55.8
Loans 3/	40.3	43.7	38.2	32.8	44.8	31.8	31.3	37.9	−52.9	−23.7
Bank loans	15.6	20.8	16.0	13.7	20.9	15.0	15.7	12.9	0.2	24.2
Increase of capital	1.9	3.6	2.1	2.5	1.4	0.2	1.1	1.9	5.1	1.7
Inter-firm finance	6.9	7.8	8.7	7.4	6.6	2.9	5.8	8.6	−19.2	6.0
External debts	7.4	4.5	6.8	−2.7	1.7	1.6	3.3	-1.2	−28.3	−2.4
Others	4.8	6.7	8.7	9.2	8.2	15.4	10.4	21.2	24.0	22.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(In 100 million won)									
Total	460,814	553,449	528,289	615,311	878,775	1,001,689	1,182,010	1,170,010	283,599	356,028

Source: Murakami, Michiko (2000) based on the data of the Bank of Korea, Economic Statistics Yearbook, Monthly Bulletin.

1/ January-June.

2/ Includes state-owned enterprises.

3/ Includes discount of CP banks.

activities across the borders and responding to new business environment and opportunities created by reforms, globalization and regional integration in the decade. The ratio of intra-regional FDI to the total inward FDI in Latin American countries increased from less than 3 percent in 1990 to more than 5 percent in 1996 and almost 15 percent (exceptionally high) in 1997. The ratio then abruptly decreased to less than 3 percent in 1999. (ECLAC 2001, pp.187-189)

Intra-Latin American investment amounted approximately US$20.2 billion in 1990-1999 and was 5.5 percent of total FDI entering the region during the period (US$365 billion). This intra-Latin American investment flow had two major components: participation of Latin American enterprises in privatization and in M&A. According to the ECLAC 2001 (p.187) "the main investment took the form of purchases of private-sector assets (51%), with very active participation on the part of entrepreneurs from Argentina, Brazil, Chile and Mexico. Privatization-motivated investment was dominated by Chilean investors (45%), followed by those of Argentina, Mexico and Venezuela (41%, taken as a group). Mercosur (including Chile) turns out to be the most important sub-regional source, accounting for over 50% of total intra-Latin American investment."

Among investor countries, Chile was of foremost importance with the amount of intra-regional investment of 6,727 million of dollars during 1990-1999. The second most important was Mexico with 4,786 million dollars and the third was Argentina with 3,535 million dollars. Brazil and Venezuela invested approximately same amount: 1,500 million dollars. (Table VI.7b of ECLAC 2001, p.189) (See Table 4-3 for details)

To increase international business not only in terms of trade but also of investment it is

Table 4-3. Latin America and the Caribbean: Intra-regional Foreign Direct Investment (FDI), by Country of Origin and Destination, 1990-1999

(Millions of Dollars)

Origin/Destination	Argentina	Bolivia	Brazil	Chile	Colombia	Peru	Venezuela	Other	Total
Argentina	...	534	1,097	400	...	263	1,129	113	3,535
Bolivia	...	...	...	6	...	...	...	...	6
Brazil		48	...	...	151	151	165	32	1,533
Chile		176	1,791	...	1,333	1,426	209	279	6,727
Colombia	...	...	...	...	...	18	922	...	940
Costa Rica	...	...	...	...	...	...	...	2	2
Ecuador	...	...	...	...	115	7	45	2	169
Mexico	702	...	206	111	700	19	2,152	897	4,786
Peru	...	6	...	...	...	...	100	30	136
Venezuela	118	...	...	15	967	...	...	480	1,580
Other	17	...	...	...	...	31	...	737	785
Latin America and the Caribbean	**3,335**	**764**	**3,093**	**532**	**3,265**	**1,915**	**4,721**	**2,573**	**20,198**

Source: ECLAC, 2000.

important for enterprises to get a larger scale of operation to attain economies of scale in the area of their competence. It is especially true for Latin American enterprises in a country with a small domestic market. From this consideration, it is highly relevant to facilitate, allow, or at least not restrict enterprises to invest abroad if they find opportunities. In this process again, financial constraints matter very much. We will discuss this aspect later in Section 4.4.

4.3.2 Intra-regional EDI in East Asia

Investments abroad of East Asian enterprises have increased much earlier than those of Latin America. The investments by Asian NIEs (Korea, Taiwan, Singapore and Hong Kong) are, now, the most important source of FDI for both the ASEAN four countries (Malaysia, Thailand, Indonesia and the Philippines) and the People's Republic of China. The FDI by Asian NIEs to ASEAN four amounted to 15,900 million dollars (44 percent of total FDI in these countries) and the FDI by Asian NIEs to China amounted to 25 billion dollars in 1995. (See Table 4-2 for details)

At the same time, the investments outside of Malaysia and Thailand have been also increasing. The investments of Malaysian companies in East Asia increased rapidly to 1,800 million dollars in 1994 and those of Thai companies increased to 400 million dollars in the same year. In the case of Korean companies, their investments abroad began to increase in the second half of the 80s. The amount of out-going investments of Korea surpassed that of in-coming FDI to Korea for the first time in 1990. Among the destinations of Korean companies' investments abroad, the United States was the most important at the beginning, but from 1991, their investments to Asian countries superseded those to North American countries. Among Asian countries, the most important destination of Korean investments was ASEAN countries until 1993, when their investments to China and Vietnam began to increase rapidly.

The investments abroad of Taiwanese companies began to increase at the same time with those of Korean companies. Their investments in China have increased rapidly since 1991 especially by small and medium companies of Taiwan. But the government encouraged Taiwanese companies' investments in South East Asian countries, to reduce dependence on the Chinese economy. Hence their investments in Vietnam, Indonesia and the Philippines increased. Taiwan was the third most important foreign investor in these three countries in 1994.

The investments abroad by companies of Hong Kong started even earlier than those of Korean and Taiwanese companies. They started as early as the beginning of 80s. More than 90 percent of 2000 companies belonging to the Hong Kong Chamber of Commerce and Industry have invested in Kang Dong province before 1993. Their investments have expanded

from this province to Beijing and Shanghai and other provinces. Although Hong Kong companies invested in South East Asian countries, the scale has been much smaller than their investments in China.

We should also point out that in the case of East Asia there has been a substantial increase of investments by SMEs, which is not widely-observed in the Latin American region. Although statistics related to out-going foreign direct investments (FDI) by SMEs of East Asian countries are limited, available data elucidate interesting aspects of FDI by SMEs in this region. For example, the stock of FDI by SMEs of Korea increased from 1,026 million dollars to 2,054 million dollars between 1993 and 1995. Their stock accounts for around 20 percent of total FDI stocks of Korean enterprises (including large, medium-sized and small enterprises). The number of cases also increased almost two times from 1,603 to 3,593 cases in this period. These cases of FDI by SMEs of Korea correspond approximately to 70 per cent of all cases of FDI by companies of this country. Although the SME FDI of Korea is largely concentrated in Asia, North America is gaining importance as a host region. Another very important characteristics of the Korean SME FDI is that more than four-fifths of SME FDI is invested in manufacturing and although SME FDI from this country is becoming more diversified, the bulk is in the labor-intensive manufacturing industry.[9]

The study on foreign direct investment in East Asia, especially of SMEs, carried out by UNCTAD (UNCTAD 1998) summarized its findings as follows: "Firms engaged in FDI form an important part of the entrepreneurial engine of growth. They typically expect much higher growth rates than national GDP growth. These high growth rates are more likely to be sustainable because of the firms' ability to draw on financial, managerial and technical resources abroad. Thus, these firms, both in host and home countries, could provide an important nucleus for development." (pp.31-32)

These dynamic increases of intra-regional investments by East Asian companies in the region are motivated by the following factors. First, the manufacturing industries of these countries are relocated so as to obtain a less expensive work force in ASEAN countries and China. At the beginning, foreign investments by Korean and Taiwanese firms in labor intensive manufacturing industries such as textile and shoe industries were started. Many Hong Kong firms did the same type of investments in China.

Secondly, investments in manufacturing industries by Asian NIEs were much more

9 According to surveys by UNCTAD, SME investors in Korea, Singapore and Taiwan Province of China (Taiwan hereinafter) indicate that, on average, they plan to increase their FDI by about a quarter in 1997 and would increase it further by one-third per annum if governments took significant positive steps to address problems that they face in investing abroad. Japan also collects some information on the number of cases of SME investment abroad. SMEs make up about 50 percent of cases of FDI. The proportion rose to as high as 60 percent in 1988 when the yen was rising steeply (after Plaza Accord), and then dropped to around 40 per cent in 1991, increasing again to 55 per cent in 1996. (UNCTAD, 1998, p.31)

diversified at a later stage. Investments in electric and electronic equipments, automobile parts and other machinery increased. Thirdly, investments in service sectors in China by Taiwan, Hong Kong and Singapore increased rapidly. Taiwanese companies invested intensively in finance, insurance, trade, wholesale and retail in Hong Kong and Singapore. Taiwan, Hong Kong and Singapore companies increased their investments in China in areas of property development (including industrial parks) and infrastructure. Korean enterprises are not so active in investments in service sectors. The common language and culture appear to be the most important factors for increase of investments in this sector by companies of Taiwan, Hong Kong and Singapore in China.

4.3.3 Comparison of intra-regional investments of Latin America and East Asia

When we compare intra-regional investments of Latin America and East Asia as discussed above (two previous sections), we find a remarkable difference between the two regions. First of all, the amount of foreign investments by East Asian countries' enterprises is far much larger than that of Latin American counterparts as was demonstrated in the previous sections. In ASEAN countries, investments from Asian NIEs had gotten to be the most important source of FDI in the mid-90s. In Latin America, although the investments by leading countries such as Brazil, Chile and Mexico increased considerably, they are still small compared with the total FDI inflow (between 3 and 5 percent of total FDI) in most Latin American countries. Second, in the case of East Asia, manufacturing industries constituted the most important area of intra-regional investments, while in Latin America, this was not the case. Third, in the case of East Asia, it is also noteworthy that there has been a substantial increase of investments by SMEs, which is almost not observed in Latin American region.

4.4 Response of Latin American enterprises to improved business environment and new business opportunities: a more detailed comparative analysis between Latin American and East Asian companies

A practical approach to assessing the expansion of existing firms is to see how they responded to a changing business environment and new opportunities created by economic reforms, globalization, regional integration and technological development, analyzing how they took advantages of them through increase of exports and/or through increase of investment abroad (outgoing FDI).[10] Regarding the export performance of East Asian and Latin American

10 Reforms (liberalization of international trade and investment, privatization of state owned enterprises and deregulation, especially in areas previously monopolized by the state) would encourage business activities and economic growth through two channels: Firstly, improvement of the business environment and secondly,

(continued)

countries in the global market in the 90s, Bonifaz, Jose Luis, Jorge Duarte de Oliveira and Michael Mortimore (1997) compared changes in the shares of export of East Asia and Latin America in the world market by major products categories.[11]

Professor Horisaka and I tried to analyze in detail, cross-border activities, among others and outgoing FDI by major Latin American enterprises elaborating our own data base for Argentina, Brazil, Chile and Mexico[12] and comparing them with those of major East Asian emerging economies.

The first strategy adopted by existing national enterprises in Latin America in responding to the above-mentioned challenges (reforms, globalization, regional integration and technological innovation) is normally to restructure themselves, which in turn leads to "specialization of production", as is confirmed by the study by Moguillansky and Bielshowsky (2001, p.53) Once this first phase of response or adaptation is finished, enterprises start to think globally and try to expand their business to foreign markets and to invest abroad. In this regard, the above-cited study found that "with the economy stabilized, firms began to employ a longer term planning horizon." "With the largest firms this meant taking decisions on several issues, including strategic partnerships with foreign investors; expansion into new markets; alliance with firms in other countries; introduction of new technologies in terms of products, processes and organization; and the sale of the firm to the actors better positioned to exploit its particular assets."

Specialization in the areas where firms are most competitive was the widely shared strategy among national enterprises in Latin America in 90s. For example, in Chile, in the first years of economic reform from the mid-70s, Chilean enterprises tried to diversify their activities in terms of sectors and sub-sectors, as was the case of the most dynamic groups of companies like Groups of Javiel Vial and of Cruzat and Larrain. But this strategy was abandoned by Chilean enterprises when it was increasingly clear that firms should specialize in their areas of core competences.

---

enhancement of business opportunities. However, in order for reforms to produce growth through these channels, it is important for economic actors, both national and transnational, to be capable and competitive enough to respond actively to these reforms. They must take advantage of the improved business environment and invest in new business opportunities. While we are able to analyze the responses of transnational enterprises using the data of foreign direct investments, it is not easy to assess quantitatively the intensity with which national actors respond to reforms, globalization, regional integration and other new tendencies mentioned above. Therefore, Professor Horisaka and myself tried to analyze them by elaborating our own database of cross-border activities of enterprises of major Latin American countries. (Horisaka, Kotaro and Akio Hosono, 1997)

11 In addition to the cited study (ECLAC 2000), the IDB (2001) also discusses the exports shares and competitiveness of Latin America.

12 Most of the cases identified in this study and included in its database are cross-border activities of private national enterprises of the four countries (78.0 per cent). A few cases were of state owned enterprises (10 cases) or of privatized SOEs (18 cases). 14 cases were activities of branches of transnational corporations established in these countries.

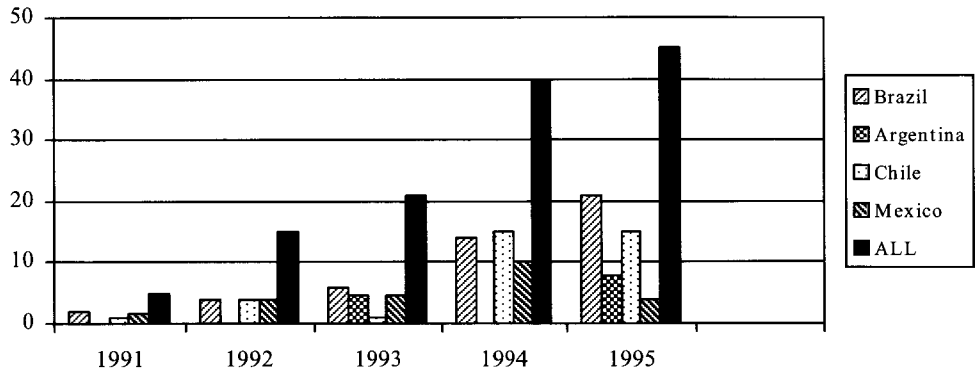
This important change of corporate strategy was clearer after the debt crisis, especially from the mid-80s. Specialization in competitive areas of each Chilean national company meant that they should expand their activities beyond their borders, because of the limited size of their domestic market in the case of Chile. Therefore Chilean companies had to first expand cross-border activities towards the end of 80s and during 90s, and then these companies, including privatized ex-state-owned enterprises, thus adopted the strategy of specialization and cross-border activities. This strategy was also adopted later by companies of other major countries of Latin America.

This process of Latin American national enterprises' response to a changing business environment in the first half of 90s was studied in detail by Professor Horisaka and myself. We elaborated our own data base of the cross-border activities of the companies of major Latin American countries such as Argentina, Brazil, Chile and Mexico. (Horisaka and Hosono, 1997)

We defined "cross-border activities" as investments for the establishment of subsidiaries (plants and other facilities) as well as joint ventures in foreign countries, alliance and cooperation with foreign companies for marketing and sales in international markets, technological partnership, OEM production, joint development of products and initiatives to attain concessions.

We covered almost all the relevant cross-border activities of the enterprises of the four countries which took place in first five years of the 90s (1991-95, 177 cases), when the major economic reforms of these countries were implemented. From this data we can confirm firstly, that cross-border activities increased substantially in these five years. The number of

Figure 4-1. Expansion of Cross-border Activities of Companies of Argentina, Brazil, Chile and Mexico in 1991-95.



Source: Horisaka, Kotaro and Akio Hosono (1996), *Latin American New Multinationals,* Nihon-Hyoron Sha, Tokyo (in Japanese)

cases increased 7 times. (See figure 4-1) This finding reflects that reforms, especially liberalization of trade and investment, together with regional integration (in case of Argentina and Brazil) effectively produced better business environments and enhanced business opportunities as early as the period of the first half of 90s in Latin America. It is also confirmed by the fact that 85.3 percent of cases are new cross-border activities and not the extension of already existing activities. In other words, they are made possible because of reforms, globalization and/or integration of 90s.

Secondly, that most of the cross-border activities (83.1 percent) were made inside the Latin American region and of this more than two thirds (60.5 percent of the total) were in Mercosur. This means that the international activities of Latin American countries are developed inside its own region and they were partly encouraged by the regional integration process, especially of Mercosur. However, 14.7 percent of cases were activities developed in industrial countries (mostly in the United States). The activities of Latin American companies in the United States, Europe (Spain, Portugal and Great Britain) and even in Asia reflect their improved competitiveness and effects of globalization.

Thirdly, the number of cases of Chilean companies branching out into international activities (21 percent) is only surpassed by Brazilian companies and is an outstanding accomplishment. This reflects the competitiveness that they have attained because of the fact that Chile implemented economic reforms much earlier than other Latin American countries. Chilean companies' cross-border activities are relatively concentrated in electricity, telecommunication, and financial sectors (50 per cent of the all cases of Chile) where privatization was carried out much earlier in this country in comparison with other Latin American countries. The economic reforms of Chile definitely strengthened the competitiveness of private national companies and privatized exSOEs of this country.

Now when we compare the Latin American companies' cross-border activities with those of East Asian companies, we can find, among others, the following features:

(a) In the case of Latin American companies, the most common cross-border activities are Mergers and Acquisitions (M&A, 71 of 177 cases), while East Asian companies activities are more diversified. They are more active in establishing branches, joint ventures and taking initiatives of international alliances in several areas (sales, technology, management, etc.)

(b) While one of the most important motivations of cross-border activities in East Asia is to establish competitive production operations and export bases to third countries, especially industrial countries as well as to get access to less expensive labor, the cross-border activities motivated by this reason is rare in cases of Latin American countries, which tend to be more motivated by other reasons such as getting access to the local market; and

(c) While the cross-border activities of companies increased substantially in the 90s in

Latin Americ, they started much earlier in East Asia. This means that the business environment and business opportunities were much better in East Asia in the period before 90s.

Having analyzed the general tendencies of cross-border activities of Latin American companies summarized above, Professor Horisaka and myself carried out research on case studies of the process of the internationalization of major Latin American enterprises in the 90s. These case studies confirmed the general tendencies as identified in the following patterns of their internationalization.

On the basis of this research and other studies, it is possible to distinguish between at least five types of new dynamism of Latin American national enterprises in 90s. The first one, of which is widely observed in the above-mentioned analysis of 177 cases, refers to the expansion of trade and investment in "industrial commodities". Many Latin American companies advance their international development based on the advantages they possess, including: (a) the abundant natural resources of the countries in which they are located, as well as their expertise in developing and processing these resources; and (b) their superiority or competitive edge in marketing processed resources or "industrial commodities" in the international market.

The second type of new dynamism observed in the 90s in Latin America is related to the international activities of the companies (mostly of privatized ex-SOEs) in sectors such as energy, communications, transportation, construction, finance, insurance, pension funds, etc. They are pursuing development on a scale that encompasses two or more countries in Latin America. These sectors could be considered to be "new tradables" which were "non tradable" services in the pre-reform period. Economic reforms, particularly privatization, deregulation and liberalization carried out very rapidly by Latin American countries facilitated and encouraged new activities in this "new tradable area" both of national and international actors. Professor Horisaka and myself carried out research of case studies on privatization of state owned enterprises in Latin America, which confirms this new dynamism. (Horisaka, Kotaro and Akio Hosono 1999) It should be emphasized that privatization in Latin America was accomplished much more widely than in East Asia in the 90s. The income derived from privatization in Latin America is three times as large as that of East Asia in the period of 1990-96.

In this process of economic reform, especially privatization, many Latin American companies expanded their activities both in their home market and in other Latin American countries. The most impressive cases are privatized Chilean companies of the electric sector which extended their business to neighbor countries when they implemented their privatization process, although some of these major Chilean companies in this sector were later bought by Spanish companies.

The third type of new dynamism is the renewed wave of development of natural resources encouraged by liberalization and introduction of new and liberal laws related to the mining sector and other natural resources sectors, privatization of state enterprises, concessions and other forms of private sector's participation in natural resource development.

The new tendency is observed especially in Chile, Peru and Argentina as well as Mexico. Although national actors' participation in this area is much less than international actors' involvement, there has been active investment by, among others, Chilean companies such as Lucsic (copper mining), Soquimich (non-metal minerals), Angelini and Matte (forestry sector). The privatization of CVRD (Compania Vale do Rio Doce) now in the hand of national actors of Brazil would revitalize mineral resource development in Brazil.

Compared with the above three types of new dynamism which appear to be considerably distinct from dynamism observed in Asia, the following two types of new dynamism in Latin America might be widely witnessed in East Asia too.

The fourth type is the increase of non-traditional exports due to liberalization, deregulation, globalization, etc. The most representative phenomenon of this type is the increase in exports of a wide range of products to very diversified markets all over the world from Chile. One of the distinguishing features of this type from the other four types of new dynamism is the participation of many small and medium industries. The number of exporting companies of Chile has increased from less than 1,000 to 6,000 in the period of mid 80s and 90s, although a large percentage of export activity is concentrated in large enterprises of the country. Exports of varieties of products of Chile, among others, wine, fish and other sea foods, especially salmon, fruits and vegetables (during winter season of the United States and Europe), furniture, computer software, etc. have experienced very rapid increases in the 80s and in the 90s. The same process is now being observed in other countries of Latin America.

The fifth type is the expansion of trade and investment motivated by special arrangements of economic integration. The most dynamic example of this type is the case of the automobile industry in Mercosur and NAFTA. As Mercosur is the fourth largest automobile market in the world, many multinational enterprises have invested in twin plants located in Brazil and Argentina. Auto parts enterprises followed them. Although the assembling industries are of multinational enterprises, national auto parts makers of principally Brazil and Mexico, were able to participate actively in the development of the automobile industry under the process of integration of Mercosur and NAFTA.

4.5 Development of reciprocal inter-regional economic activities of Latin American firms and East Asian firms

Generally speaking, the flows of foreign direct investment (FDI) between the Asia-Pacific

and Latin American countries have been relatively low compared with the total inflow of FDI into both regions. However, it should be emphasized that remarkable increase of FDI flows from some East Asian countries into Latin American countries was observed. They should be considered as pioneering cases of new phenomena which is emerging as part of increasingly dynamic economic relations between the two regions. On the other hand, FDI flows from Latin America to the Asia-Pacific countries are still very limited, although some interesting cases are taking place. (Hosono 2000)[13]

While Japanese involvement in the region of Latin America and the Caribbean has not been very dynamic in the 90s compared with other industrial countries, some of the other East Asian countries strengthened remarkably their relations with the region. For example, the Republic of Korea "for the first time began to become substantially involved in Latin America and the Caribbean" since the mid-80s. (Kim, Won-Ho, 1999) An important increase of FDI flows to Latin America is also observed in some of other East Asian countries such as China, Taiwan Province of China and Malaysia.

Nevertheless, if we consider East Asian countries' investment in Latin America in the total amount of their FDI flows to the world, its share is still very small. According to the statistics presented to the PECC Trade Policy Forum (1997), FDI of North East Asia to Latin America was 0.50 per cent of its total FDI and that of South East Asia to Latin America was 0.12 per cent of its total FDI in 1992.

On the other hand, there has been almost no FDI flows from Latin America to East Asia. (PECC Trade Policy Forum, 1997) However, we observe some interesting cases of Latin American firms involvement in East Asia such as investments of CEMEX (a Mexican firm) in Thailand, the alliance of Techint Group (Argentina) with Japanese steel makers for seamless steel pipes, investment of CODELCO (Chile) in China, initiatives of some Brazilian civil engineering companies in China, etc.

Summing up, we observe an asymmetrical evolution in reciprocal interregional investments and other activities of Latin American and East Asian firms.

5. Policy Implications

First, the impact of reforms and other factors should be assessed in terms of creation of new firms and expansion of existing firms. For this, periodical surveys of creation of new firms and investment by existing firms (if possible by sectors and regions) should be carried out. Most of the leading East Asian countries have this kind of surveys. The cost of the surveys is not very high, because most of Latin American countries have already formal

13 A comprehensive analysis of specific cases of reciprocal inter-regional investments of Latin American and East Asian firms is included in Hosono (2000)

system of registry of firms. Net rate of creation of firms could be also calculated on the base of the gross rate of creations of new firms and the rate of closing of firms (entry and exit rates).

As for activities of existing firms, survey of their activities abroad, both in trade and investment would provide reliable indicators in assessing the evolution of their competitiveness. In Chile, numbers of new exporters, of permanent exporters and of those firms which discontinued their exports by sectors (or by principle product exported) and by principal markets of the world are published.

A survey of sources of finance of new and existing enterprises, disaggregating different sources of internal financing (founders' own savings, retention of profits, etc.) and external financing (bank loans, interfirm credits such as suppliers' credits, increase of shares, issues of bonds, etc.) as well as by purposes of financing (for working capital, liability restructuring, foreign trade transactions, especially for export, investment, especially investment abroad, R & D, etc.) is useful to assess the evolution of the role of financial institutions and of capital markets, as well as the effects of financial reforms and financial policies on development of new firms and existing firms.

Second, measures to deepen financial intermediation (or the financial system, especially banks) as well as capital markets, should be designed having in mind an assessment on the relationship between reforms and development of enterprises, based on the above-mentioned surveys. These surveys would help policy makers identify obstacles to the creation and development of enterprises. Discussion on concrete measures for this purpose is beyond the scope of the present paper, but recent several studies, which do not necessarily address the issues of this paper, propose such measures. Among others, OECD (2001), IDB (2001) and ECLAC (1996) contain interesting analysis and important proposals regarding them.

Third, from a long-term perspective, an integrated approach to strengthen entrepreneurship, innovation and sustained growth could be formulated on the basis of a more comprehensive analysis of the interplay between macroeconomic reforms and microeconomic responses, and of the experiences of industrial and emerging countries.

References

Barajas, Adolfo and Roberto Steiner (2002), *Credit Stagnation in Latin America* (IMF Working Paper)

Beck, Thorsten and Ross Levine (2000), "New Firm Formation and Industry Growth: Does Having a Market- or Bank-Based System Matter?" (mimeo)

Bekaert, Geert, Campbell R. Harvey and Christian Lundblad (2002), *Does Financial Liberalization Spur Growth?* (mimeo)

Bonifaz, Jose Luis, Jorge Duarte de Oliveira, and Michael Mortimore (1997) *La Competitividad Internacional: Un Análisis de las Experiencias de Asia en Desarrollo y América Latina* CEPAL Serie Desarrollo Productivo No.40, Santiago (Chile)

Burki, S. Javed and Gullermo Perry (1998), *The Long March: A Reform Agenda for Latin America and the Caribbean in the Next Decade* (World Bank Latin American and Caribbean Studies)

Clark, George R.G., Fobert Cull, Mariz Soledad Martinez Peria and Susana M. Sanchez (2002) *Bank Lending to Small Businesses in Latin America: Does Bank Origin Matter?,* (World Bank Policy Research Working Paper)

Cobham, Alexander (1999), *The Financing and Technology Decisions of SMEs: Finance as a Determinant of Investment* (Oxford Working Paper Series)

De Ferranti, Guillermo Perry, Daniel Lederman and William F. Maloney (2002), *From Natural Resources to the Knowledge Economy: Trade and Job Quality* (World Bank Latin American and Caribbean Studies)

De Gregorio, J. and P. Guidotti (1995) "Financial Development and Economic Growth", *World Development,* 23(3), 43

Easterly, William and Ross Levine (2002), Tropics, Germs and Crops: How Endowments Influence Economic Development, (mimeo)

ECLAC (1996) *Strengthening Development: The Interplay of Macro-and Microeconomics* Santiago (Chile)

ECLAC (2001) *Latin America and the Caribbean in the World Economy 1999-2000* Santiago (Chile)

ECLAC (2000) *Foreign Investment in Latin America and the Caribbean 2000* Satiago (Chile)

Gallego, Francisco and Norman Loayza (2000), *Financial Structure in Chile: Macroeconomic Developments and Microeconomic Effects* (Central Bank of Chile Working Papers)

Global Entrepreneurship Monitor (2001), *2001 Executive Report,* United Nations Association of the United States of America and the Business Council for the United Nations: New York

Gylfason, Thorvaldur and Gylfi Zoega (2001), *Natural Resources and Economic Growth: The Role of Investment* (mimeo)

Horisaka, Kotaro and Akio Hosono (1997), *Latin American New Multinationals,* Nihon-Hyouron Sha, Tokyo (in Japanese)

Horisaka, Kotaro and Akio Hosono (1999), *Privatization in Latin America,* Shin-Hyouron Sha, Tokyo (in Japanese)

Hosono, Akio (2002) "Finance, Social Capital, and Entrepreneurship: Some Relevant Findings from the Comparative Study on Entrepreneurship in East Asia and Latin America", in Kantis, Hugo, Masahiko Ishida and Masahiko Komori (2000)

Hosono, Akio (2000) "Investment Opportunities in Latin America and Asia and the Pacific", ESCAP *Interregional Cooperation in Trade and Investment: Asia-Latin America,* United Nations (ESCAP), New York and Bankok

IDB (2001) *Competitiveness: The Business of Growth* Washington

Kantis, Hugo, Masahiko Ishida and Masahiko Komori (2002), *Entrepreneurship in Emerging Economies: The Creation and Development of New Firms in Latin America and East Asia,* Washington: IDB

Kim, Won-Ho (1999), "Post-crisis Korea and Latin America: Searching for a new framework of economic relations" (mimeo) presented at the "LASAK International Conference on Latin America and Asia: Financial Crisis and Prospects of Interregional Relations" Seoul, Korea

King R. and R. Levine (1993) "Finance and Growth: Shumpeter Might Be Right", *Quarterly Journal of Economics,* 153(3),

King R. and R. Levine (1993) "Finance, Entrepreneurship, and Growth: Theory and Evidence", *Journal*

of Monetary Economics, 46 (1),

Levine, Ross and Maria Carkovic (2001), "Finance and growth: New evidences and policy analyses for Chile" paper presented at the Annual Conference of Central Bank of Chile.

Levine R., N.Loayza, and T. Beck (2000) "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics,* 46 (1),

Loayza, N. and Romain Ranciere (2001) "Financial Development, Financial Fragility, and Growth" (mimeo)

OECD (2001), *Science, Technology and Industry Outlook: Drivers of Growth: Information Technology, Innovation and Entrepreneurship,* OECD: Paris

Moguillansky, Graciela and Ricardo Bielschowsky (2001), *Investment and Economic Reforms in Latin America,* ECLAC, Santiago (Chile)

PECC Trade Policy Forum (1997), *Asia-Pacific and Western Hemisphere Regional Initiatives: Cooperation for Increasing Competition,* (mimeo) presented at the International General Meeting of the Pacific Economic Cooperation Council (PECC), Santiago, Chile

Rajan, Raghuram G. and Luigi Zingales, (1998) "Financial Dependence and Growth", *American Economic Review,* June 1998

UNCTAD (1998), *Handbook on Foreign Direct Investment by Small and Medium-sized Enterprises: Lessons from Asia,* Geneve

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 67-81

DYNAMIC EXPORT PRICING AND SURVEY-BASED EXCHANGE RATE EXPECTATIONS

EIICHI TOMIURA* **Kobe University**

Abstract

This paper constructs a cutomer market model where an exporting firm lowers the price as the exchange rate is expected to depreciate. The instrumental variables method, usually employed in estimating the Euler equation with expected variables, however, is inappropriate to estimate this model since the orthogonality is not satisfied for real-world exchange rate expectations. This paper instead derives expected exchange rates from actual survey data. Our estimates suggest that expectations of future exchange rates alter the current export price in the predicted direction in the case of Japanese machinery and chemical exports.

JEL Classification: F31, F12, F14
Keywords: export price, customer market, exchange rate expectations, survey data

1 Introduction

A rational firm is supposed to maximize her profit taking account of intertemporal trade-offs. An exporting firm is no exception: she alters her price now when future exchange rate is anticipated to change. Studies of dynamic aspects of exports have increasingly become a real necessity beyond pure curiosity because expectations play more critical role in contemporary international economy as differentiated products and durable goods raise their

Corresponding Address:
Eiichi Tomiura
Research Institute for Economics and Business Administration (RIEB), Kobe University
2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
E-mail: tomiura@rieb.kobe-u.ac.jp
Phone/Fax: 81-78-803-7008

* Seminar participants at the University of Tokyo and Yokohama National University, especially Kazumasa Iwata and Ryuhei Wakasugi, gave me helpful comments for revising the paper. Since this paper is a substantially revised version of a part of Chapter Two in my Ph.D. thesis, I acknowledge Paul Krugman, Julio Rotemberg and Rudiger Dornbusch for their insightful suggestions to the original version. I thank Kenneth Froot for providing me with the survey data. All remaining errors are mine.

share in world trade while exchange rates drastically fluctuate. To formalize the dynamics, this paper considers the case where a firm prices to a foreign customer market in which reputation of quality or habit formation persistently affects purchase decisions. In this sense, this paper could link the pricing-to-market literature in international economics with the customer market theory which is one of the important tools in macroeconomics.

In spite of the clear logic based on the rationality assumption, empirical studies of dynamic export pricing has been relatively scarce. One of the reasons is found in the fact that the rational expectation hypothesis is rejected in the case of expectations of exchange rates, as shown in many empirical studies including Frankel and Froot (1987). This implies that instrumental variable estimations of expected variables, which are common in many other fields of economics, is limited its usefulness in our context because the instrumental variable estimation requires the orthogonality condition which is satisfied under the rational expectations. Actually, the introduction of future exchange rates into the models under the assumption of rational expectations has been thus far rarely successful. Among many variables to be forecasted, it is the exchange rate that the expectations most dramatically vary depending on the belief and on the available information of the firm. The difficulty to integrate realistic forms of exchange rate expectations with the standard structure of dynamic optimization models has been the obstacle to examine the role of expectations in dynamic export pricing. One practical approach to overcome it, however, becomes available as surveys on actual exchange rate expectations have been conducted. In this paper, I estimate the Euler equation derived from the dynamic optimization of an exporting firm, not with instrumental variables for expected exchange rates, but with actual survey data of exchange rate expectations, while assigning instrumental variables to other expected variables. To test the validity of this approach, we examine the case of Japanese exports, which attracted wide-spread attention by the low pass-through.

This paper is organized as follows. Section 2 formalizes the dynamics of an exporting firm who chooses the price for a foreign customer market. Section 3 explains our estimation procedure using survey data. Section 4 describes Japanese export data. Section 5 reports empirical results. Section 6 concludes.

2 Theory

Many researchers have studied export prices by emphasizing demand-side dynamics with slow adjustment of customers. Among them, Froot and Klemperer (1989) introduce the market-share variable directly into the profit function in their two-period duopoly model.[1] Dohner (1984) applies the original customer market theory by Phelps and Winter (1970) to

1 Giovannini (1988) examines the effect of "exchange rate surprise" on export pricing. He assumes the specific price staggering with geometric distribution and the orthogonality about expectations.

the optimization of an exporter, assuming perfect foresight. Gottfries (1988) explicitly formalizes the Euler equation of an exporting firm based on the customer market theory in Gottfries (1986).

In this section, I present a model which possesses basically the same theoretical structure as Gottfries (1988), although this paper will deviate from it in the estimation techniques later.

First, consider the following standard intertemporal profit maximization of a firm exporting in a simple two country framework. To facilitate discussions, let us make the case concrete by calling the exporter as the Japanese firm and the export market as the U.S.

$$<1> \qquad Max V_t = \sum_{s=t}^{\infty} \delta^{s-t} E[(p_s - c_s) q_s | \Omega_t]$$

where p is the export price, c is the marginal cost, q is the export quantity, δ is the discount factor which is assumed to be constant $(0 < \delta < 1)$, and $E(\ |\Omega_t)$ denotes the mathematical expectation operator conditional on all the information available at time $t(\Omega_t)$ (hereinafter expressed as $E_t(\ )$ for short). Here, both p and c are expressed in terms of yen.

Next, formalize the demand-side, first by decomposing the current demand q into the cutomer stock (x) and the demand per customer (θ) :

$$<2> \qquad q_t = \theta_t x_t$$

Here, inventories are neglected so that current export supply equals current demand of consumers to the product. Naturally, factors such as U.S. business cycles affect θ over time through income effect. On the other hand, the U.S. customer stock of the Japanese firm x is supposed to be determined as following, assuming that the product is purchased repeatedly, though not every period, by the buyers:

$$<3> \qquad x_t = D\left(\frac{p_t}{r_t}\right) \prod_{j=1}^{\infty} x_{t-j}^{\lambda_j}$$

where r denotes the exchange rate (yen/dollar). Let $\lambda_j > 0$ for all $j > 0$. The dynamic relation <3> means that the current stock of customers is determined by the current price and by the geometric weighted average of history of customer stocks. The first term D correspond to a standard downward-sloping demand function linking demand quantity with current dollar-denominated price (D'<0).[2] On the other hand, the second term introduces the dynamics into this model.[3]

2 Here, the export price (p) is measured in terms of the price compared with foreign competitors.

3 Although the derivations closely follow Gottfries (1988), I allow pricing effect to directly persist more than one period (theoretically infinitely) even if customers purchase only occasionally. The right-hand side of (3) includes all x_t's except for t when $x_t = 0$.

The motivation for this formulation comes from the facts that customers tend to respond to price changes only gradually over time due to habit formation or reputation effect. This kind of consumer behavior, which could be formalized by imperfect information, is especially evident in purchase decisions of durable goods and differentiated products with unknown quality since it should be more difficult to compare prices and qualities and more costly to switch supplier of complex products compared with simple standardized commodities. As world trade has shifted its share from homogeneous commodity to goods characterized above, the relevancy of the customer market theory in export pricing must have increased. Let me assume the following specific functional forms for D in <3> so that the final form of Euler equation becomes tractable;

$$<4> \qquad D\left(\frac{p_t}{r_t}\right) = \left(1+\eta-\eta\frac{p_t}{r_t}\right)^{\lambda_0}$$

where $\eta > 0$.[4]

Then, the first-order condition for maximization is obtained by differentiating <1> with respect to x;

$$<5> \qquad \frac{\partial V_t}{\partial x_t} = E_t\left[(p_t-c_t)\frac{\partial q_t}{\partial x_t}+\sum_{k=1}^{\infty}\delta^k q_{t+k}\frac{\partial p_{t+k}}{\partial x_t}\right] = 0$$

Substituting <2>, <3> and <4> into <5> yields the Euler equation. Although we should be careful in interpreting the Euler equation as causal relationship, I will present it in the form to which we can provide economic interpretations, by multiplying by x_t/r_t,

$$<6> \qquad \frac{p_t}{r_t} = \alpha_0+\alpha_1\frac{c_t}{r_t}+\sum_{i=1}^{\infty}E_t\left[\beta\left(\frac{r_{t+i}q_{t+i}}{r_t q_t}\right)+\gamma_i\left(\frac{p_{t+i}q_{t+i}}{r_t q_t}\right)\right]$$

where

$$\alpha_0 = \frac{1+\eta}{\eta(1+\lambda_0)} > 0$$

$$\alpha_1 = \frac{\lambda_0}{1+\lambda_0} > 0$$

$$\beta_i = -\frac{\delta^i(1+\eta)\lambda_i}{\eta(1+\lambda_0)} < 0$$

4 Further, we must assume that the term in the bracket on the right-hand side of <4> must be positive for any relevant p and r.

$$\gamma_i = \frac{\delta^i \lambda_i}{1+\lambda_0} > 0.$$

The equation <6> implies that the current export price is affected not only by production costs and current exchange rate, but also by future variables including exchange rate expectations. The fact that the sign of coefficient β_i is negative for all i (i = 1,2,3,...) indicates that the current dollar-denominated export price (p_t/r_t) is lower when future market expansion or future yen depreciation is anticipated. In other words, given the current exchange rate and other parameters including costs, a Japanese exporter sets the price in yen terms lower now when she expects the exchange rate of yen to depreciate in the future. This is the central hypothesis of this paper.

The intuition behind this is simple as following: purchases today depend on all past prices since customers do not have perfect knowledge of product quality or since they prefer goods which they have a habit to consume. Hence, exporters care about future exchange rate, which translates yen-denominated prices chosen by an exporter into dollar-denominated ones, because customers care about the history of past dollar-denominated prices. In other words, once a firm sets it, the price has a persistent effect on demand just as the investment decision does. Exporters "invest" today by cutting the price offered to current buyers who will later form an expanded customer-base for exporters. There exists an intertemporal trade-off between current costs of offering low price to current buyers and expected gain from charging high prices to expanded customers in the future. The expected returns from the "investment" change as the exchange rate fluctuates. If they expect the future exchange rate to become favorable, exporters choose to offer lower price now because the future gains from their locked-in customers dominates the current costs. Put another way, an exporter agressively prices for foreign market share in the short-run when they expect currency depreciation. On the other hand, an exporter charges higher price now when the exchange rate is anticipated to appreciate because the high current demand relative to the future demands makes it less attractive for an exporter to price down now to increase future profit by expanding customer-base. Thus, in addition to the current level of exchange rate, the future exchange rates affect current pricing decisions of exporters in the direction explained here.

Besides, this effect ($|\beta_i|$) gets greater as customers respond to past price changes more persistently, or λ_i ($i \geqq 1$) is larger. Thus, expected future exchange rates play more crucial role in the current export pricing as past prices affect customer flows more persistently.

3 Estimation

As many economists have estimated individual agent's Euler equations which include expected variables, we could estimate the export pricing equation <6> by instrumental variables without constructing any arbitrary series of "expected" exchange rates as long as we can assume that the orthogonality condition is satisfied.[5]

Since many empirical studies have already shown that the rational expectation hypothesis is often strongly rejected in the case of future exchange rates, however, we cannot employ the instrumental variable estimation procedure because the othogonality condition is met under the rational expectations. In other words, the test based on the instrumental variable estimation is the test of joint hypotheses: the customer market model and the rational expectations of exchange rates. Gottfries (1988) estimates the export pricing equation for the Swedish manufacturing by instrumental variables and finds "only limited support" for the customer market theory. As he correctly cites, the rational expectation assumption must be one of the reason for his results.

One practical way to avoid assuming the rational expectations about exchange rate expectations has been explored in Froot and Klemperer (1989), who draw expected exchange rate series from survey data to estimate export price differential equations in the pricing-to-market framework. They conclude that "there is no overwhelming evidence that expected future depreciation influences the degree of pricing to market" (p.649).

Since various surveys about exchange rate expectations have been carried out, we will be able to contend ourselves with estimating the dynamic export pricing equation <6> by relying on the "expected" exchange rate derived from other's survey data, while employing instrumental variable estimation for other expected variables in the same Euler equation (p_{t+i} and q_{t+i}).

Although it is straightforward to estimate <6> without any constraint, imposing the geometric lag assumption on the coefficients will be appropriate to capture the original implication of the customer market theory because the impact of past prices on demand tends to fade uniformly with the passage of time.[6] Remember that the discount rate δ is $0 < \delta < 1$ and λ_i gets smaller as i grows. Suppose that $\lambda_i = \lambda^i$ $(0 < \lambda < 1; i = 1,2,...)$. Hence, I impose the following constraints on the coefficients:

---

5 As many note, the forward rate cannot be an unbiased predictor of future exchange rate, for example, because of time-varying risk-premium.

6 The constrained regression is preferred econometrically, too, because it avoids the multicollinearity in the unconstrained version.

<7>
$$\beta_i = \beta\delta^i\lambda^i$$
$$\gamma_i = \gamma\delta^i\lambda^i$$
$$(i = 1,2,3,...)$$

where

$$\beta = -\frac{1+\eta}{\eta(1+\lambda_0)}$$

$$\gamma = \frac{1}{1+\lambda_0}$$

Under the assumption of geometric lag <7>, we can simplify the Euler equation <6>, which includes theoretically infinite sequence of expected variables, by the following transformation like Koyck's in the adaptive expectations model. First, multiply by $r_t q_t$ on both sides of <6>.

<6A> $$p_t q_t = \alpha_0 r_t q_t + \alpha_1 c_t q_t + \sum_{i=1}^{\infty} E_t[\beta_i r_{t+i} q_{t+i} + \gamma_i p_{t+i} q_{t+i}]$$

Similarly, for $t+1$,

<6B> $$p_{t+1} q_{t+1} = \alpha_0 r_{t+1} q_{t+1} + \alpha_1 c_{t+1} q_{t+1} + \sum_{i=1}^{\infty} E_{t+1}[\beta_i r_{t+1+i} q_{t+1+i} + \gamma_i p_{t+1+i} q_{t+1+i}]$$

Second, take the expected value of <6B>, conditional on the available information at time t.

<6C> $$E_t(p_{t+1} q_{t+1}) = \alpha_0 E_t(r_{t+1} q_{t+1}) + \alpha_1 E_t(c_{t+1} q_{t+1}) + \sum_{i=2}^{\infty} E_t[\beta_i r_{t+i} q_{t+i} + \gamma_i p_{t+i} q_{t+i}]$$

Next, multiply by $\delta\lambda$ on both sides of <6C> and subtract it from <6A>. Thanks to the geometric constraint <7>, this cancels out the infinite sequence of expected variables on the right-hand side of <6> and leaves only the variables at t+1

<8> $$\frac{p_t}{r_t} = \mu_0 + \mu_1 \frac{c_t}{r_t} + E_t\left[\mu_2 \frac{c_{t+1} q_{t+1}}{r_t q_t} + \mu_3 \frac{r_{t+1} q_{t+1}}{r_t q_t} + \mu_4 \frac{p_{t+1} q_{t+1}}{r_t q_t}\right]$$

where

$$\mu_0 = \alpha_0$$
$$\mu_1 = \alpha_1$$
$$\mu_2 = -\delta\lambda\alpha_1$$
$$\mu_3 = \delta\lambda(\beta - \alpha_0)$$
$$\mu_4 = \delta\lambda(1+\gamma)$$

Thus, by depending on <8>, we can estimate the Euler equation without arbitrarily truncating the infinite sequence of future variables in <6>. The estimation of <8> still provides us with the information necessary to regain the sequence of original coefficients $\{\beta_i\}$, which plays the pivotal role in the original model of <6>, by

$$<9> \qquad \beta_i = \left(\mu_0 - \frac{\mu_1\mu_3}{\mu_2}\right)\left(-\frac{\mu_2}{\mu_1}\right)^i.$$

4 Description of data

Data employed in estimation are briefly described in this section. Appendix will provide additional information about the data used in this paper. Out of the export prices (p) for various classifications of Japanese products reported monthly by the Bank of Japan, I use the following four: machinery, chemicals, metals, and textiles.[7] Included as instruments for estimation of expected varibales other than expected exchange rates are the lagged regressors, the foreign producers price index (in U. S. and OECD European countries) as a proxy for the price offered by foreign competitors, and the foreign industrial production (in U.S. and OECD European countries) as a proxy for income since GDP data are not available on monthly basis.

For the "expected" exchange rates, this paper exploits the data derived from the monthly survey conducted by Money Market Service.[8] The exchange rate expectation data in this paper must reflect expectations actually held by market partcipants, although they do not necessarily coincide with rational expectations.[9] Due to the availability of survey data for the author at the time of original research, the sample period is from November 1982 to January 1988.[10]

---

7 To avoid troubles caused by unit-value index, the export "quantity" (q) is defined by the export value reported in trade statistics divided by the corresponding export price p. In the theory section of this paper, we have measured "p" as relative price compared with foreign competitors'. The observation of drastic exchange rate changes compared with stable relative domestic prices during the sample period, however, would allow us to concentrate our attention to the effect of exchange rate on pricing by assuming foreign competitor's price constant. This simplifying assumption will not critically affect our results as the empirical work by Engel (1993) for example has found that volatility of domestic prices is much smaller than that of exchange rates.

8 The data was provided by Professor Kenneth Froot. The exchange rate employed in this paper is the yen-dollar rate, not the effective rate of the yen. Although the effective rate is more appropriate in the pricing context, all the survey data are on the U. S. dollar rate. In addition to this, Japanese exports are quite often invoiced in dollar terms, not in yen or in destination country's currency.

9 Those surveyed are not necessarily exporters, but are rather more often financial traders. Ito (1992) examines the heterogeneity in exchange rate expectations based on a different source of survey data.

10 Since survey data are proprientary, I cannot extend the data set to more recent periods.

5 Empirical results from Japanese exports

To facilitate the interpretation of the estimation results, let me restate the Euler equation in the form emphasizing the exchange rate expectations as follows:

$$<11> \quad \frac{p_t}{r_t} = \mu_0 + \mu_1 \frac{c_t}{r_t} + \mu_2 \frac{E_t(c_{t+1}q_{t+1})}{r_t q_t} + \mu_3 \frac{{}_t r^e_{t+1} E_t(q_{t+1})}{r_t q_t} + \mu_4 \frac{E_t(p_{t+1}q_{t+1})}{r_t q_t}$$

where ${}_t r^e_{t+1}$ denotes the exchange rate expectation for the next month at time t. The suffix "e" means that the expectation in this case is supposed to be formed by some given, though possibly unknown, functional forms, not by the rational expectations, or mathematical conditional expectation E_t.[11] As I have explained in the previous section, I assign the instrumental variables for q_{t+1} and p_{t+1}, while actual survey data replaces ${}_t r^e_{t+1}$ in estimation.

Table 1. EXPORT PRICING EQUATION

$$\frac{p_t}{r_t} = \mu_0 + \mu_1 \frac{c_t}{r_t} + \mu_2 \frac{c_{t+1}q_{t+1}}{r_t q_t} + \mu_3 \frac{{}_t r^e_{t+1} q_{t+1}}{r_t q_t} + \mu_4 \frac{p_{t+1}q_{t+1}}{r_t q_t} + \nu_t$$

	MACHINERY	CHEMICALS	METALS	TEXTILES
μ_0	0.1175944***	0.1626018***	0.08118375***	0.01121056
	(0.02159012)	(0.04606878)	(0.02633849)	(0.02550059)
μ_1	0.6415449***	0.4055639***	0.6387524***	0.8307409***
	(0.03983798)	(0.1067528)	(0.06901667)	(0.04744845)
μ_2	−0.4487525**	−0.3785581***	−0.5750713***	−0.8364653***
	(0.1979604)	(0.1159615)	(0.08236632)	(0.06429718)
μ_3	−0.09041946**	−0.1586841***	−0.06766599**	−0.02970228*
	(0.04030167)	(0.04861174)	(0.02928028)	(0.02128845)
μ_4	0.7310003***	0.9400697***	0.8793520***	1.019540***
	(0.2801313)	(0.1115125)	(0.09298253)	(0.04864931)
ρ	0.3591062**	0.3991057***	0.1400070	−0.08949768
	(0.1687039)	(0.1764075)	(0.2369745)	(0.3395477)
$\overline{R^2}$	0.99447540	0.88205300	0.97308041	0.99342478

(NOTES)

1. Figures in the parentheses are estimated standard errors. "ρ" denotes the estimate of first-order autocorrelation by Cochrane-Orcutt method.
2. Coefficients of monthly dummies are not shown to save space.
3. Instrumental variables for estimation are constant, (c_t/r_t), IUS_t, IUS_{t-1}, IEU_t, IEU_{t-1}, PUS_t, PUS_{t-1}, PEU_t, PEU_{t-1}, $({}_t r^e_{t+1}/r_t q_t)$, $(1/r_t q_t)$, $(c_{t-1}q_{t-1}/r_{t-2}q_{t-2})$, $(r_{t-1}q_{t-1}/r_{t-2}q_{t-2})$, $(p_{t-1}q_{t-1}/r_{t-2}q_{t-2})$, and monthly dummies.
4. The significance of estimate is denoted by asterisks as follows; *** (**,*); significantly different from zero at 1 (5, 10) % level.

11 Here, I compromise to take the expected exchange rate variable out of the conditional expectation operator but I must note that this manipulation is not necessarily correct mathematically because the argument inside the operator is nonlinear.

The results of estimation of dynamic export pricing equation <11> are reported in Table 1. In the machinery industry, the estimation yields remarkable results; all the coefficients are significant, each has the sign predicted by the theory, and the explanatory power is very high.[12]

Before discussing the expectation effect, evaluate these coefficient estimates in terms of the pass-through coefficient. When firms believe that all the future variables remain at the current level permanently, <11> collapses to the following;

$$<12> \quad \frac{p_t}{r_t} = \mu_0 + \mu_1 \frac{c_t}{r_t} + \mu_2 \frac{c_t q_t}{r_t q_t} + \mu_3 \frac{r_t q_t}{r_t q_t} + \mu_4 \frac{p_t q_t}{r_t q_t}$$

By rearranging, we obtain the equation on the pass-through relation:

$$<13> \quad \frac{p_t}{r_t} = \phi_0 + \phi_1 \frac{c_t}{r_t}$$

where

$$\phi_0 = \frac{\mu_0 + \mu_3}{1 - \mu_4}$$

$$\phi_1 = \frac{\mu_1 + \mu_2}{1 - \mu_4}$$

The estimation results of μ's for the machinery exports in Table 1 tell us that the coeffient of the dollar cost in the above <13> equation (ϕ_1) is 0.72. This implies that Japanese machinery exporters pass-through only about three-quareter of an increase in their dollar-denominated costs to the dollar-denominated export price. Although assuming that the economy is in the long-run equilibrium during the drastic exchange rate adjustment may not be realistic, this result is consistent with the often-cited low pass-through of Japanese exports and can be served as a useful benchmark for interpretation.

Based on these coefficient estimates, Table 2 shows $\{\beta_i | i = 1,2,3,...\}$ for representative months (i = 1, 12, 24, 48), of which the graphical presentations are shown in Figure 1. Examine the results of each case in the following:

More than anything else, as shown in Figure 1, the implied $\{\beta_i | i = 1,2,3,...\}$ for machinery exports has a quite intuitive feature: the export price has such a persistent impact on demand that it lasts significantly for one or two years and totally diminishes only after about ten years.

The customer market theory is also applicable to the chemical industry as the estimates in Table 1 look quite similar to those of machinery. To confirm it, negative and declining

12 Although all the estimated coefficients in the Euler equation have the signs predicted by the theory, one reservation should follow as the indirectly implied value, which must be positive for downward-sloping demand curve, is negative.

Table 2. EXCHANGE RATE EFFECTS

$$\beta_i = \left(\mu_0 - \frac{\mu_1\mu_3}{\mu_2}\right)\left(-\frac{\mu_2}{\mu_1}\right)^i$$

i (months)	MACHINERY	CHEMICALS	METALS	TEXTILES
1	−0.00816365	−0.00690974	+0.00542406	−0.0184145
12	−0.000160126	−0.00323793	+0.00170846	−0.0198594
24	−0.219695E-05	−0.00141627	+0.000484479	−0.0215652
48	−0.413557E-09	−0.00027096	+0.389595E-04	−0.0254290

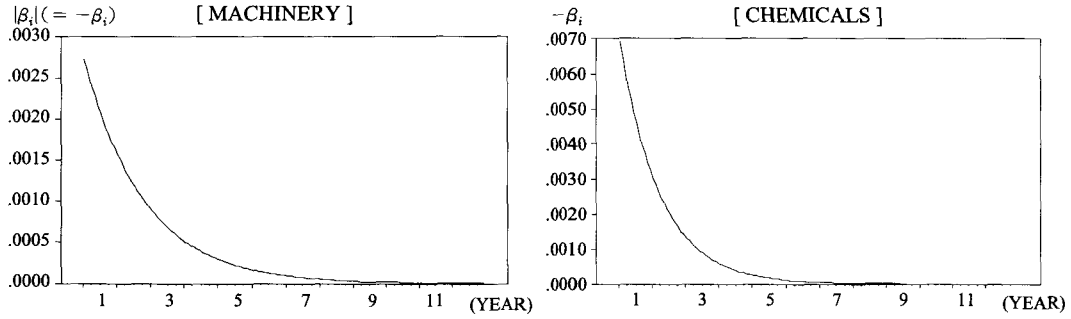
$\{\beta_i | i = 1,2,3,...\}$ is presented in Figure 1.

The case of metal industry also shows that all the coefficients are significant in Table 2. The implied $\{\beta_i\}$ in Table 2 persists and gradually declines over time, but, contrary to those in the machinery and chemical industries, the value is always positive, which means that future expected appreciation (not depreciation) triggers export price wars. I will briefly discuss a possible interpretation for this observation later.

In the textile industry, the estimated coefficient $\{\beta_i | i = 1,2,3,...\}$ in Table 2 is increasing, not decreasing, as the lag (i) becomes larger. Since any reasonable explanations including the customer market theory require converging series of $\{\beta_i | i = 1,2,3,...\}$, we find no support for dynamic pricing models in the case of textiles.

The result that the customer market theory well explains only some groups of industries is reasonable rather than disappointing.[13] The assumption that consumers respond slowly to price changes is not plausible for some products, especially simple standardized products. In other words, the customer market theory is suitable only to goods which are characterized by occasional discrete purchases and complex differentiation; that is typically the machinery

Figure 1. PERSISTENCE OF PRICE EFFECT ON EXPORT DEMAND



13 Campa and Goldberg (2002) also find that the most important determinants of OECD pass-through are related with industry composition of a country.

industry in our classification.[14] On the other hand, since industries are broadly aggregated here, we should be cautoius in interpreting the industrial differences. The estimations using disaggregated product-based data will be left for future independent work.

Next, I like to touch upon an alternative model which could explain the dynamic export pricing from a different perspective. The implicit collusion models such as that by Rotemberg and Saloner (1986) sharply differ from the customer market model. If we apply the implicit collusion model to our case, the incentive to undercut the collusive export price should be high when the future exchange rate is anticipated to *appreciate* because the current gain from deviating from collusion is high compared with future anticipated loss from being punished in the repeated game.[15] On the other hand, by the customer market model as has been examined in this paper, the incentive to cut export price should be high when the future exchange rate is anticipated to *depreciate*.[16] The export price in the metal industry reported in this paper, for example, moves in the same direction as is predicted by the implicit collusion theory, although studies based on disaggregated data are indispensable to check the consistency with the game theory model. The task left to future work includes the test explicitly discriminating these two theories by exploiting the sharp contrast.[17]

Finally, the estimates of pricing coefficients β enables us to calculate the effect of exchange rate expectations on export price, although we must note that the discussion depending on the estimates of Euler equation is based solely on the necesarry condition.[18] I will examine how much the export price will be changed by the deviation from the rational expectations (or by the forecast errors implied by survey-based expectations).

Figure 2 shows the percentage export price change caused by exchange rate forecast errors for chemical exports. The figure indicates that the chemical export price in 1985 was lower by around three percent than would have been under no forecast error at the peak in

---

14 Besides, the capital market imperfection, as was examined by Chevalier and Scharfstein (1994) in a different context, may also explain the industrial difference since the share of small firms, who are supposed to be relatively liquidity constrained and forced to abandon lowering the price in response to expected depreciation, is lower in the machinery and chemical industries compared with textiles industry in our sample.

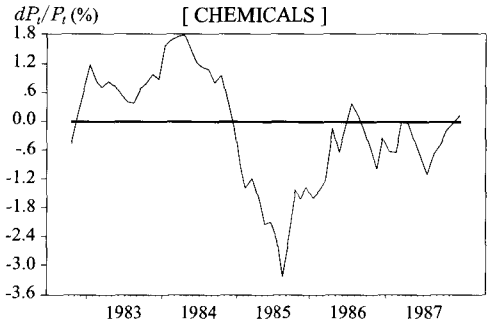
15 Rotemberg and Woodford (1991) reports that negative correlation of markups with output is higher in more concentrated industries. Rotemberg and Saloner (1986) refers countercyclical property of cement price.

16 Some of the customer market models, however, predict countercyclical pricing, just as the implicit collusion model does. For example, Bils (1989) focuses on the inflow of potential new cutomers and refers to procyclical advertising expenditure as an evidence to support his theory. Chevalier and Scharfstein (1994) introduces the liquidity constraint and provides evidence from regional price data in the supermarket industry.

17 Rotemberg and Woodford (1991), analyzing the effect of anticipated future profitability on aggregate markups, is a pioneering example along this line.

18 In other words, only from the estimates in Euler equations, we cannot find or test directly the mechanism by which expectations affect export pricing decisions. At the same time, though, since we cannot solve explicitly the whole dynamic optimization program with many state variables like ours, we must contend without the sufficient condition.

Figure 2. FORECAST-ERROR EFFECT ON EXPORT PRICE



1985. The fall in export price of machinery is comparable to this magnitude and this forecast-error effect persists throughout 1986 (omitted from Figure 2 to save space).[19]

Although the direction of export price change is consistent with the theoretical prediction, the price changes explained by the expectation effect in the customer market model are always numerically quite small.[20] Therefore, other dynamics such as the supply-side hysteresis should also be incorporated into the model when we discuss the whole impact of expectations on actual export prices.

On the other hand, this relatively small impact of expectations on export prices is consistent with the results previously found by Gottfries (1988) from Swedish data, and Froot and Klemperer (1989) from U.S. data. In this sense, by replacing the instrumental variables by actual survey data of exchange rate expectations, this paper has confirmed that previous results are robust, irrespective of the estimation procedure (the instrumental variables method or actual survey data), in that the customer market theory explains the real-world export prices correctly in terms of direction of changes but only marginally in terms of magnitude.

6 Concluding remarks

By making use of actual survey data, this paper has examined the effect of exchange rate expectations on export pricing decisions. The case of machinery and chemical exports

19 The choice of sample period in this paper enables us to examine the Japanese experience, which attracted wide attention by its low pass-through during the drastic exchange rate adjustment process in the middle of the 1980s. It is true that we observe equally interesting episodes of drastic exchange rate adjustment during more recent years. Since survey data are proprietary, however, I cannot extend the data set to more recent periods.

20 Within the scope of this paper, it is hard to conclude what is the reason for this quantitative magnitude. One useful experiment, however, will be to suppose that the economy is in the long-run equilibrium. In this case, <11> collapses to <13>, which simply regresses the current price on itself and on the current cost. Since the estimated coefficient is close to unity and R^2 is high, we may attribute the high performance of the customer-market model in this paper possibly to the high correlation of current price with future price.

provides evidence suppoting the cutomer market theory as follows. The sequence of past export prices over several years persistently affects the current export demand. Future expected currency depreciation/appreciation with a substantially long time horizon significantly lowers/raises the current export price. Consistent with the existing evidence from various data sources with the instrumental variable method, our survey-based estimates have confirmed relatively small numerical impact of the customer-market effect in the export price determination.

Appendix

[Export price] (p)

FOB price in terms of yen (Laspeyres index) from WPI by Bank of Japan. Classifications : (1) textiles, (2) metals and related products, (3) chemicals, and (4) machinery (including transport equipment).

[Export quantity] (q)

Export "quantity" is defined by export value (from custom clearance statistics by the Ministry of Finance) divided by WPI export price (p). The classifications are the same as those of export prices.

[Cost of production] (c)

Input price from Input-Output table (wholesale price for domestic input and import CIF price for imported input). The industry classifications, which most closely correspond to those in WPI classifications, are as follows : (1) textiles, (2) basic metal products and metal products, (3) chemicals, and (4) machinery and equipment.

[Exchange rate] (r)

The realized current yen-U.S. dollar rate is the monthly closing rate (yen per dollar). The expected exchange rates in the next month are from the survey data by Money Market Service. The diskette contained the survey data was provided by Professor Kenneth Froot.

[Foreign indices] (PUS, PEU; IUS, IEU)

Producer price and total industrial production in the U.S. (PUS, IUS) and in OECD European countries (PEU, IEU) from OECD (1990) *Main Economic Indicators: Historical Statistics 1969-1988.* All are standardized so that values in 1985=100.

References

Bils, M., 'Pricing in a Customer Market,' *Quarterly Journal of Economics* CIV, 699-718, 1989.

Campa, J. M. and L. Goldberg, 'Exchange Rate Pass-through into Import Prices: A Macro or Micro Phenomenon?' NBER Working Paper No.8934, 2002.

Chevalier, J. and D.Scharfstein, 'Capital Market Imperfections and Countercyclical Markups: Theory and Evidence,' *American Economic Review* **86** (4), 703-725, 1996.

Dohner, R. S., 'Export Pricing, Flexible Exchange Rates, and Divergence in the Prices of Traded Goods,' *Journal of International Economics* **16**, 79-101, 1984.

Engel,C. 'Real Exchange Rates and Relative Prices: An Empirical Investigation,' *Journal of Monetary Economics* **32**, 35-50, 1993.

Frankel, J. and K. Froot, 'Using Survey Data to Test Standard Propositions Regarding Exchange Rate Expectations,' *American Economic Review* **77**, 133-153, 1987.

Froot, A. K. and P. Klemperer, 'Exchange Rate Pass-Through when Market Share Matters,' *American Economic Review* **79**, 637-654, 1989.

Giovannini, A., 'Exchange Rates and Traded Goods Prices,' *Journal of International Economics* **24**, 45-68, 1988.

Gottfries, N., 'Price Dynamics of Exporting and Import-competing Firms,' *Scandinavian Journal of Economics* **88**, 417-436, 1986.

Gottfries, N., 'Market Shares and Pricing Behavior in the Tradables Industry: An Examination of Swedish Manufacturing,' Institute for International Economic Studies Seminar Paper No. 412, University of Stockholm, 1988.

Ito, T., 'Foreign Exchange Rate Expectations: Micro Survey Data,' *American Economic Review* **80**, 434-449, 1990.

Phelps, E. S. and S. G. Winter, 'Optimal Price Policy under Atomistic Competition,' in E. Phelps, (ed), *Microeconomic Foundations of Employment and Inflation Theory*, New York: W. W. Norton, 1970.

Rotemberg, J. and G. Saloner, 'A Supergame-theoretic Model of Business Cycles and Price Wars during Booms,' *American Economic Review* **76**, 390-407, 1986.

Rotemberg, J. and M. Woodford, 'Markups and the Business Cycles,' in O. J. Blanchard and S. Fischer, (eds), *NBER Macroeconomics Annual 1991,* Cambridge: M. I. T. Press, 63-129, 1991.

Tomiura, E., 'Dynamic Export Pricing and Exchange Rate Expectations,' Chapter Two in unpublished Ph.D. dissertation *Three Essays on Dynamic Export Competition,* Massachusetts Institute of Technology, 1992.

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 83-92

TECHNOLOGICAL TRAJECTORIES AND THE ORIGINS OF NEW INDUSTRIES: A THEORETICAL MODEL

JEFFREY L. FUNK **Kobe University**

Abstract

This paper describes a model of new industry formation that draws heavily on evolutionary theories of technical change. It represents the origins of new network industries as the interaction between multiple technological trajectories that are specific to a particular technology or broadly defined technological regime. The speed with which these multiple trajectories cause industry formation depends on their effective application to the most economical applications; this process occurs through the interaction between design hierarchies and market concepts. Growth in these initial applications causes sub-trajectories or sub-regimes, where competition in the new industry initially takes place, to emerge from the main trajectories.

JEL classification: M1
Keywords: origins, industry, technology, trajectory, design, hierarchy, market, competition, cooperation, disruptive

1. Introduction

In spite of the recognized importance of new industries[1], there are few models (Van de Ven and Garud, 1989) that describe the origins and early evolution of new industries. Instead, the origin of new industries is typically considered as an exogenous variable in other models. For example, the product life cycle theory assumes new industries are formed through the emergence of technological discontinuities. It then attempts to explain such

Corresponding Address
Jeffrey L. Funk
Research Institute for Economics and Business Administration (RIEB), Kobe University
2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
E-mail: funk@rose.rokkodai.kobe-u.ac.jp
Phone/Fax: 81-78-803-7009

1 There is an extensive literature on the importance of new industries. Schumpeter (1942) is usually credited with being the first with his concept of creative destruction.

variables as the frequency of product versus process innovations, the number of new entrants, the amount of product variety, and the emergence of dominant designs and their effect on competition (Abernathy & Utterback, 1978, Tushman & Anderson, 1986). Further, recent research suggests that the product life cycle does not effectively explain many of these (Klepper, 1996; Klepper and Simons, 2000) and other variables (Frenken et al, 1999; Windrum et al, 1998).

This paper proposes a model for the origins of new industries. The model draws heavily on evolutionary theories of technical change. It represents the origins of new network industries as the interaction between multiple technological trajectories (Dosi, 1982) that are specific to a particular technology or broadly defined technological regime (Nelson & Winter, 1982). The speed with which these multiple trajectories cause industry formation depends on their effective application to the most economical applications; this process occurs through the interaction between design hierarchies and market concepts (Clark, 1985).

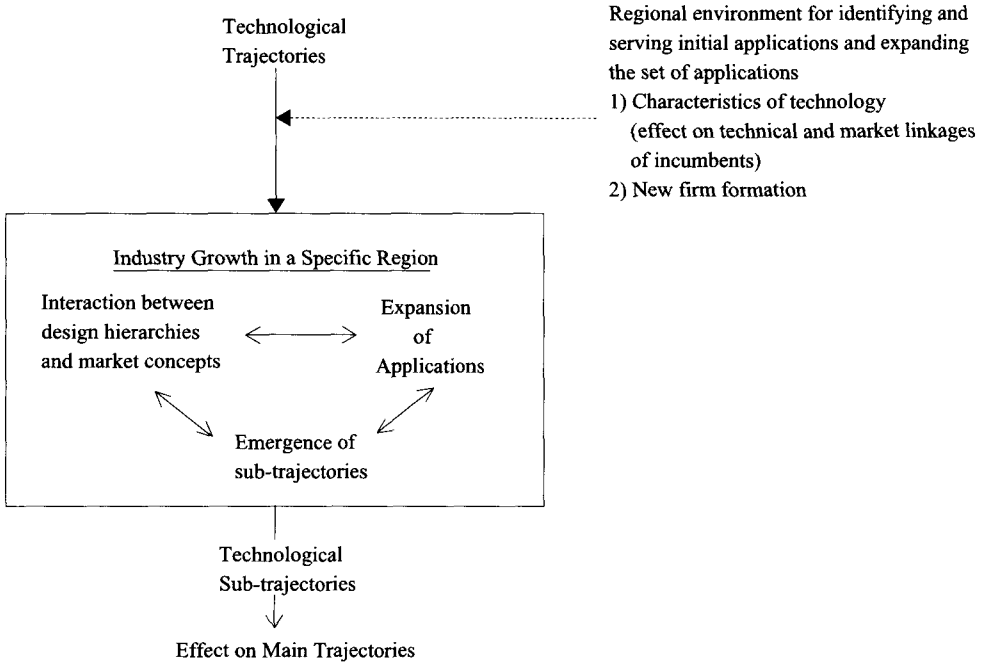
For both producers and users, local search, incremental adaptation, and path dependencies play an important role in identifying and serving these initial applications. Growth in these initial applications causes sub-trajectories or sub-regimes, where competition in the new industry initially takes place, to emerge from the main trajectories. The emergence of modular designs (Baldwin and Clark, 2000) or dominant designs, facilitate the emergence of these sub-trajectories. Network effects, increasing returns, first-mover advantages, and irreversibility play important roles in this initial competition.

2. Proposed Model

Figure 1-1. summarizes the proposed model. New network industries are formed by the interaction between multiple technological trajectories, each representing one component or "regime" (Nelson and Winter, 1982) of the new network industry. Progress in a single trajectory occurs through improvements in the trade-offs between relevant technological variables (Dosi, 1982). Technological trajectories are similar to Sahal's (1985) concept of innovation avenues and he argues that the combination of multiple innovation avenues is the source of many industries.

Prior to the formation of the industry, the relevant technological trajectories are primarily driven by factors that are independent of the new industry. For example, in the case of the Internet, improvements to the Internet's relevant components including PCs, digital content, and networks were driven by other applications for these components until the Internet began to diffuse. But as the Internet began to diffuse, improvements in these components began to be driven by their use in the Internet and thus these improvements began to become more applicable to the Internet. In many cases, relevant improvements in the components may not occur prior to industry formation.

Figure 1-1. The Origins of New Industries



Technological trajectories can be represented by the change in component performance or the distribution of available performance in the component (e.g., as a function of price) and both of these measures could be for new components or the installed base of components. For example, the relevant trajectories for the formation of the Internet are terminals (PCs, PDAs, or phones), digital content, software, and network (e.g., speeds) performance[2].

2.1 Interaction between design hierarchies and market concepts

The initial rate of industry growth depends on identifying and serving an initial set of applications. These initial applications are defined by the interaction between design hierarchies and market concepts where every design problem begins with an effort to achieve fitness between form (solution) and context (definition of problem). The form includes the basic functional parameters of the product and the context includes the economic and social environment. In the latter, the way technology is socially constructed (Bijker, 1987) has a large effect on when and where these first applications emerge.

2 For example, data on the performance of digital devices can be found in (Woodal, 2000) and data on the diffusion of digital devices can be found in (Lohr, 2002).

Abernathy and Clark's (1985) model of technological development provides us with a partial framework for understanding the challenges of firm's identifying and serving these initial applications. In their model, innovations can strengthen or overturn existing technical or market linkages. Innovations that overturn existing technical linkages destroy existing capabilities (Tushman and Anderson, 1986, Henderson and Clark, 1990) and thus require new capabilities that are often difficult for incumbents to develop. Innovations that overturn existing market linkages require new marketing or distribution systems that may also be difficult for incumbents to develop. One type of innovation that overturns existing market linkages is a disruptive technology (Christensen, 1997). Disruptive technologies improve some aspects of product performance while sacrificing others, thus making the new technologies appropriate for a new set of customers. It is important to recognize that customers must actually use the product in order to generate information about the requirements of the context (Arrow, 1962).

Innovations that do not overturn existing technical or market linkages will favor regions[3] with the capabilities in the old technology. The relevant capabilities might be found in the suppliers or the users (von Hippel, 1988) of the new technology. For example, two reasons for US dominance of the digital computer market (i.e., mainframe computer) was its strength in the analog computer market and in the applications for both types of computers including the scientific and military markets (van den Ende, Kemp, 1999). Similarly, early dominance of the television industry by US firms can be explained by their strength in the radio industry (Klepper & Simons, 2000).

On the other hand, the more interesting case is when innovations overturn existing technical and/or market linkages since these innovations may not favor regions that are the leaders in the old technology. Instead these types of innovations will likely favor regions that have firms or other institutions (Lynn et al, 1997) with the appropriate capabilities in the supply and use of the new technology and/or have firms that focus on the relevant customers. Of course, even if the region does not have such incumbent firms, it may succeed through institutions that support the formation of new firms (Kenney and von Burg, 2000; von Burg and Kenney, 2000; Cohen & Fields, 2000) as long as there are low barriers to entry in the supply and/or use of the new technology.

Whether the innovation overturns or does not overturn existing linkages, the social construction of technology (Bijker, 1987) suggests that other factors will also influence the ability of the region to identify and serve the initial applications. These include the region's demand characteristics (Rosenberg, 1982; Porter, 1990, Mowery and Rosenberg, 1998), the establishment of relevant standards, licenses, and regulations (David, 1986; Funk,

3 Regions can be part of a single country (e.g., Silicon Valley), a single country, or contain multiple countries (e.g., Europe).

2001a; Hughes, 1983; Shapiro and Varian, 2000), and the regions division of labor (BRIE, 2001; Tether, 2002) including the interactions between firms (Van de Ven and Garud, 1989)

Path dependency will play an important role in determining the above factors, including those related to incumbents, the formation of new firms, and the social construction of technology. We can represent each of the factors with a chain of discrete Markov processes where the probability function in one state is a function of past states (David, 2001). Firms will develop capabilities and focus on customers in an evolutionary manner where local search and adaptation predominate (Holbrook et al, 2000). Similarly, demand characteristics and institutions that support the creation of new firms and standards, entry barriers, and other government policies will also be created in an evolutionary manner (Mowery and Rosenberg, 1996).

In any case, the region that first identifies and serves the most economical applications will be rewarded with first mover advantages (Klepper, 1996; Mowery and Rosenberg, 1996, Mueller, 1997) in that it will begin developing capabilities in the new technology. The extent of its advantage will depend on the similarities in standards (2001a), the degree of network effects, increasing returns (Arthur, 1989) and irreversibility all of which have been found to play a strong role in network industries. As the industry grows, the existence of network effects will increase customer value while increasing returns will reduce supplier costs. On the other hand, firms in less successful regions may find it difficult to develop new capabilities or focus on different customers, which may radically slow regional growth particularly if there are no new entrants. Local search, incremental adaptation, and coordination problems may even lead to irreversibility thus preventing the industry from emerging until long after it has emerged in other regions (David, 1986; Oechssler, 1997).

2.2 The evolution of competition and technological sub-trajectories

Clark's (1985) model of design hierarchies and market concepts tells us something about how competition in the industry will evolve in the region that first identifies and serves the most economical applications. In his model, the logic of problem solving and the formation of concepts that underlie choice in the marketplace impose a hierarchical structure on the evolution of technology (Nelson & Winter, 1982). On the one hand, as alternative product forms compete at consecutively more detailed levels problem solving becomes more interdependent and incremental. These incremental improvements enhance and extend the underlying technology and thus reinforce the design at higher levels in the hierarchy; these reinforcements are often characterized in terms of a dominant design (Abernathy and Utterback, 1978). On the other hand, movements up the hierarchy are associated with departures from existing approaches and are sometimes called "dematuration" (Clark, 1985).

However, network products differ from the products that have been used to develop and

test Clark's model (1985); the latter includes automobiles, semiconductors (Clark, 1985), insulin, and switching equipment (Durand, 1992). Network products comprise an open system of interdependent components and thus contain multiple design hierarchies. It is likely that the interactions between these hierarchies particularly at lower levels in each hierarchy can have a larger effect on the evolution of the industry than the distinction between movements up and down a single hierarchy.

The initial applications, which are determined through the interaction between design hierarchies and market concepts, cause sub-trajectories and regimes to emerge from the main trajectories and these sub-trajectories represent interactions between design hierarchies. The relationship between main and sub-trajectories can be seen as a conceptual application of Leontief's (1986) input-output analysis, applied at a micro-level in the economy. Leontief's models represent an economy as a combination of industries where each industry inputs goods and services from and outputs them to other industries. In our model, although the main trajectories also represent inputs of technology to the new industry, much of this technology must be modified for the new industry. Thus, the main trajectories are more properly seen as inputs of ideas and concepts that are used to construct the new industry while the sub-trajectories represent measures of technical performance for the industry.

The relationship between main and sub-trajectories is also similar to the relationship between Sahal's (1985) concepts of generic and industry specific innovation avenues (Sahal, 1985) although our distinction between main and sub-trajectories is much more precise. Sahal considered (presumably in the early 1980s) the evolution of microelectronics to be a generic innovation avenue while we consider specific types of microelectronics to be sub- and main trajectories. In particular, specific types of microelectronics begin as sub-trajectories that are the focus of strategic battles for the creation of standards and platform leadership and some of these sub-trajectories become main trajectories.

For example, the interaction between one component of PC computer hardware (the microprocessor) and another of PC computer software (the operating system) caused the emergence of two significant sub-trajectories that became the focus of competition for platform leadership in the PC industry in the 1980s (Gawer & Cusumano, 2002). The victory of the Wintel standard has caused both operating system and microprocessor performance to become main technological trajectories in the information technology industry and their technological regimes include many types of electronic products (Freeman and Soete, 1997). In large applications that also have very different requirements from the PC, sub-trajectories are emerging that represent significantly different designs; one will be discussed shortly in the discussion of the mobile Internet.

The PC and other examples suggest that there will be synergistic effect between the sub-trajectories and the product or system's modularity. Many network innovations like the digital computer (Baldwin and Clark, 2000) only become network products as firms created

modular designs where multiple firms can provide various components or modules in an open-system configuration. In some cases, the sub-trajectories define the performance of these modules while in other cases the addition of modules (Baldwin and Clark, 2000) causes the emergence of new sub-trajectories.

In most cases, technological evolution along these sub-trajectories will expand the application space and in turn influence the main technological trajectories. In the long run, the total application space for the technological regimes will be determined by both the technological trajectories and the ability of suppliers and users of the technology to adapt it to specific applications. This raises the possibility that a lagging region may catch up and pass the region where the industry originally emerged because of early maturation in the leading region.

3. Discussion

This paper presents a model of new industry formation. It represents the origins of new network industries as the interaction between multiple technological trajectories that are specific to a particular technology or broadly defined technological regime. The initial applications emerge through interactions between design hierarchies and market concepts where the social construction of technology takes place. Growth in the initial applications causes sub-trajectories or regimes, where competition in the market initially occurs, to emerge from the main trajectories.

This model enables us to more fully open the "black box" of technology development[4] and address a number of economic and managerial questions that cannot be addressed with existing models like the product life cycle model. One set of relevant questions is: 1) Why did industry A evolve faster than industry B; and 2) Why did industry A start first in region C while industry B started in industry D? We can address these questions by analyzing the relevant trajectories and determining both the rates and reasons for the rates at which initial applications emerged and grew in various regions and industries. While it is possible that macro-economic factors drive many of the main technological trajectories, it is very likely that the effective integration of them to form new industries is a function of factors that are stressed in evolutionary theories of economics and the social construction of technology.

This model can also be used to address managerial questions about various industry segments. For example, 1) Why did certain divisions of labor emerge in industry A and not in industry B; and 2) Why did certain firms win in these industry segments? We can address these issues by analyzing the technological sub-trajectories, the emergence of modularity, the relationships between the sub-trajectories and modularity, and the institutional factors

4 I am borrowing the term from (Rosenberg, 1982)

surrounding the sub-trajectories and modularity.

Future research should apply the model to specific industries. In another paper, the author has applied the model to the mobile Internet (Funk, 2002). Based on this analysis of the mobile Internet, we are confident that the model can be applied to other network industries in particular the PC Internet. But what about assembled products like automobiles where the product life cycle model is generally accepted? Can our model solve some of the recent problems (Klepper, 1996; Klepper and Simons, 2000: Frenken et al, 1999; Windrum et al, 1998) found in the product life cycle model? And what about non-assembled products like pharmaceuticals and chemicals?

Future research should also attempt to simulate industry formation. It should be relatively easy to represent the main and sub-trajectories in a simulation model. The identification and serving of the initial application is more problematic but recent models of disruptive technologies may provide sufficient analytical capability (Adner, 2002). These models can be used to simulate and perhaps even predict the growth of a new industry where the application space could be modeled as a function of the main and sub-trajectories. We can represent the evolution of incumbent capabilities, the formation of new firms, and other institutional responses by a chain of discrete Markov processes where the probability function in one state is a function of past states. Such a model would enable us to further open the "black box" of technology development and address a much more detailed set of questions about existing and even future industries.

References

Abernathy, W. & J. Utterback (1978), "Patterns of Innovation in Technology, *Technology Review* 80 (July) 40-47.

Abernathy, W. and K. Clark (1985), "Innovation: Mapping the Winds of Creative Destruction," *Research Policy,* 14, p.3-22.

Adner, R. (2002). "When Are Technologies Disruptive? A Demand-Based View of the Emergence of Competition," Strategic Management Journal, Vol.23, No.8., pp.667-688.

Anderson, P. & M. Tushman (1990), "Technological Discontinuities and Dominant Designs: A Cyclical Model of Technological Change," *Administrative Science Quarterly,* Vol.35, No.4 (December), 604-633.

Arrow KJ (1974). *The Limits of Organization,* NY: Norton.

Arthur, B (1989). *Increasing Returns and Path Dependence in the Economy,* Ann Arbor: University of Michigan Press, 1994.

Baldwin, C. and K. Clark (2000). *Design Rules,* Boston: MIT press.

Bijker, W., T. Hughes, and T. Pinch (Ed) (1987): *The Social Construction of Technological Systems,* MIT Press.

BRIE (2001). *Tracking a Transformation: E-Commerce and the Terms of Competition in Industries: the BRIE-IGCC E-Conomy Project,* Washington DC: Brookings.

Christensen, C. (1997), *The Innovator's Dilemma,* Boston: Harvard Business School Press.

Clark, K. (1985), "The Interaction of Design Hierarchies and market Concepts in Technological Evolution," *Research Policy* (14), 235-251.

David, P. (2001). "Path dependence, its critics, and the quest for "historical economics," in *Evolution and Path Dependence in Economic Ideas: Past and Present,* P. Garrouste and S. Ioannides (Editors).

David, P. (1986). "Historical Economics in the Long Run: Some Implications of Path-Dependence." In *Historical Analysis in Economics,* G. D. Snooks (ed), London: Routledge.

Dosi, G., (1982). "A suggested interpretation of the determinants and directions of technical change," *Research Policy* 11, pp.147-162.

Freeman, C. and L. Soete (1997). *The Economics of Industrial Innovation,* MIT Press, 1997.

Frenken, K., P. Saviotti, and M. Trommetter (1999). "Variety and niche creation in aircraft, helicopters, motorcycles and microcomputers," *Research policy* 28, pp.469-488.

Funk, J. (2002). "Technological trajectories and the origins of new industries: the case of network products," Working Paper, http://www.rieb.kobe-u.ac.jp/~funk/index.html

Gawer, A. and M. Cusumano (2002). *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation,* Boston: Harvard Business School Press.

Godoe, H. (2000). "Innovation regimes, R & D and radical innovations in telecommunications," *Research Policy* 29, pp.1033-1046.

Henderson, R. and K. Clark (1990). "Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms," *Administrative Science Quarterly,* 35 (1990), pp.9-30.

Hughes, T., (1983). *Networks of Power,* Baltimore: John Hopkins

Kenney M. and U. von Burg (Institutions and Economies: Creating Silicon Valley, in *Understanding Silicon Valley: The Anatomy of an Entrepreneurial Region,* Kenney, M. (ed), Stanford University Press, 2000.

Klepper, S. (1996). "Entry, exit, growth, and innovation over the product life cycle," *American Economic Review,* Vol.86, No.3.

Klepper, S. and K. Simons (2000). "Dominance by birthright: entry of prior radio producers and competitive ramifications in the US television receiver industry," *Strategic Management Journal,* 21: 997-1016.

Leontief, W. (1986). *Input-Output Economics,* Oxford University Press.

Lohr, Steve (2002). "Technology Climate Is Gloomy, but Its Future Still Seems Bright," *NY Times,* July 29, 2002. http://www.nytimes.com/2002/07/29/technology/29POKE.html)

Lynn, L., N. Reddy, and J. Aram (1997). "Linking technology and institutions: The innovation communities," J. Eng. Technol. Manage. Vol.14, pp.129-145.

Matsunaga, Mari (2000). i-mo-do jiken (The i-mode Event), Tokyo: Kadokawa Shoten.

Mowery, David and Nathan Rosenberg (1998), *Paths of Innovation,* NY: Cambridge University Press.

Mueller, D. 1997). "First-mover advantages and path dependence, *International Journal of Industrial Organization,* Volume 15, Issue 6, Pages 827-850.

Nelson, Richard (1996). *The sources of economic growth,* Cambridge Mass.: Harvard University Press.

Nelson, R, Winter S (1982). An Evolutionary Theory of the Firm, Cambridge, MA: Harvard University Press.

Oechssler, J. (1997). "Decentralization and the coordination problem," *Journal of Economic Behavior*

and Organization, Vol.32, pp.119-135.

Porter, M. (1990). *The Competitive Advantage of Nations,* NY: Free Press.

Porter, M. (1983). "The Technological Dimension of Competitive Strategy," in Richard Rosenbloom, ed., *Research on technological innovation, management, and policy,* Greenwich, CT: JAI Press.

Rosenberg, Nathan (1982), *Inside the black box: Technology and Economics,* NY: Cambridge University Press.

Rosenberg, Nathan (1994), *Exploring the black box,* NY: Cambridge University Press.

Sahal, D., (1985). "Technological guideposts and innovation avenues," *Research Policy,* 14, pp.61-82.

Schumpeter, J. (1942). *Capitalism, Socialism, and Democracy,* NY: Harper & Row.

Shapiro, C. and H. Varian (1999), *Information Rules,* Harvard Business School Press.

Tether, B. (2002). "Who co-operates for innovation, and why. An empirical analysis," *Research Policy* 31, pp.947-967.

Tushman, M. & P. Anderson (1986), "Technological Discontinuities and Organizational Environment," *Administrative Science Quarterly,* Vol.31, 439-456.

Utterback, J. M. (1994), *Mastering the Dynamics of Innovation: How Companies Can Seize Opportunities in the Face of Technological Change,* Boston: Harvard Business School Press.

Van den Ende and R. Kemp (1999). "Technological transformations in history: how the computer regime grew out of existing computing regimes," *Research Policy* 28, 833-851.

Van de Ven, A. and R. Garud (1989). "A framework for understanding the emergence of new industries," *Research on Technological Innovation,* Management and Policy, Vol.4, pages 195-225.

Von Burg, U. and M. Kenney, "Venture capital and the birth of the local area networking industry," *Research Policy,* pp.1135-1155.

Von Hippel, E. (1988): *The sources of innovation,* Oxford University Press.

Windrum, P. and C. Birchenhall (1998). "Is product life cycle theory a special case? Dominant designs and the emergence of market niches through co-evolutionary-learning," Sructural Cange and Economic Dynamics 9, pp.109-134.

Woodal, Pam, "Untangling e-economics," *The Economist,* September 21, 2000 (http://www.economist.com/surveys/showsurvey.cfm?issue=20000923).

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 93-115

JAPAN'S DEFLATION AND THE FEASIBILITY OF NEGATIVE INTEREST RATES

STEPHEN J. DAVIES **Kobe University**

Abstract

Japan's central economic problem is that interest rates are much too high, so that aggregate demand is too low. "Structural reforms" will increase supply but not deal with the shortage of demand. It is generally assumed that "interest rates cannot be negative" and that therefore alternative techniques have to be used to ease monetary policy when interest rates are already close to zero. This paper discusses three existing ideas for achieving negative interest rates: Gesell's "stamp scrip" and two recent proposals. It argues that negative interest rates can be achieved without the cost involved in these existing proposals. All that is needed is to break the link between cash and the unit of account: a 1,000-yen note would no longer be worth 1,000 yen. Alternatively, cash can be replaced with electronic legal tender, subject to a negative interest rate.

JEL classification: B59, E21, E31, E42, E50, E52
Keywords: deflation, negative interest rates

Introduction

As economic policy-makers during the 1980s turned back the tide of inflation that had threatened to overwhelm them in the 1970s, some prescient economists started to warn about the risks of over-achievement.[1] In post-war business cycles interest rates in industrial countries had not infrequently been negative in real terms and policy-makers' scope to make large cuts in nominal rates and to set negative real rates in cyclical downturns presumably contributed to the shallowness of post-war recessions. Achievement of something close to

Corresponding Address:
Stephen J. Davies
Research Institute for Economics and Business Administration (RIEB), Kobe University
2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
E-mail: sdavies@rieb.kobe-u.ac.jp
Phone/Fax: 81-78-803-7030

1 e.g. L. Summers (1991)

price stability removed the scope for large cuts in nominal interest rates and for substantially negative real interest rates in cyclical downturns, given the generally received wisdom that nominal interest rates cannot be (more than marginally) negative.

By the end of the 1990s zero interest rates had arrived in Japan and the economics profession was taking a heightened interest in the problems of "monetary policy in a low-inflation environment",[2] and even "the return of depression economics".[3] By early 2002 the Federal Reserve Board was discussing the possibility that the US might find itself in the rudderless Japanese boat,[4] and that risk clearly increased during the course of the year.

Policy-makers, while talking about price stability, have generally aimed for something in excess of zero inflation (though the reason given for this has more often been to allow for upward biases in measured inflation than to facilitate stabilisation policy). In the UK, for example, the government has set an inflation target of 2.5 per cent.

Deflation continues in Japan

Consumer prices have been falling in Japan since 1997. In recent years the GDP deflator has been falling by around 1.5 per cent a year and this rate of decline is forecast to continue.[5] Land prices have been falling for more than eleven years. In the 12-month period to July 1, 2002, the average price of residential land fell 4.3 percent, compared with 3.3 percent the previous year, while commercial land dropped 7.2 percent, after a 6.6 percent drop the year before.[6]

The Bank of Japan's published monthly assessments have been pointing to continuing and perhaps intensifying deflationary pressure:

"As for the conditions surrounding price developments, the balance between supply and demand is expected to keep exerting downward pressure on prices for a while amid persistently weak domestic demand, although the completion of inventory adjustment and the rise in capacity utilization rates will support prices to some degree. Moreover, factors such as the ongoing technological innovations in machinery, deregulation, and the streamlining of distribution channels will continue to restrain prices. Under these circumstances, domestic wholesale prices are projected to continue to be weak for a while. Consumer prices are expected to stay on a declining trend for the time being at the current gradual pace. While the slower growth in imports of consumer goods is expected to alleviate the downward

2 The title of a US Federal Reserve sponsored conference held in October 1999. The proceedings were published in Journal of Money Credit and Banking November 2000, part. 2.

3 P. Krugman (1999)

4 Relevant Fed staff analysis was later published: A. Aheame, J. Gagnon, J. Haltmaier, S. Kamin (and others) (2002)

5 OECD Economic Outlook, No. 71, June 2002.

6 According to the annual Land, Infrastructure and Transport Ministry survey published on September 19, 2002.

pressure on prices to some extent, the faster pace of decline in wages may possibly reinforce the ongoing decline in prices, especially for services prices."[7]

On any reasonable assessment, to achieve price stability Japan needs a substantial easing of monetary policy. Over and above the monetary easing needed to stabilize prices, a further substantial easing will be needed sooner or later to accompany fiscal consolidation. While Japan's current public debt burden may be sustainable, no country can allow its public debt to rise faster than GDP (or fall more slowly than GDP) forever. But just to stabilise the ratio of Japanese public debt to GDP, taxes will have to be raised and/or public expenditure cut by several percentage points of GDP.[8] As "Ricardian equivalence" does not appear to apply in Japan, the tightening of fiscal policy will further deflate the Japanese economy.[9]

While it is certainly beyond the ambitions of this paper to calculate the optimal level of interest rates for Japan, we can use the Taylor rule for setting interest rates to give us some idea of the scale of cut that might now be called for in Japan. McCallum has computed a Taylor rule for Japan up to 1998; this appears to indicate a warranted interest rate of around minus 2 per cent at the end of 1998.[10]

Attempting a more up-to-date estimate we take the original form and parameters of the Taylor rule:[11]

$$i = (r+p^*)+1.5(p-p^*)+ .5(y-y^*)$$

where i is the nominal interest rate set by the authorities;

r is the warranted real interest rate

p^* is the target inflation rate

p is the actual inflation rate

7 Monthly Report of Recent Economic and Financial Developments, Bank of Japan, September 19, 2002.

8 The IMF (World Economic Outlook, September 2002) estimate Japan's structural general government deficit as currently close to 6 per cent of GDP.

9 Horioka finds from his analysis of bequest behaviour that what he calls the "selfish life cycle model" is far more applicable in Japan than the "altruism" model that would imply "Ricardian equivalence": C. Y. Horioka (2002). A recent IMF cross-country study also finds against "Ricardian equivalence" in the case of Japan: A Thomas (2001). It may be possible to introduce fiscal policy measures which simultaneously reduce the deficit while stimulating demand. (I am grateful to Professor Hisashi Harui of Kwansei Gakuin University for making this point.) A rise in income tax accompanied by a reduction in consumption tax might have this effect; as might regular pre-announced rises in consumption tax (as proposed by Professor Martin Feldstein.) Unfortunately, tax reform is more likely to go in the opposite direction, inspired by tax reform in countries where saving is too low rather than high.

10 BT. McCallum (2002), in a paper prepared for March 2002 workshop sponsored by Economic and Social Research Institute of the Japanese Government. (The collection of papers for the workshop can be found at http://www.esri.cao.go.jp/en/prj/020320/020320main-e.html.) At the same workshop, Watanabe showed the results of a backward and forward looking Taylor rule, computed by Okina and Shiratsuka for the period up to end 1999. The backward looking version indicated interest rates of around minus 2 per cent at the end of 1999 while the forward looking version indicated interest rates of around minus 3 per cent.

11 JB. Taylor (1993)

$y-y^*$ is the output gap.

In the case of Japan:

- Japan's demography means that r may be very low (possibly even negative) and almost certainly not more than +2.[12]
- p^* is a small positive number in most countries that have adopted inflation targets (as noted earlier, 2.5 in the UK) but perhaps in Japan, the objective of price stability should perhaps be taken as meaning more or less zero inflation, i.e. $p^* = 0$ to 1.
- The GDP deflator has been falling by around 1.5 per cent a year for some time so I take actual inflation (p) to equal −1.5.
- There is a wide range of estimates for the output gap. The June 2002 OECD Economic Outlook put it at around −3 in 2002, the latest IMF WEO database puts it at around −4. A careful study by Kamada and Masuda[13] put the output gap at closer to −10 in 1999 (and of course it would be bigger now); however, the latter authors seem to define the gap relative to maximum output rather than relative to mid-cycle output. The highest estimate I am aware of is −30![14]

Ignoring the most extreme estimate of the output gap, these estimates would probably imply setting nominal short-term interest rate now at between −2.5 and −5 per cent. Then, as noted earlier, to allow a rebalancing of fiscal and monetary policy (to put government finances on a sustainable track) a significant further reduction in interest rates would be needed (making the required level of interest rates still more negative).

While different interest rate rules, or different parameters for the Taylor rule, might be preferred, it seems reasonably clear that Japanese interest rates need to be negative, and substantially so. But the option of holding wealth in the form of cash apparently rules out interest rates being more than marginally negative. (The marginal scope for negative interest rates reflects the cost of storing, safeguarding and/ or insuring hoarded cash.) If the Bank of Japan moved its intervention rate significantly below zero, banks would simply borrow to increase the cash in their tills, with no necessary effect on interest rates faced by non-banks. Likewise, depositors would choose to hoard cash rather than pay for the privilege of keeping their savings in bank deposits.

So interest rates need to be negative but cannot be negative: that is Japan's monetary policy dilemma. What is to be done? The options seem to be:

- Do nothing: allow the economy to adjust by itself to cope with the inappropriate level of interest rates (which is after all what individual countries within the euro zone have to do);

12 Benjamin Hunt and Douglas Laxton (2001) adopt an equilibrium real interest rate of 2.2 per cent in the simulations they report.

13 K. Kamada and K. Masuda (2001)

14 See The Economist, 1 March 2002.

- Change forward looking real interest rates by announcing a positive inflation target;
- "Structural reforms"
- Various forms of "unconventional monetary policy" or "quantitative easing"; i.e. large-scale BoJ purchases of government or corporate bonds, equities, property, foreign assets;
- Getting round the non-negativity constraint by taxing or imposing a negative interest rate on cash holdings.

The remainder of this paper will consider these options in turn

Do nothing: allow the economy to adjust on its own

We should certainly give serious consideration to the option of just doing nothing and letting events take their course. There are self-correcting mechanisms in the economy, which may on their own return the economy to equilibrium. For regions in a monetary union, the depression experienced in a region with unduly high interest rates will tend to reduce prices and costs in that region relative to the rest of the monetary union, and the resulting improved competitiveness in that region may restore the region's economic health. This is an example of **negative feedback**. This particular mechanism is less relevant in the case of a country with a floating exchange rate, as the impact of lower domestic prices on competitiveness might be offset by a movement of the exchange rate.

Unfortunately there may also be **positive feedback**: the economy may adjust in ways that make the original problem worse. It is the possibility of positive feedback that leads to talk of a "deflationary spiral": of deflation feeding on itself. For example, an unexpected fall in prices may cause expectations of further fall in prices, increasing the perceived real interest rate, and so further discouraging spending. Falling prices may make banks more cautious about the value of security on which they lend, so reducing finance for investment. The increased shortfall of demand relative to supply means prices again fall faster than expected, and so on.

The relative size of negative and positive feedback effects must depend to some extent on whether inflation expectations are backward-looking or forward-looking. Some simulations conducted for the UK economy, using a National Institute's macro-economic model with alternatively backward-looking and forward-looking expectations, showed that, on either assumption about expectations, the impact of excessively high nominal interest rates would be severe even after the economy had had ten years to adjust. In the case of backward-looking expectations, the impact of a sustained increase in nominal interest rates on unemployment, for example, would be greater after ten years than after five years.[15] In this model, at any

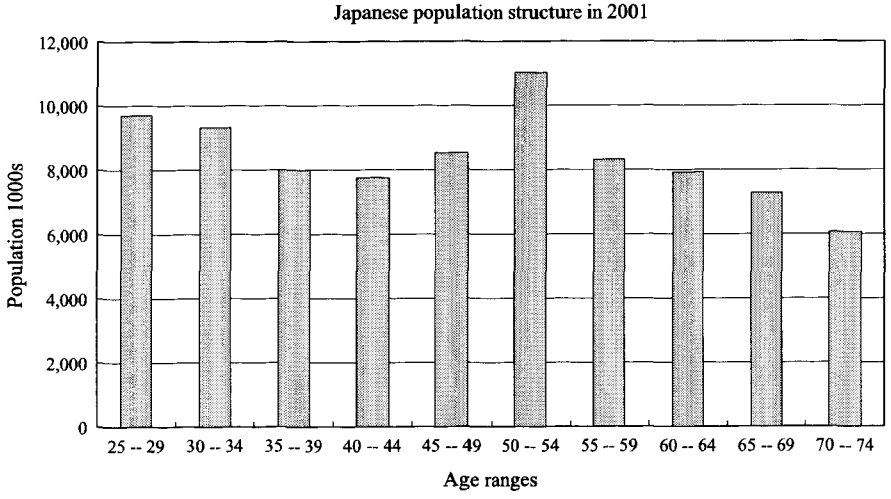
15 S. Davies (2000)

rate, the speed of adjustment was too slow for laissez-faire to be an option.

While Japan's current situation may not correspond to an intensifying "deflationary spiral", as noted earlier there is no sign of Japan's deflation abating of its own accord. Moreover, the demographic factors that are contributing to weak Japanese domestic demand will become a still more negative influence over the next decade.

As far as I am aware, the most careful analysis of the relation between Japanese demographics and domestic demand is that carried out by Smithers and Co. As this work is done on a commercial basis for fee-paying clients it is not fully available in public, though Andrew Smithers did give a seminar in February 2002 at the Japanese Research Institute of Economy, Trade and Industry.[16] He argued there that Japan's "age structure causes the equilibrium savings rate to be 4 per cent of GDP above a steady state. It also causes the equilibrium investment rate to be 3.5 per cent below the steady state equilibrium". The basic point is that Japan currently has a relatively high proportion of its population at an age when savings tend to be high, while the prospective low potential low growth associated with a falling labour force is tending to weaken investment demand.

In most countries, people in their fifties have the highest saving rates, as their employment income is at or near its peak, and many of their children are financially independent. Saving rates of older age groups are lower, as some people in those age groups supplement declining income by liquidating assets accumulated earlier in the life cycle. Japan



Source: Statistics Bureau Ministry of Public Management, Home Affairs, Post and Telecommunications "Population Census".

16 "Smithers Revisited: The Irrelevance of the Restructuring Debate" at http://www.rieti.go.jp/jp/events/bbl/02020801.html.

conforms to the general pattern at least to the extent that saving rates rise as people move into middle age; but the fall in saving in old age implied by the traditional life-cycle model of consumption is missing. According to Borsch-Supan and Brugiavini, "in Japan, saving rates increase almost monotonously *(sic)* with age, such that the effect of population ageing is similarly monotonous. Population ageing puts fewer households in the low-saving age categories and more households in the high-saving age categories, resulting in higher saving on an aggregate level".[17] Just on the basis of demographic structure they compute a rise in Japan's household saving ratio of 1.5 percentage points between 1990 and 2020.

Horioka and Watanabe[18] confirm that in Japan desired saving for retirement increases as household heads go through their fifties and into their sixties (and flattens out rather than falls thereafter). Nakagawa[19] notes that the financial assets of the elderly do not fall after retirement and that their total assets actually increase.

Demographic prospects thus give no reason to expect a spontaneous recovery in consumer spending. And as Japanese business investment remains high (in relation to GDP) by the standards of other OECD countries,[20] while profitability is low, it would be unwise to count on a rise in Japanese investment from its current rate.

Inflation target

Monetary policies centred on inflation targets have been successful in many countries since the 1990s. In the decade since an inflation target was first introduced in the UK, the UK has experienced low and stable inflation, in marked contrast to the experience of the previous three decades. However, the UK's introduction of inflation targeting was accompanied by other important changes in the formulation of monetary policy, culminating some five years ago in Bank of England independence. And in spite of the introduction of targets, in spite of the institutional change, and in spite of the actual achievement of low inflation (in recent years generally below the target) the inflationary expectations of the general public have adjusted only sluggishly to low inflation.[21]

Thus the UK's experience with inflation targets provides absolutely no reason to expect the announcement of a positive inflation target on its own to have a major impact on inflation expectations and hence on spending, in the absence of other policy changes that

17 A. Borsch-Supan and A. Brugiavini (2001)

18 C. Y. Horioka and W. Watanabe (1997)

19 S. Nakagawa (1999)

20 For a comparison of business investment rates in the seven largest OECD countries see "Savings and Investment: Determinants and Policy Implications" chapter 4 of OECD Economic Outlook 70 (December 2001). As of 2000, Japan still had the highest business investment rate of these seven countries in spite of its low growth rate.

21 See the survey results reported in S Davies and E Harley (2001)

make the target credible. Alan Blinder put it very well in 1999:

"I do not see how [a pledge to achieve a moderate inflation target] could possibly work in a country like Japan, where the average inflation rate over the past seven years has been negligible, where deflation has recently been experienced, and where doubts about the central bank's ability to stimulate demand have been widely expressed — including at the central bank! The problem, in a word, is that such a policy pronouncement will not be credible once a country is already in the soup."[22]

Structural reforms

There is a long list of factors that are sometimes held responsible for Japan's economic malaise (male gerontocracy in management, emphasis on rote learning in education, low standards of English ability, the tradition of amakudari, the power of the construction lobby, and so on).[23] As these sorts of factors are relevant to the potential output of the Japanese economy, it is difficult to see what they have got to do with deflation (which reflects shortage of demand relative to supply). Another candidate for blame is the powerlessness of the prime minister and cabinet: this would matter more if it was clear what the cabinet ought to be doing. Inflation and deflation are essentially monetary phenomena and it is natural to look for their remedies in monetary policy, not in "structural reforms".

A more promising diagnosis may seem to lie in the weakness of the banking system and the latent under-capitalisation of banks (if bad debts were properly accounted for). However, while it is clear that the Japanese banking system is in crisis, it is not clear to what extent the weakness of Japanese banks is currently reducing demand. While bank credit is declining this does not necessarily mean that credit is supply constrained.

Nakaso[24] takes it as read that Japan has experienced a persistent "credit crunch". Some economists have found evidence of a credit crunch, related to shortage of bank capital, around the period 1997 to 1998 (though not earlier in the 1990s).[25] The obvious way to distinguish between supply and demand effects on credit is to look at what has happened to the (risk-adjusted) price of credit. Shortage of capital in the banking industry and barriers to the entry of new capital give banks the power to raise the price of credit and make supra-normal profits; this excess profitability should continue until bank capital has increased enough to bring credit supply in line with demand. By contrast, low demand for credit (which may be caused by such factors as lack of collateral or shortage of profitable investment projects) would tend to depress bank profitability, reducing capital in banking until the supply of credit

22 A. Blinder (2000)

23 For a survey on these lines, see "The Economist", issue of 19th April 2002.

24 H. Nakaso (2001)

25 T. Motonishi and H. Yoshikawa (1999); D. Woo (1999) G. Hoggarth and J. Thomas (1999)

was brought into line with demand. While long-term relationships might constrain Japanese banks' ability to exploit a shortage of capital to increase margins, banks should surely have managed to make at least satisfactory profits if credit had really been in short supply for an extended period.

Recent Senior Loan Officer Lending Surveys imply credit demand remains weak relative to the supply of credit. Banks report a marked decline in demand for loans from firms (especially small firms) — the main reasons for this fall in demand being a decrease in customers' sales and a decrease in fixed investment. They indicate an easing of the standards applied by banks in assessing credit applications (most marked in relation to applications from small firms). And they indicated a marginal reduction in loan spreads for highly rated borrowers. The main specified reason for easing credit standards is given as "more aggressive competition from other banks".[26]

Finally, as noted earlier, business investment remains relatively high in Japan by international standards, in spite of low profits. It does not appear to have been constrained by lack of finance. Whatever micro evidence there may be of failures of credit supply, the overall picture is surely that there has been too much rather than too little bank lending. Complete protection of bank deposits (now extended beyond March 2003 for bank sight deposits) and pressure from the authorities to maintain lending to small firms, together with the availability of finance from public lending agencies, has generally succeeded in preventing a credit crunch, to the extent that chronically unprofitable firms have remained in business and banks have been unable to earn an adequate compensation for the risks of lending to them. Simply re-capitalising the banks now would indeed "be like pouring water into a bucket with a hole in the bottom of it".[27]

"Quantitative easing"

Many economists have argued that even with interest rates at zero the Bank of Japan has scope for significant monetary easing,[28] by buying government or corporate bonds, equities, property, foreign assets, on as large a scale as needed to make an impact. The Bank of Japan has made some efforts at "quantitative easing" since March 2001, so that the monetary base actually increased by more than a third in the year to April 2002, but still draws the line at what it describes as "unconventional monetary policy".[29]

---

26 This discussion is based mainly on the July 2002 survey. The latest survey can be found at http://www.boj.or.jp/en/siryo/siryo_f.htm.

27 The quote is from Japan Center for Economic Research (2002) (Also to be found at http://www.jcer.or.jp/eng/index.html.)

28 For example, B. Bernanke (2000)

29 See M. Shirokawa (2002)

Clearly if the Bank of Japan intervened in the foreign exchange market on a massive scale, at some point the yen would weaken and eventually it would fall a lot. The rest of the world would require some reward (in the form of future expected appreciation of the yen) if it was going to hold massively increased amounts of yen at zero interest rates. The yen would therefore have to fall until it was obviously cheap.

It is not, however, feasible for the Bank of Japan, or for the Japanese government, to follow this sort of policy. The rest of the world, and particularly America, would not stand for it. Advocates of this policy are simply ignoring the history of "trade frictions" which the Japanese authorities cannot ignore. If a reminder was needed, it was provided when the recent period of yen weakness quickly led to American calls for Japan to sort out its banking crisis, rather than rely on a depreciating currency.[30] While a weaker yen is likely to be a by-product of any successful policy of monetary easing, it cannot be the main or sole policy instrument.

There would be no such problems of international relations involved in the Bank of Japan buying a wider range of domestic assets, even on a massive scale. However, the Bank of Japan would argue, quite reasonably, that such a policy would have major fiscal implications and that it could not undertake it on its own responsibility. The underlying problem is the risk of potentially massive losses if it acquired land, equities, and bonds on the scale needed to have a significant impact on the economy. Land, for example, while cheap by the standards of the bubble era, is still not obviously a bargain in a country facing a substantial decline in population. Losses on such asset purchases would make the eventual task of fiscal consolidation all the harder.[31]

Getting round the non-negativity constraint on interest rates

As there seems no attractive alternative to cutting interest rates, some way simply has to be found of getting round the non-negativity constraint. A report issued in March 2002 by the Japan Center for Economic Research came close to calling for negative interest rates in advocating a "tax equal to the deflation rate on the financial assets that the government guarantees... [including] cash...For example, if currency redenomination is carried out with a rate of exchange of the new yen being equal to the old 102 yen we can levy a 2 % tax on cash".[32] What is needed to escape from deflation, however, is not a one-off unanticipated levy on cash but an anticipated and continuing negative return on cash.

There is some literature on techniques for making positive interest payments on cash.

30 "O'Neill against relying on weak yen for recovery" The Japan Times, January 24, 2002.

31 When the Bank of Japan announced in September 2002 that it would buy equities from the commercial banks, it made it clear that this was to reduce risks to financial stability, not to ease monetary policy.

32 Japan Center for Economic Research (2002)

Following a suggestion by Goodhart,[33] there could be an occasional lottery in which some bank note serial numbers attract prizes (rather like the annual lottery in which some of the serial numbers of Japanese New Year greeting cards attract prizes). Winning serial numbers would be published in the newspapers and winners would present their bank notes at the local post-office or bank to collect their prize. (The timing of the lottery would have to be random and unannounced, as a regular or pre-announced lottery would lead to unmanageable shifts in the demand for cash. For the same reason, ATMs would have to be cleared of winning notes immediately after lottery announcements: this would not be impracticable in Japan, as ATMs generally shut down at night.)

A corresponding technique could not, however, be used to impose a negative interest rate on cash. One might, indeed, imagine a lottery in which the bank notes with selected serial numbers were declared to be void. But those with the unlucky notes would not hand them in and accept their loss. Instead they would try and pass them on to others. Shops could install technology to detect invalid serial numbers, but this would be expensive, would prejudice shops' relations with their customers, and in any case there would always remain some areas of cash transactions where invalid notes could be passed on undetected.

Silvio Gesell and "stamp scrip"

There is, in fact, a scheme for implementing a negative interest rate on cash that was first proposed in the early years of the last century, attracted the support of two of the most eminent economists of the century, was put into practice (if only briefly), and judged a great success. The author of the scheme was Silvio Gesell,[34] a successful businessman turned armchair economist (and, briefly, Bavarian finance minister, in which capacity he narrowly escaped execution). He believed a "depreciating currency" would facilitate the economic management of business cycles, and also bring about what Keynes was later to call the "euthanasia of the rentier". Both Gesell and Keynes regarded this latter state of affairs (in which investments with no entrepreneurial input earned no return) as desirable (though Keynes thought it macro-economically problematic). Gesell believed it was the natural outcome of capital accumulation and was frustrated only by "non-depreciating currency"; Keynes also saw it as the likely eventual consequence of increasing affluence.

To achieve a negative interest rate on currency, Gesell proposed the introduction of "stamp scrip". The particular feature of scrip was that, to remain legal tender, currency notes would require to have a stamp attached to it at regular intervals. The note-holder

33 C. Goodhart (1986)

34 An English translation of Gesell's "The Natural Economic Order" can be found at http://www.systemfehler.de/en/neo/. Gesell's emphasis on eugenics may be off-putting for the modern reader but was not unusual for the age in which he wrote.

would have to pay for the stamps, thus incurring in effect a negative interest rate. A good critique of Gesell's ideas by Hugh Gaitskell[35] includes an account of the apparently highly successful local experiment with stamp scrip in Wörgl, Austria in the early 1930s. Irving Fisher was impressed by this experiment and by the theory behind it: he became a propagandist[36] for the stamp scrip movement in the US, which flourished briefly before the economic recovery ushered in by the New Deal. European scrips were eventually suppressed by central banks as the number of experiments threatened to get out of hand.

Keynes wrote that Gesell's followers had "bombarded" him with copies of the master's works. For a long time he had treated Gesell's "profoundly original strivings as no better than those of a crank", but had come to a very different view by the time of writing the "General Theory".[37] By then his verdict on Gesell's proposal for depreciating currency was one of guarded approval: that it "may carry with it the essence of what is needed". Both Gaitskell and Keynes, however, argued that the existence of non-cash forms of money (bank deposits etc.) meant that Gesell's proposals (which just covered currency) were inadequate to achieve their purpose. In this they were surely wrong. There is no difficulty in achieving negative interest rates on bank deposits, provided the interest rate on cash is sufficiently negative (see further discussion later on).

Finding ways to achieve a "depreciating currency" has hardly been a pressing problem for most of the post-war period. But the Gesell movement has kept going over the years in continental Europe and America, and now flourishes on the Internet, along with other "alternative money" movements. In recent years the movement has attracted adherents in Japan: a Japanese Gesell Research Society[38] was founded in the late 1990s, and is closely related to the burgeoning[39] Japanese "local currency" movement.

There is actually no necessary connection at all between Gesell's stamp scrip proposal and local currencies. It is just that no country has tried out the idea with its national currency; thus all the experience with stamp scrip has perforce been at a local level. Whatever the spread of local currencies may achieve for individual communities in Japan, these currencies seem unlikely by themselves to have a significant macro-economic effect. If people hold a small amount of depreciating currency but still have most of their money in a non-depreciating form, they can spend the depreciating currency quickly without total

35 H. Gaitskell (1933)

36 I. Fisher (1934). US "depression scrips" are now collectors' items.

37 J. M. Keynes (1936). Keynes discusses Gesell's ideas in chapter 23 (Notes on Mercantilism, etc.) pp.353-358.

38 Its web site, at http://www.grsj.org/, serves as a sort of alternative economics bulletin board. The site is in Japanese, though there is an automatic translation device on the site, which produces intelligible English some of the time.

39 "burgeoning" at least in the number of local currencies, put at 145 in early 2002 by Nikkei Regional Economic Report, No. 385, February 2002 (in Japanese); in many (most?) of these schemes the scale of transactions is very small, however.

spending being affected. To achieve higher aggregate spending, Japan needs negative interest rates on its national currency.

Is a national version of the sort of stamp scrips issued in the 1930s feasible? If scrip can be operated in one or two towns, it can in principle be operated in every town. And if it is feasible to stamp a fraction of the stock of cash, it is in principle feasible to stamp the whole stock of cash. But clearly regular stamping of all Japanese currency notes would use up a massive amount of time and resources. There might also be security problems for people taking money to and from stamping. Another major issue would be how to secure the technique of stamping against forgery.

Of course, even if monthly stamps, say, were required for notes to remain legal tender, all notes would not be stamped every month. Hoarded notes would need to be brought up to date only when put back into circulation, and no doubt many businesses would accept un-stamped notes at an appropriate discount. The negative interest rate on notes would reduce the amount of notes in circulation, as would the loss of anonymity of cash ownership that stamping notes might seem to imply. So the scale of the task involved would be very much less than stamping every month all the current stock of currency notes.

The greatest logistical problem would be the need to convert all of Japan's ATMs, vending and ticket machines to dispense and/or accept the scrip (and to distinguish between stamped and unstamped notes). This would be a much bigger and more disruptive job than the conversion that has just been completed in the euro area. The range of products available from Japanese vending machines is notoriously wide; while railway and subway tickets are normally purchased from machines in Japan, with the exception of shinkansen ("bullet train") tickets — stations generally do not have the facilities to handle a large volume of manual ticket sales.

Some modification of legal tender rules would also probably needed to allow banks and perhaps other businesses to discount the value of notes paid to them shortly before stamping was due. There is also the "problem of small change". Perhaps non-depreciating low denomination coins could co-exist with depreciating notes; but the higher denomination coins would need to be replaced by scrip. No doubt there would be other problems with implementing a stamp scrip in contemporary Japan; but as I intend later to propose an alternative I will leave the list here.

A "modern" version of Gesell

One recent paper sets out a design for a modern version of Gesell's proposal, which would involve smaller costs than the traditional scheme discussed in the previous section. The paper comes from an authoritative source: it is the work of Willem Buiter (one of the members of the Bank of England's Monetary Policy Committee at the time the first version

of his paper was written, and currently Chief Economist at the European Bank for Reconstruction and Development) and Nikolaos Panigirtzoglou, a researcher at the Bank of England.[40]

Buiter and Panigirtzoglou analyse cash as a sort of bearer bond that (at present) has a zero interest rate and no maturity date. Their idea is that the whole stock of currency would periodically be replaced by a new issue: the old issue would cease to have any value after a certain date, indeed after the expiry date old currency might be subject to confiscation without any compensation. Before expiry, old currency could be changed into new currency at an exchange rate different from one for one. For example, an old 10,000-yen note might be exchanged for only 9,000 yen in new notes. If an exchange on such terms were to take place every two years, say, the implicit annual interest rate on currency would be roughly minus 5.1 per cent. As the whole stock of currency could not be replaced overnight there would have to be a transitional period prior to each expiry date in which both old and new currencies were in circulation.

Buiter and Panigirtzoglou's scheme would certainly be less costly to implement than a more traditional scheme that involved physical stamping of notes. But it would still be costly, involving at each currency replacement the printing and storing of new notes ready for issuance; as well as the reprogramming of all ATMs and vending machines to recognise and accept the new currency, and to reject (and perhaps confiscate) the old currency after a certain date. Thus at every replacement period there would need to be something like the one-off exercise that has just been conducted in parts of Europe to replace national currency notes and coin with euro notes and coin (though the educational effort involved would be much smaller).

Currency tax via magnetic strip

An alternative proposal, by Marvin Goodfriend, is to impose a tax on currency, using a magnetic strip embedded in each currency note[41] to compute the tax due. The strip would record each time a note was put into circulation (issued at a bank counter or via an ATM). When the note was again deposited with the banking system a tax would be levied proportional to the period the note had been in circulation since its last issuance. Banks would also be taxed on their holdings of cash.

Suppose the tax was at a rate of 5 per cent a year. If a currency note was in circulation for two weeks at a time on average, it would attract a tax of just under 0.2 per cent, on average, each time it was re-deposited. Someone depositing a 1,000-yen note that had been

40 W. H. Buiter and N. Panigirtzoglou (2001)

41 M. Goodfriend (2000)

in circulation for two weeks would have his bank account credited with about 998 yen, with the bank deducting 2 yen to pay on the depositor's behalf to the tax authorities. Goodfriend suggests that as businesses normally deposit cash receipts almost immediately the tax payable would be small enough for them to ignore. Alternatively they might install machines that would read the magnetic strips to calculate the tax due on cash paid to them and charge their customers extra to cover the tax due.

The problem with this proposal is that while most notes are returned to the banking system quickly, not all notes are. At any time there would be some notes in circulation with significant amounts of tax due on them. If some businesses install machines to compute the tax payable on notes, those businesses that do not install machines and the customers of businesses that do install such tax-detector machines would find themselves receiving a disproportionate number of the notes that had been in circulation a long time. People paying cash in good faith to a counterparty who had not installed the necessary machinery might be open to a subsequent complaint of having passed off a note on which a lot of tax was due (and they would have no way of knowing whether the claim was true).

The underlying point is that, if Goodfriend's proposal was adopted, a 1,000-yen note might really be worth 999 yen, 995 yen, 980 yen or 950 yen, or none of these figures, and those without a tax-detector machine would not know what the value was. This uncertainty would greatly reduce the attraction of using cash. Businesses that had installed tax-detector machines might have an advantage over customers without the machines. But they might also find the machines swiftly becoming redundant as cash was displaced as a transactions medium.

A simpler way of achieving negative interest rates

Buiter and Panigirtzoglou's proposal does not introduce uncertainty about what any particular note is worth at a given time. One 1,000-yen note would always be worth the same as any other 1,000-yen note of the same vintage. However, they do not make clear that their proposal requires a money unit of account that is distinct from the value of cash. If a 1,000-yen note had to be handed in after two years for a new issue of 900 yen, there has to be a unit of account against which cash would depreciate between issue and conversion.

Supposing a 1,000-yen note is worth 1,000 yen in units of account at time of issue. With the assumptions used earlier (currency replaced every two years and 1,000 yen of old currency buying 900 of new currency) a 1,000-yen note due to expire in a year's time would be worth about 949 yen. If at that time I owed you 1,000 yen in units of account, and we agreed to settle the debt in cash, I would pay you a 1,000-yen note, and then another 54 yen in coins. (A 1,000-yen note could obviously no longer be legal tender for 1,000 yen.) In other words the proposal severs the link between money in the form of notes (and coins) and

money as a unit of account.

No less an economist than the late James Tobin has argued that "there must be store-of-value embodiments of a monetary unit of account".[42] But in fact history records plenty of examples of monetary units of account that did not have "store-of value embodiments". The Lsd system of money introduced by Charlemagne was originally just a unit of account. In Europe in the Middle Ages units of account ("ghost money") often related to coins that had disappeared completely from circulation.[43] To continue the medieval analogy, the proposed depreciating currency is a bit like coinage that is subject to continuous clipping and sweating and so is exchanged at an ever increasing discount to its face value.

But if we can live with severing the link between cash and the unit of account, imposing an interest rate on cash does not actually require all the trouble of having the currency expire at periodic intervals, or the time and expense of reprogramming every cash and vending machine to accept the new vintage of currency and reject the old. It is simply necessary for the government and the central bank to conduct transactions with the rest of the economy on basis that a 1,000-yen note, say, is not worth 1,000 yen but an amount that changes over time.

Bank notes and coin are put into circulation when a central bank supplies cash to a commercial bank and are removed from circulation when the cash is returned to the central bank. When the central bank supplies bank cash to a commercial bank it debits the commercial bank's account at the central bank, and credits the account when it takes bank cash back.

As the Bank of Japan has a monopoly in supplying new yen bank notes, it has freedom over the price at which it deals in them (ignoring legal tender rules, which can be changed to fit the requirements of economic policy). Suppose that the Bank of Japan did not debit and credit the Japanese commercial banks' accounts with exactly the face value of yen bank notes that it supplied or took back. If accounts were debited/credited with less than the face value of notes supplied/returned, banks would introduce this discount in their dealings with their own customers. For example, if a bank's account at the Bank of Japan was credited with only 950 yen when it returned a 1,000-yen note, the bank in turn would be willing to credit a customer's account with only 950 yen when he deposited a 1,000-yen note.

As a supermarket that banked 1 million yen of cash would be credited with only 950,000 yen it would in turn require its customers to pay 1,000 yen in cash for an item priced at 950 yen. Customers who settled by credit card (or any form of transfer from a bank account) would still pay 950 yen. If the Bank of Japan steadily increased the discount for cash supplied to/received from commercial banks, the gap between shops' accounting

42 J. Tobin (1985)

43 J. F. Chown (1994) pp. 7-19

prices and the cash cost of shop goods would also steadily increase. If accounting prices were stable, there would, in effect, be inflation in the cash cost of shop goods.

A steady increase in the BoJ's cash discount would be equivalent to a negative interest rate on cash. Suppose I withdrew money from my account when 1,000 yen cash was worth 950 yen, hoarded the cash, and then repaid it into my account ten months later when 1,000 yen cash was worth 850 yen. I would have lost about 10.5%, equivalent to an annual interest rate of around minus 12.5 per cent. I would therefore have been better off keeping the money in my bank account even if the bank account was subject to an interest rate of, say, minus 10 per cent p.a. I will therefore be willing to accept a minus 10 per cent interest rate on my bank deposit, as long as I need the liquidity the bank account provides.

It might be objected that in this last example it is misleading to talk of a negative interest rate on my bank account. Suppose I start the year with 95,000 yen in my account, and that if I withdrew all this from my account I would get 100,000 yen cash. Suppose, however, I keep it in my bank account, which is subject to a negative interest rate (minus 10 per cent a year). At the end of the year I have 85,500 yen in the account. If I now withdraw this from my account I get almost 103,000 yen cash (if the BoJ's cash discount increases at the rate assumed in the previous paragraph). So is not the true interest rate on my bank account positive (nearly 3 per cent), not minus 10 per cent?

Recall, however what has happened to the cash cost of shop goods while my money remained in my bank account. Assuming accounting prices were stable, and continuing the assumption about the rate of increase in the BoJ's cash discount, the cash cost of shop goods has gone up by 12.5 per cent over the year. While I can withdraw almost 3 per cent more cash if I leave my money on deposit until the end of the year, I will need 12.5 per cent more cash than if I had made a cash purchase at the beginning of the year. So my example implies a negative real interest rate (minus 10 per cent) with zero accounting price inflation, which would normally be thought of as another way of saying a nominal interest rate of minus 10 per cent. The trick of increasing the BoJ's cash discount, combined with a negative interest rate on bank deposits, would thus succeed in altering the relative cost of current as against future consumption, just as it would alter the relative return on equities as against keeping money in the bank, or on holding dollars relative to holding yen.

A negative interest rate on cash is a necessary condition for a (more than marginally) negative interest rate on bank deposits, but it is obviously not a sufficient condition. What else would the authorities have to do to cause banks to offer a negative interest rate on deposits? Even if there were a sharp fall-off in the use of cash, standard central bank techniques of control[44] would work with negative interest rates, as long as the negative interest rate set is smaller (in absolute terms) than the negative return on cash. For example,

44 As discussed in M. Woodford (2000).

if a minus 8 per cent interest rate was applied to commercial banks' balances at the central bank, with a slightly less negative rate for banks' borrowing from the central bank, the inter-bank market would set very short term market interest rates close to minus 8 per cent, and banks would pay on retail deposits a range of negative interest rates lying between minus 8 per cent and the negative return on cash.

This proposal to sever the link between yen cash and the yen as a unit of account may appear confusing and impractical. How is the Japanese consumer going to react to having to pay 1,000 yen, say, for items marked at 950 yen? Actually, the Japanese consumer has something like this experience most times he goes into a shop, as marked prices (except in some small outlets) are always net of the 5 per cent consumer tax. So for the consumer who is less than fully proficient at multiplying by 1.05 there is always an element of uncertainty at the cash till. Of course it cannot be denied that people will initially be confused and perhaps upset by the phenomenon of a 1,000-yen note that is not worth 1,000 yen; but the educational task required is surely much less than that recently required in the euro area.

Unlike the earlier proposals that involve introducing a new form of currency, my proposal would not involve Japanese vending machines etc. all needing to be reprogrammed simultaneously. As in earlier inflationary times, prices for goods sold in vending machines would need to be increased from time to time, and this will involve additional costs, but there would be no reason for disruption to services. Cash registers at checkouts might need to be programmed to apply an exchange rate between accounting prices and cash prices. Alternatively, in shops where all transactions are carried out in cash, marked prices could be simply be the cash prices (normally net of consumption tax, as at present).

As with the Buiter and Panigirtzoglou proposal, under my proposal a 1,000-yen note, say, could obviously not be legal tender to settle a debt of 1,000 yen. It might be possible simply to do without legal tender: the willingness of the Bank of Japan and the Japanese government to accept and issue yen notes at advertised rates might be sufficient support for the currency. (Within the UK, there are no legal tender notes in Scotland,[45] but cash transactions run as smoothly there as in England, where Bank of England bank notes are legal tender.) If legal tender is required in Japan, then the law would simply have to specify that a 1,000-yen note was legal tender for whatever amount the Bank of Japan was advertising at the time as its own rate for yen currency.

Although it involves no insuperable practical difficulty, the proposal made here is undoubtedly controversial and would require protracted debate before implementation. Just the announcement that the scheme was under consideration would have considerable benefits, however. There would certainly be an effect on the yen, which would weaken against other

45 Neither Scottish bank notes nor Bank of England bank notes are legal tender in Scotland. Bank of England 1 pound notes were legal tender, but when these notes were removed from circulation, Scotland lost its only legal tender notes.

currencies on the prospect of negative short-term interest rates in Japan. Likewise, longer-term Japanese interest rates could move into negative territory in advance of the actual implementation of negative short rates.

Just abolish currency?

If currency is the problem, and the proposal for a depreciating currency seems too complicated, then an alternative solution is to do away with cash altogether. James Tobin once suggested replacing currency with "deposited currency": individuals could hold deposit accounts in local branches of the central bank, perhaps located in post offices.[46] As Tobin notes, interest could be paid on such deposits (obviously he would have been thinking in terms of a positive interest rate, but if there were no currency but "deposited currency" then a negative interest rate would be equally feasible).

In the seventeen years since Tobin's suggestion, and especially in the last five years, there has been a considerable literature about whether electronic forms of money are likely to drive cash to extinction and about the implications of such a development for monetary policy. The conclusion on the former point seems to be that cash retains advantages over electronic means of payment in terms of cost, and has further attractions that should ensure its survival. Krueger, for example, presents data showing the costs per sale for German and US retailers of various payment methods, with cash appearing substantially cheaper than electronic measures.[47]

These comparisons consider the marginal private costs of cash and electronic transactions methods. Neither they nor the various unsuccessful tests of electronic purses settle whether it would be optimal for the economy for cash to survive. All they indicate is that cash is likely to survive, assuming that the authorities continue to support it. At least one country has concluded that it would pay to get rid of cash entirely. The Singapore Board of Commissioners of Currency, concerned that the total cost of handling cash will reach S$1 billion by 2006, thinks it "necessary to continue the search for a cheaper medium of exchange". It plans, no doubt optimistically, to replace cash with Singapore Electronic Legal Tender (SELT) by 2008.[48] (One claimed advantage for consumers from the introduction of SELT is that "consumers could earn interest on unspent SELT". The interest rate could, of course, be negative if macro-economic conditions required it.)

The Singapore authorities' motives for abolishing cash are not, it seems, related to

---

46 J. Tobin (1985). I am most grateful to Professor Yoichi Iwasa of Kansai University for drawing my attention to the relevance of this article.

47 M. Krueger (2000). For some further cost comparisons of transactions media, see C. Goodhart and M. Krueger (2001)

48 L. S. Kok, (2002)

macro-economic policy. But the macro-economic effects of abolishing cash and hence facilitating negative interest rates would, for a country caught in a liquidity trap, overwhelm any net savings (or net costs) of replacing cash with electronic legal tender.

Conclusion: not such a costly solution for Japan's deflation

To understand Japan's current predicament we can do worse than refer back to Keynes' prediction of the "euthanasia of the rentier". That prediction was based on some faulty analysis; in particular, his view of saving — that average saving propensities would rise with increasing affluence — was sociologically naive. In advanced societies, consumer spending is mostly dictated by competition for social position (children want the same expensive trainers as their friends, fathers want a car that is at least as prestigious as their colleagues'). So the ease of saving, and the risk of desired saving exceeding desired investment, do not increase with rising living standards in the way that Keynes supposed.

Japan has, nevertheless, now more or less achieved the stage of "euthanasia of the rentier", not because of trends in individual saving propensities but because of demographic change. While all OECD countries are facing some sort of "demographic transition", Japan is exceptional in the rate at which the average age of its population is rising, and possibly also exceptional in the degree of its citizens' self-reliance.

As shown earlier, there is currently a bulge in the Japanese population in the age group approaching retirement, and people in this age group tend to have a relatively high saving rate; at the same time the prospective decline in the labour force is reducing the scope for profitable investment. In textbook models with "perfect capital mobility" this excess of domestic saving would simply be reflected in a current account surplus large enough to fill the gap between saving and domestic investment. But Japan's unhappy history of "trade frictions" is evidence that "perfect capital mobility" is not a very useful characterisation of the real world.[49]

It is obviously inefficient for investment with negative returns to go ahead, but there may be no better alternative, in the absence of an omnipotent planner who could constrain aggregate Japanese saving to what can be profitably invested at home and harmoniously invested abroad. Thus far, Japan has partly coped with its excessive private saving by running fiscal deficits, including finance for many public investment schemes with large negative returns. It would be more efficient to crowd in some additional private sector investment with small (risk-adjusted) negative returns than to continue public investment at its current rate.

49 There is of course a substantial literature, starting with Feldstein and Horioka (1980), on the "paradox" of the high correlation of national saving and national investment: this correlation would not be found if capital was perfectly mobile internationally.

Some may feel that the proposal made here is more drastic than required to deal with what may be just a short-term, if extreme, cyclical problem. This objection would have force if it were correct. But Japan's demography may require negative real interest rates for a decade or more. The long-term position may therefore be that if Japan wants to have near zero inflation it has to have negative nominal interest rates. The implication of not achieving negative nominal interest rates would be abandoning price stability. Of course, my proposal would introduce inflation in terms of prices paid for in cash. But it would preserve price stability in terms of the unit of account.

The proposal made here has some further advantages for Japan. Firstly it would effectively widen the tax base, by reintroducing a significant contribution from seigniorage. As average currency outstanding is a little more than the government's annual tax revenue, a minus 10 per cent interest rate on cash would be equivalent to more than a 10 per cent increase in tax revenue, if the size of cash holdings was unaffected by the negative interest rate on cash. Clearly there would, in fact be a substantial reduction in cash holdings, but the contribution to the public finances would still be important. As Buiter and Panigirtzoglou note, taxing currency holdings is particularly attractive, as much of the tax will be paid by those involved in the "hidden economy" and illegal activity.

The proposal may also contribute to restoring the health of the banking system, by facilitating a widening of margins. At present deposit rates cannot fall below zero and the margins between deposit and loan rates are constrained by the competition banks face from capital markets (which affects what they can charge their larger borrowers). Put another way, the liquidity services provided by bank deposits are not being paid for, as they have traditionally been, through the mechanism of a deposit rate set well below market rates. There is a limit to the extent of cross-subsidisation that can be extracted from borrowers, while banks seem inhibited from making adequate explicit charges to cover the cost of the liquidity services provided by deposits.

The two other recent proposals for achieving a negative interest rate on money (by Goodfriend and by Buiter and Panigirtzoglou) may actually have been counter-productive in that they have given the impression that a negative interest rate on money, while feasible, would require expensive and disruptive technical change to implement. The latter authors conclude: "The transactions and administrative costs...would be non-trivial.... These "shoe-leather costs" of taxing currency have to be set against the potential benefits of avoiding the liquidity trap. It may take quite a lot of leather to fill an output gap." In other words, the costs of their proposal are high, though the costs of prolonged deflation may be still higher.

My proposal avoids all costs associated with supplying a new currency: no new currency is required. All that would be needed would be to educate people so that they could understand the valuation of yen currency under the new arrangement.

References

A. Ahearne, J. Gagnon, J. Haltmaier, S. Kamin (and others) "*Preventing Deflation: Lessons from Japan's Experience in the 1990s*" FRB International Finance Discussion Paper, Number 729 (June 2002)

B. Bernanke "*Japanese Monetary Policy: A Case of Self-Induced Paralysis?*" in R Mikitani and AS Posen (eds) "*Japan's Financial Crisis and its Parallels to US Experience*" Institute for International Economics Special Report 13 (September 2000).

A. Blinder "*Monetary Policy at the Zero Lower Bound: Balancing the Risks*" Journal of Money Credit and Banking (November 2000) part.2 pp.1093-1999

A. Borsch-Supan and A. Brugiavini "*Savings: the Policy Debate in Europe*" Oxford Review of Economic Policy Vol.17 No.1 (2001) pp.116-143

W. H. Buiter and N. Panigirtzoglou "*Liquidity Traps: Gesell's Solution*" *in* "*Reflections on Economics and Econometrics, Essays in Honour of Martin Fase*", edited by Wim F.V. Vanthoor and Joke Mooij, (2001) pp.13-58, De Nederlandsche Bank N. V, Amsterdam.

J. F. Chown "*A History of Money*" Routledge and the Institute of Economic Affairs (1994) pp.17-19

S. Davies "*Business Attitudes to EMU and the Risk to Stability*" in M. Baimbridge, B. Burkitt and P. Whyman (eds) "*The Impact of the Euro*" Macmillan (2000) pp.177-184

S. Davies and E. Harley "*Low Inflation: Implications for the FSA*" FSA Occasional Paper No.14 (2001)

M. Feldstein and C. Horioka "*Domestic Savings and International Capital Flows*" Economic Journal 90 (1980) pp.314-329

I. Fisher "*Mastering the Crisis: with Additional Chapters on Stamp Scrip*" G. Allen and Unwin (1934).

H. Gaitskell "*Four Monetary Heretics*" in GDH Cole (ed) "*What everyone wants to know about money*" Gollancz (1933)

M. Goodfriend "*Overcoming the Zero Bound on Interest Rate Policy*" Journal of Money Credit and Banking, (November 2000) part.2, pp.1007-1035

C. Goodhart "*How Can Non-Interest-Bearing Assets Coexist with Safe Interest-Bearing Assets?*" British Review of Economic Issues 8 (autumn): 1-12 (1986)

C. Goodhart and M. Krueger "*The Impact of Technology on Cash Usage*" LSE Financial Markets Group Discussion Paper 374, (April 2001)

G. Hoggarth and J. Thomas "*Will bank recapitalisation boost domestic demand in Japan?*" Bank of England Financial Stability Review, (June 1999) pp.85-93.

C. Y. Horioka "*Are the Japanese Selfish, Altruistic, or Dynastic?*" The Japanese Economic Review. Vol.53 No.1 (March 2002) pp.26-54.

C. Y. Horioka and W. Watanabe "*Why do people save? A micro-analysis of motives for household saving in Japan*" Economic Journal 107 (May 1997) pp.537-552

Japan Center for Economic Research "*Credibility of Government, Corporate, and Banking Sectors in Japan*" Japan Financial Report No.6 (2002)

B. Hunt and D. Laxton "*The Zero Interest Rate Floor and its Implications for Monetary Policy in Japan*". IMF Working Paper WP/01/186 (November 2001)

K. Kamada and K. Masuda "*Effects of Measurement Error on the Output Gap in Japan*" Bank of Japan Monetary and Economic Studies (May 2001)

J. M. Keynes "*The General Theory of Employment Interest and Money*" Macmillan (1936)

L. S. Kok, *Singapore Electronic Legal Tender* (SELT) — *A Proposed Concept, chapter 6 of The Future of Money* OECD (2002)

M. Krueger "*Private Banknote Issue Without Free Banking*" mimeo September 2000.

Nikkei Regional Economic Report, No.385, (February 2002)

P. Krugman "*The Return of Depression Economics*" Allen Lane (1999)

B. T. McCallum "*Monetary Policy Rules and the Japanese Deflation*" (paper prepared for March 2002 workshop sponsored by Economic and Social Research Institute of the Japanese Government)

T. Motonishi and H. Yoshikawa "*Causes of the Long Stagnation of Japan during the 1990s: Financial or Real?*" University of Tokyo Discussion Paper CIRJE-F-56 (1999);

S. Nakagawa "*Why has Japan's household savings rate remained high even during the 1990s?*" Bank of Japan Research Paper (July 1999)

H. Nakaso "*The financial crisis in Japan during the 1990s: how the Bank of Japan responded and the lessons learnt.*" BIS Papers No.6 (October 2001)

M. Shirokawa "*One Year Under 'Quantitative Easing'* "Bank of Japan Institute for Monetary and Economic Studies Discussion Paper No.2002-E-3 (2002)

L. Summers "*How Should Long-Term Monetary Policy Be Determined*" Journal of Money, Credit and Banking 23 (August 1991) part.2, pp.625-31

J. B. Taylor "*Discretion Versus Rules in Practice*" Carnegie-Rochester Conference Series on Public Policy 39: 195-214 (1993)

A. Thomas "*An Exploration of the Private Sector Response to Changes in Government Saving Across OECD Countries*" IMF Working Paper WP/01/69 (2001)

J. Tobin *Financial Innovation and Deregulation in Perspective* Bank of Japan Monetary and Economic Studies Vol.3 No.2 (September 1985) pp.19-29.

D. Woo "*In Search of "Capital Crunch": Supply Factors Behind the Credit Slowdown in Japan*" IMF Working Paper WP/99/3 (1999)

M. Woodford "*Monetary Policy in a World Without Money*" International Finance 3: 229-260 (2000).

KOBE ECONOMIC & BUSINESS REVIEW, 47 (2002), 117-141

THE PAST AND PRESENT OF "LOCAL CURRENCIES"; WITH ESPECIAL REFERENCE TO ENGLAND AND JAPAN.

STEPHEN J. DAVIES Kobe University

Abstract

The recent spread of "local currencies" in Japan is considered in the context of earlier local currencies, particularly in England and Japan, and also of rural Japan's tradition of labour exchange. The economist can best understand the role for local currencies in relation to the literature on trust and "social capital", using the latter term in the sense now used by Western economists and sociologists rather than in the sense normally understood in Japan.

JEL Classification: B59, E42, N13, N15, R51, Z13
Keywords: local currency, credit, reciprocity, social capital.

Introduction: currency diversity past and present

The years 2000 and, especially, 2001 saw in Japan a remarkable rate of birth of what are called in Japanese *chiiki tsuuka*, local currencies. A research report in February 2002[1] identified around 150 local currency schemes in operation (mainly on an experimental basis) with a further 50 soon to begin trial. Of those in operation the majority had started since the beginning of 2001.[2]

This wave of new local currencies in Japan follows, with a lag of almost a decade, the spread of Local Exchange Trading Systems (LETS) in the UK, Local Energy Trading Systems (LETS) in Australia, SELs in France, and similar schemes with different acronyms in many other countries, following the original Local Employment and Trading System (LETS) set up

Corresponding Address:
Stephen J. Davies
Research Institute for Economics and Business Administration (RIEB), Kobe University
2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
E-mail: sdavies@rieb.kobe-u.ac.jp
Phone/Fax: 81-78-803-7030

1 Nikkei *Regional Economic Report* (2002) (in Japanese)

2 The report did not cover the numerous older style *"fureai kippu"* types of scheme, discussed later in this paper.

in British Columbia in the early 1980s. An academic journal (*The International Journal of Community Currency Research*) was founded in 1997 to cover this subject. In most of the pioneer countries the period of rapid growth in schemes is over, indeed there may be some evidence of decline. For example, perhaps the best-known Australian scheme, Blue Mountain LETS, which had at one time a membership of over 1000 and covered several hundred square miles, has effectively collapsed, though efforts are being made to revive it on a much less ambitious scale.[3]

In a typical LETS/SEL, members perform services for or sell goods to other members in return not for payment in the national currency but for credits within the scheme that can only be used to purchase goods and services from other scheme members. Often the credits/debits created in the scheme are measured in a unit of account that has a name with some local significance; though in some schemes a more generic name is used (such as "green dollars"). The unit of account is normally understood to correspond roughly to a particular amount of the national currency, though some groups prefer to think of it as corresponding to an amount of work time. Credits are generally not convertible into national currency though those leaving a scheme may pay off debits in national currency.

At any moment some members in a scheme will have cumulated a net credit, while others will have cumulated a net debit. Groups differ in their attitudes to cumulated surplus and negative balances. The former may be discouraged by some sort of negative interest rate, the latter, when large and persistent, are sometimes seen as potentially threatening confidence in the scheme (members who cumulate ever-increasing deficits may be intending to drop out of the scheme without ever repaying the services they have received).

LETS are currently internationally the most widespread form of local currency. (Many LETS participants would not, incidentally, endorse the use of the term "local currency" or "local money". Some LETS activists see themselves as attempting to make money redundant, not to add a new money. And economists[4] also question whether the credits/debits in these schemes can be regarded as fulfilling the basic roles of money. I shall nevertheless here use the term "local currency" for convenience, as the term *chiiki tsuuka* is now so widespread in Japan.) Apart from LETS schemes there are several other arrangements that may also be regarded as local currencies, some of which included the circulation of a local paper money (the best known of these being Ithaca Hours).[5] Many accounts of these are available, in English[6] and Japanese, and I will not attempt a systematic classification, as I am here more concerned with the general motivation for local currencies than their administrative details.

---

3 According to email communications from those attempting the revival.

4 See, for example, the preliminary discussion in M. Fukushige (2002) (in Japanese)

5 See, for example, chapter 5 of D. Boyle (1999)

6 See for example http://www.socsystem.org.uk/aesreport/

Many economists would probably see no attraction in money that can be used within only a local area, with only a limited number of counter-parties, and to purchase only a narrow range of goods and services. But there are those (mainly sociologists rather than economists) who see monetary history as one of currency diversity, a diversity which has been suppressed by governments, particularly with the rise of the nation state, but which is constantly trying to reassert itself. Zelizer argues, for example, that "starting in the nineteenth century, the American state....taxed thousands of state-issued paper currencies out of existence, suppressed the private issue of tokens, paper notes, or coins by stores, businesses, churches, and other organisations".[7] (Rather confusingly for the economist, though, Zelizer also describes dollars earmarked for different purposes as different currencies: as in the subtitle to her book "pin money, paychecks, poor relief and other currencies".)

Local currencies in medieval Europe.

Cipolla describes an inverse relationship between centralisation of political power and currency diversity in medieval Europe:

"From the second half of the tenth century onward, in response to a growing demand for money, ...new mints were built all over Europe. In England, every mint in the kingdom struck coins in accordance with the standards (fineness and weight) stipulated by the king or by his officers. So although many new mints were founded, this did not result in a plethora of competing currencies. Things turned out differently on the continent. In Italy and Germany, where the central (imperial) power was conspicuously feeble, each individual town or prince that possessed the legal right to strike coins proceeded to do so, with the result that both countries were quickly swamped with money of all possible weights and alloys. The situation in France was midway between these two extremes. .... King Louis IX (1266-70) then proclaimed the principle that "the baron's coin might circulate exclusively within the borders of the barony whereas the king's coin shall circulate throughout the entire Kingdom."[8]

While the bill of exchange was developed in this period to finance international trade, beneath the king's coin and the baron's coin there eventually developed lower level monies to facilitate small value transactions. Of course, in the medieval village, there would be limited need for cash, as credit can serve most purposes in a small and stable community, but in the growing medieval towns, there would be much less trust/credit between neighbours.

Pastoureau[9] distinguishes between counters (in French, jetons) and tokens (French mereaux, German Marke). As their name indicates, counters were used (set out on a counting

7 V. A. Zelizer (1997) p.13

8 C. Cipolla (1993)

9 M. Pastoureau (1984)

board) for calculation, before arithmetic using written numbers became widespread in Europe in the later Middle Ages. Counters were normally made of metal, but stones could be used (as can be seen by the linguistic connection between the Latin word *calculus* (little stone) and calculate). Counters would obviously have been used, among other things, for counting credits and debits, so it is not surprising that they occasionally moved from unit of account to means of payment, to use as token money; just as coins that were no longer valid as money might find use as counters. The counters struck at Nuremberg were used in England from about 1328; the fact that they were forbidden from being used as currency by statute in 1335 presumably indicates that they had started to be so used.

Tokens were put into circulation by towns, guilds, charitable bodies, and religious communities. The most important category was church tokens. These existed from the beginning of the 13th century. Originally they were paid to canons for participation in church services and were exchangeable for food and clothing. Some canons distributed the tokens to the poor. Increasingly parishes paid tokens directly to the poor who attended services, or to workman in return for services. When the recipients had enough tokens they could convert then into bread, wine, clothing etc or into coins. Sargent and Velde note that "sometimes redemption was made in cash, and sometimes not by the issuer directly, but by an intermediary who provided the food and then returned the token to the issuer for cash".[10] Towns and other bodies started to issue tokens in imitation of churches. While, originally, most medieval tokens had a charitable purpose, their usage became more general in the 16th century.

The spread in use was primarily due to a lack of small change. The reasons for this included the apparent unprofitability of small coin production, and the reluctance of at least some sovereigns to be associated with base metal. Small silver coins might disappear from circulation at times as the market value of silver fluctuated relative to gold. Shortage of small change persisted until the nineteenth century. Cipolla saw the problem as essentially a failure of the authorities to understand or implement the formula for "a sound system of fractional money: to issue....small coins having a commodity value lower than their monetary value; to limit the quantity of these small coins in circulation; to provide convertibility with unit money.... In England it was not applied until 1816, and in the United States it was not accepted before 1853".[11]

One particular class of late medieval "local currency" was siege money. The main economic problem experienced in a besieged city would obviously normally not be a shortage of money, but an increasing shortage of goods and consequent inflation. Nevertheless, on numerous occasions, token siege moneys were issued, primarily to pay troops. Leather and

10 T. Sargent and F. Velde (2002), p.217. I have drawn other information from this book for this part of this paper.
11 Quoted by Sargent and Velde, from C. Cipolla (1956)

paper money was used as well as base metal tokens. These were to be redeemed for gold and silver money once the siege was relieved—if it was.

Monetary shortage and monetary diversity in England

As the use of token moneys became widespread they provoked varying degrees of repression from the authorities. In England policy fluctuated but was generally less repressive than elsewhere. According to Craig,[12] shortages of coin had been exacerbated in the second half of the sixteenth as "the tiny farthing had ceased entirely, and the halfpenny virtually, to be struck after Edward VI. Scarcity of change bred private substitutes of lead, brass, copper or even of 'paper or stuff'. In London alone unauthorised tokens for farthings were reckoned to be issued by 3,000 tradespeople to an average yearly amount of 5 pounds apiece." In 1582, Elizabeth I allowed Bristol to issue lead tokens to be current within 10 miles of the city.

Elizabeth's successor, James I in a proclamation of 19 May 1613 referred to the use of token currencies and the reasons for them:

"Whereas there hath been in times past some toleration in this Our Realm of Tokens of Lead....to pass between Vintners, Tapsters, Chandlers, Bakers and other the like Tradesmen and their Customers, whereby such small portions and quantities of things vendible as the necessity and use specially of the poorer sort of people doth oftentimes require may be conveniently bought and sold without enforcing men to buy more ware than will serve for their use and occasions; inasmuch therefore as the use of Farthing Tokens hath itself a good end, tending to parsimony and to the avoiding of waste in petty contracts and pennyworths; in which respect it cannot be but a a great comfort to the poorer sort of the People."

James made an issue of official farthing tokens to replace the private tokens. These were specifically not legal tender; no one was required to accept them in settlement 'otherwise than with their own good liking'. Craig notes that in 1624 the Council had to issue a reminder that the tokens were not legal tender and prohibit even their offer for more than two pence at a time.

It was the English Civil War of the 1640s that ushered in the great age of the private token. The Puritan revolutionaries disapproved on principle of base coin and prohibited the farthings in 1644. With the execution of the king in 1649, there was for more than a decade no sovereign to worry about any implied derogation from his sovereignty.

One English city where much token issuance was seen was Oxford; according to Leeds,[13] there were in total 70 Oxford issuers in about two decades starting in 1652. Minutes

12 J. Craig (1953)

13 ET. Leeds (1923)

of the Oxford City Council for 10 August 1652 record the initial decision to issue tokens:

"At this Council it is agreed and desired that there may be tokens made with the City Arms upon them and that the same tokens shall be delivered out after the rate of one and twenty shillings in tokens for twenty shillings in silver. And that hereafter when command shall be given for calling them in again that the City shall receive them back at the same rate of one and twenty shillings in tokens for twenty shillings in silver. And that Mr Mayor and the Thirteen be desired to make such Quantity as they in their Discretion shall think fit for the benefit of the City." (*note that I have modernised the spelling of the original document*)

Minutes of 14 August recorded spending 20 pounds on making tokens; eventually 12 varieties of City token were struck. It was a cheap way of obtaining credit for the City as they would (according to Leeds) have been able to strike around 100,000 farthing tokens (*i.e.* about 104 pounds worth) for 20 pounds.

Local tradesmen quickly followed the City Council into the issuance of tokens. Five months later the City reacted: Council minutes recorded for 24 January 1652 (1653 in the Gregorian Calendar, not adopted in England until a hundred years later) that it was "agreed that no tokens shall be passable in this City from party to party, or in exchange of money within this City, but such only as shall be set forth by this City. Except only as shall be set forth at any time by the Keepers of the Liberty of England by Authority of Parliament". The City Council did not succeed in establishing a monopoly on token issuance within Oxford, however.

The restoration of the monarchy at the beginning of the 1660s eventually led to the curbing of token issuance, with private tokens banned in 1672 by royal proclamation. The diarist John Evelyn wrote: "The tokens which every tavern and tippling-house in the days of anarchy amongst us presumed to stamp and utter for immediate exchange as they were passable through the neighbourhood, which, though seldom reaching further than the next street or two, may happily in after-time come to exercise and busy the learned critic what they should signify, and fill whole volumes with their conjectures.".[14]

Production of tokens resumed on a substantial scale in the eighteenth century. Craig mentions an issue by the Anglesey Copper Company in 1787 of a penny, with the head of a druid for effigy, which bore their name and could be exchanged for real money at any of their offices. The variety, like the quantity, of traders' tokens was immense. One commercial traveller who worked Chester carried fifty designs in his sample box. The final surge of token issuance was around 1809. Tokens for copper money were again prohibited by statute in 1817, with some years' grace for those issued by Sheffield from 1812 to 1817 and by the Birmingham Poor Law Authority from 1811 to 1815.

Meanwhile the eighteenth century in England had seen the widespread use of another form of (much higher valued) local currency. Between roughly the 1750s and 1840s, private

14 Quoted in G. Williamson (1970)

bank notes issued by English country banks became an important means of payment in England, generally useable only in the locality where they were issued.[15]

There are various reasons why local bank note issuance developed as it did in England in the eighteenth century. First was that in 1708 the Bank of England was given by law a monopoly of joint stock banking in England and Wales; the monopoly continued until it was abolished by legislation in 1826 and 1833. In this period English banks could be owned by no more than six partners, which precluded the development of nation-wide banks. (By contrast the Bank of Scotland had no such monopoly in Scotland, and national note-issuing banks emerged.)

Meanwhile the Bank of England was content to remain in many respects just the "Bank of London". Its notes did not circulate in substantial amounts far beyond the London —according to Pressnell "a radius of about thirty miles was sometimes cited....They were, in any case, of too high denomination for many purposes until the Revolutionary wars, and they had the further disadvantage that they were payable only in London".

An anonymous *Proposals for National Banks* issued in 1696 had suggested a "truly National Bank" in London with a network of branches. But there was no interest in branches in the Bank of England's Court. The Bank of England's historian[16] notes that the Bank of Scotland, established in 1695-6, had opened four branches; but two closed by end of 1696 and the other two by 1698. In 1719 Law's *banque royale* opened branches in the chief French cities and got its notes circulated in every province of the kingdom. But its subsequent collapse and Law's disgrace would have discredited all aspects of its organisation.

According to Pressnell, significant growth in the number of country banks started from around 1750. Growth in country banks became really marked from the 1780s. One source records 119 banks in England outside London in 1784; this almost trebled over the following decade and showed further rapid growth in the early 1800s. The 1844 Bank Charter Act forbade any further increase in volume of private issues. The last private issue ceased in 1921, when the last issuing bank taken over by Lloyds Bank.

Pressnell puts great emphasis on shortage of alternative means of payment as the driving force behind local note issuance. The "first group of bankers consisted of entrepreneurs whose approach to banking was strongly influenced by need to provide a local means of payment.... The industrial bankers would have been of smaller importance if the Mint and.... government had met their responsibilities for providing the country with an adequate currency. Silver issued was undervalued and driven out of circulation.... During the whole of the eighteenth century the quantity of sliver coined was less than 6 per cent of that struck between 1558 and 1694.... Copper coinage was so unsatisfactory....that practically none was

15 The classic source on this subject, which I quote extensively in this section, is L. Pressnell (1956)
16 J. Clapham (1944)

issued after 1754.... For larger payments, currency provided officially was hardly more satisfactory. More by accident than design the country was effectively on a gold standard from 1717, but fluctuations in market ratios, especially during war-time, drove the metal to the melting-pots, or subjected the coins to sweating and clipping; before and during the Suspension of Cash Payments the divergence of mint and market prices of gold was so great as to drive it largely out of circulation and out of the country.... A solution to the shortage of currency by the provision of a nationally controlled note-issue was rejected, practically from its foundation, by the Bank of England, which confined its activities to the London market.... Until the French wars (1793-1815) the smallest note was for 10 pounds; even when the Bank began to issue smaller denominations—5 pounds in 1793 and 1 and 2 pounds in 1797—the country's needs were not really met, because Bank of England notes were very easily forged and treated with great suspicion.

Thus the currency was in an unsatisfactory, even lamentable condition throughout the Industrial Revolution. Entrepreneurs were gravely handicapped; they required means of payment ....above all for workers' wages; but the monthly (or longer) settlements and bills of exchange that would do for other traders would not suit most workers, who required regular payment in readily acceptable money of low denomination".

According to Pressnell, at their peak the country bankers provided about as much of England and Wales' currency as did the Bank of England and the Mint. In 1805 the Earl of Liverpool was complaining that "if a traveller passes from one district to another, he must provide himself with the Notes of other Bankers which have credit within the district on which he is entering; and an inconvenience to which travellers have hitherto been subject, in passing from one small independent state on the continent to another, is experienced by those who travel through Your Majesty's dominions, in passing from one district to another".[17]

The local bank notes were, of course, fully convertible into gold sovereigns by the issuing bank. But that did not make them acceptable outside the area of operation of the issuing bank. People were not willing to accept the notes of an unfamiliar bank, whose soundness they would not be in a position to judge and whose genuine notes they would in any case be unable to distinguish from forgeries.

One other feature of monetary diversity in England, although it is not an example of a "local currency", was the widespread use of foreign coin. Isaac Newton in a letter of 1717 records that "foreign coins abounded in England" including "dollars of Scotland", "lewidors of France", and "Portugal Moydores". A contemporary noted that in 1713 there was no money in Exeter and the other cities of Devon and Cornwall other than Portuguese gold.[18]

---

17 1st Earl of Liverpool *A Treatise on the Coins of the Realm* (1805) reprinted in John R. McCulloch, ed. *A Select Collection of Scarce and Valuable Tracts on Money* New York, Augustus M. Kelley (1966 [1856]); the quote is found in M. Rowlinson (1999)

18 Referred to in M. Rowlinson (*op cit*)

This simultaneous circulation of a number of currencies was quite normal in Europe. Braudel records that "In 1614, 400 different currencies were circulating in the Netherlands; in France, at the same time there were 82."[19]

The historical private/local currencies in England that we have discussed so far have been in the main responses to shortage of money. A final historical example is a purely political or idealistic construction, and a forerunner of the modern "time-dollar".

Robert Owen argued in his *Report to the County of Lanark* for the creation of a new standard of value and basis for credit – foreshadowing the system introduced later in his Equitable Labour Exchanges.[20] "The natural standard of value," he wrote, "is in principle human labour, or the combined manual and mental powers of men called into action." He called for the practical application of this principle. "The average physical power of human labour can be ascertained; and, as it forms the essence of all wealth, its value in every article of produce may also be ascertained, and its exchangeable value with all other values be fixed accordingly; the whole to be permanent for a given period." ...."That which can create wealth is, of course, worth the wealth it creates. The producer should have a fair and fixed proportion of all the wealth which he creates." All articles must be exchanged at "prime cost", in which Owen apparently includes interest on capital, through a "convenient medium for expressing labour value".... The new standard would "benefit the landholder and capitalist as well as the labourer" by eliminating the risks due to commercial fluctuation and the evil system of "buying cheap and selling dear".

These ideas were finally put into practice when in September 1832 the National Equitable Labour Exchange began business in large premises in Gray's Inn Road. The new currency of "Labour Notes", which he issued from the Exchange, was the expression of the new measure of value. For a time the Exchange seemed a success, despite a tendency to accumulate an excess of goods that were overvalued in the labour standard relative to normal market value. In December 1832 a branch was opened for South London. A similar establishment in Liverpool followed soon after, and other branches and independent exchanges sprang up elsewhere. The "Labour Notes" for a time were fairly widely accepted in London, not only by supporters of the new system, but even by ordinary tradesmen.

In 1833 a branch was set up in Birmingham, and for a time this too was successful. But by the middle of 1834 business at both centres had considerably fallen off. The Birmingham branch wound itself up, paying all its debts in full, and sending a small surplus to the local hospital. The London body was a more serious failure, and Owen lost all the money he had spent on its development.

---

19 F. Braudel (1982) p.196

20 I have taken the account of Owen's ideas and the labour exchange experiment from G. Cole (1966) p.223ff

Monetary shortage and monetary diversity in Japan

The currency arrangements that developed in Japan during the Tokugawa Shogunate (1600 to 1868) had some superficial resemblance to those in England in the country-banking period of the late 18th and early 19th centuries. That is to say, a national (but inadequate) gold and silver coinage coexisted with local paper currencies (which were in principle fully convertible into the national coinage but were not generally useable outside their area of issuance), and with copper coins used for small local transactions.

There were also some major differences, however, starting with the political context. Japan was not fully unified in this period: the local rulers had a considerable amount of autonomy. Thus Morishima[21] can even write as if the Meiji restoration was on par with the unification of Germany: "The unification of Germany was achieved in 1871, but that of Japan came earlier, in 1868". The local paper moneys were issued not on the initiative of private banks but (after some initial private issuance) by the rulers of local domains (*hans*) who forced the use of paper money (*hansatsu*) on their subjects. In rural villages (*mura*) rice was also used as a general means of payment in this period. (Samurai salaries were paid in rice; and taxes were payable in rice until the Meiji restoration. Indeed in the more remote rural areas, rice was still used as an intra-village means of payment until around the middle of the twentieth century.) In the feudal villages of the Tokugawa period, direct payment for services and local products was less common and reciprocity much more important than in England at the same period.

In medieval Japan, rice and fabrics had been commonly used as a medium of exchange after the government ceased the mintage of coins in 958 A. D.[22] During the 12th and 13th centuries, with no domestic currency, a large amount of Chinese coins were imported by wealthy merchants and samurai groups. These imported Chinese coins came to be used as a medium of exchange throughout the country, and constituted the mainstay of the Japanese currency for a long time to come. It remained practically unaltered for the next 500 years, until the early 17th century, which was the beginning of the Edo period.

On taking power in 1600, Ieyasu, the first Tokugawa Shogun, monopolized the right to issue coinage; he started to issue gold and silver coins in 1601. From 1636 copper coins were minted in large amounts. Nevertheless in the early years of the Tokugawa Shogunate there was a chronic shortage of transactions media. Shimbo[23] notes that while there were an increasing number of transactions that were too small for the use of gold coins, more than four-fifths of the silver coinage minted in the seventeenth century flowed abroad.

The first paper currency issuance was private notes. Japan's oldest paper currency was

21 M. Morishima (2000), pp.121-122

22 According to M. Senoo (1996)

23 H. Shimbo (1972) pp.1-37 (in Japanese)

the *Yamada Hagaki*, issued from around the end of the 16th or beginning of the 17th century in the Ise area, the site of Japan's major Shinto shrine, and hence of much pilgrimage and associated commerce. Shimbo lists seven examples of further private note issues in the period up to around 1640, all in different parts of the Kinki region, which was then the commercial centre of Japan. In all these issues the largest denomination note was equal to 1 momme (a silver coin whose weight, 3.75 grams, was roughly half that of a contemporary English shilling); several of the issues also included smaller denomination notes, as low as 1 fun (one-tenth of a momme). The private note issues were backed by silver.

The first *hansatsu* note issues were in Fukui in 1661 (near the area where private paper money issuance had developed, but on the north-facing side of the country, where commerce was less advanced). Shimbo notes as a general feature of 20 *hansatsu* issues over the two decades from 1661 that use of paper money in this period spread out from the economically more advanced areas into other parts of Japan. Another feature was the issuance of much higher denomination notes. The largest denomination note in the Fukui issue was 100 momme (100 times the largest denomination note of the earlier private issues), while a Tottori issue in the following decade included a 2000 momme note. Although very small denomination notes were also issued, there were thus already signs that the motivation for note issuance had shifted from just making good a shortfall in small value transactions media.

Use of the *hansatsu* was soon generally made obligatory within the issuing *hans*. For example, in Tokushima a decree of 1681 made the local notes, first issued in the previous year, compulsory in all transactions for more than 2 fun. Travellers from other parts of Japan were also required to use the local notes within Tokushima. Gold and silver coins were used for payments between different *hans*. Thus rather than local notes used together with specie (the situation in England under country banking) the arrangement was, as Senoo points out, more analogous to separate "national" currencies (the various *hansatsu*) with specie held in reserves used to settle "international" transactions between *hans*.

The *hansatsu* continued in use until the Meiji restoration, apart from a period starting in 1707, when the central Tokugawa government banned them and required the *han* rulers to convert the paper notes back into specie. While some *han* rulers had fully backed their note issuance and were able to meet this requirement, the 1707 ban exposed others who had over-issued. For example, the Hiroshima *han*, which had first issued *hansatsu* in 1704, was able to convert only 40% of the stock of paper notes back into silver when the ban on *hansatsu* was announced in 1707.

The ban on *hansatsu* issuance was revoked in 1730—at least partly in response to severe deflation: the silver price of rice had fallen by almost half in the second half of the 1720s. Subsequently, and especially as the economic difficulties of Japan's feudal system mounted in the first half of the nineteenth century, over-issuance and consequent depreciation of *hansatsu* was widespread, although in some areas issuance was restrained and the local notes held

their value. At the time of the Meiji restoration the total value of *hansatsu* in Japan was equal to about a third of the value of gold coins in circulation. They were finally withdrawn as part of national currency reforms in 1871. (However, in 1877, the eight month Satsuma rebellion in South West Japan led by Takamori Saigo saw the renewed issuance of local notes: a sort of "siege currency". Special currencies were also issued for use by Japanese armed forces in subsequent military campaigns in the nineteenth and twentieth centuries, for example in wars against China and Russia.)

"Shortage of money" and the new local currencies

When one diagnoses a country or region as suffering from a "shortage of money", one can be referring to two (almost) distinct problems. There may be a shortage of the means of payment; in a similar sense, a millionaire who has left his wallet at home can be "short of money". Or there may be a shortage of credit: governments, firms or individuals being unable to spend because they do not have realizable assets and cannot borrow. (These categories of shortage are not completely unrelated: the availability of one-to-one credit disposes of the need for means of payment.) Shortage of small change is a very clear example of shortage of money in the means of payment sense. One can see paper money in Japan under the Tokugawa Shogunate as originally addressing a shortage of money in the sense of shortage of means of payment, but later and increasingly addressing the *hans*' need for credit.

When a country's means of payment consists only of specie there may be situations in which the authorities can do to little to ensure an adequate supply of means of payment; but with modern fiduciary currency there is really no reason why there should ever be a shortage of money (in the sense of shortage of means of payment) in an otherwise sound economy. In the UK, Ithaca (and elsewhere in the United States), France and Japan, to mention just four of the countries where many local currencies have been set up, central banks may affect demand for cash by changing official interest rates, but they supply all the cash that the public demands (and also adjust the composition of the supply of cash to demand), so that shortage of the transactions medium should not arise. (Shortage of small change was, however, a significant problem in Italy less than thirty years ago: telephone tokens, and sometimes sweets or cigarettes, were used to supplement the inadequate supply of low value coins.)

Thus if local currencies are to alleviate a shortage of money it must now be in the sense of creating additional credit, not of creating a transactions medium. It is quite clear that LETS systems do, in fact, create credit. When X performs a service for Y, paid for by a negative entry in Y's LETS account and a corresponding positive entry in X's account, that is credit creation. Likewise Ithaca Hours and other schemes that use local paper money

create credit when that money is put into circulation. Not only do LETS groups create credit but they may also be better than the established credit institutions at assessing who is worthy of access to credit (through membership of the LETS group).

However, the need for micro-credit cannot it itself warrant the creation of local moneys. Locally based micro-credit provision is feasible without local currencies; and credit provided would generally be more useful to the recipient if in the form of national currency than in a currency whose use is limited. Moreover LETS schemes are not generally able to differentiate in the amount of credit available to different members, and the amount of credit actually extended to members is a consequence of the transactions those members undertake, not a consequence of an assessment of what amount of credit each member is good for. Locally based micro-credit provision may thus be done more efficiently by micro-credit institutions, rather than through a LETS scheme. (Schemes such as Ithaca Hours are more flexible than LETS in this respect, as the local money can be created by the extension of different amounts of credit to selected participants.)

The increase in credit provision with some forms of local money, however, is not micro-credit extended to individuals, but credit extended to local government. This was clearly the case with the *hansatsu*, and with some of the stamp scrips of the 1930s. LETS schemes do not create credit for local government, but some of the types of local currencies seen in Japan (where NPOs pay for volunteer services by issuing a local currency, for example) do in effect create extra finance for local government sponsored activities.

LETS in the UK

In the UK the number of LETS schemes increased rapidly in the early to mid 1990s; but there is little evidence of their having a significant direct economic impact. The most up-to-date and comprehensive evaluation of LETS in the UK is provided by Aldridge, Lee, Leyshon, Thrift, Tooke and Williams[24] (all members of university geography departments in the UK). Based on replies to a postal questionnaire, they estimated UK LETS membership at a little under 22,000 (out of a total UK population of almost 60 million), and annual LETS turnover in the whole of the UK as 1.4 million pounds (compared with GDP running at close to 1,000 billion pounds).

Almost a half of survey respondents (49.4 per cent) said they had joined LETS for economic reasons (to trade); 22.9 per cent for social reasons (to make new contacts, to improve their local community etc.) 25.2 per cent for ideological reasons, and 2.5 per cent to improve their employability. Thus the most common reason for joining LETS is strictly

24 T. Aldridge, R. Lee, A. Leyshon, N. Thrift, J. Tooke and CC. Williams (2001); available at http://www.geog.le.ac.uk/ijccr/vol4-6/5toc.htm

economic, notwithstanding the evidence that the actual scale of resulting economic activity is small.

Since the change of government in 1997, considerable policy interest has focused in the UK on the problems of social exclusion and financial exclusion. (While the "socially excluded" are those who have dropped out of normal social life,[25] the "financially excluded" are those who do not use the most basic financial products.) The incoming government created a "social exclusion unit" within the cabinet office to co-ordinate policies affecting social exclusion across government departments. The newly created Financial Services Authority commissioned research into financial exclusion in relation to its consumer protection and consumer education objectives.

The research on financial exclusion concluded that while the interest-free credit provided by LETS was potentially of benefit to those on low incomes, in practice the benefits had turned out to be small. Many of the most basic goods and services were not available through LETS, while the most marginalized groups were generally not participating in LETS.[26]

Aldridge *et al.*[27] were more positive about the contribution LETS can make to reducing social exclusion. They found that LETS membership is "heavily skewed towards the socially excluded". And they note that, while only 5 per cent of their respondents said that LETS had directly helped them gain formal employment, many more had seen their employability improved by participation in LETS. 27 per cent of respondents (33.3 per cent of unemployed respondents) said that LETS participation had boosted their self-confidence, while 15 per cent of respondents (24.3 per cent of unemployed respondents) had acquired new skills. On the basis of this, and further interviews, they concluded that "LETS....provide a useful springboard into employment and self-employment for a small but significant proportion of members".

While there is something in what Aldridge *et al.* argue they are probably overstating their case. Peacock notes that LETS membership (in UK and Germany) is biased "towards those in gainful employment and those who are well educated and well off". In Germany "less than 5% of members in over half of the 25 LETS which responded to [his] request for information were unemployed".[28] Research in the UK shows that many of the unemployed members of LETS schemes are well-educated dropouts.

Local currency arrangements other than LETS are not very common in the UK. Edgar Cahn, the America originator of Time Dollars,[29] hints at some hostility to his variety of local

25 The UK government explains that "social exclusion is a shorthand term for what can happen when people of areas suffer from a combination of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health, poverty and family breakdown". http://www.socialexclusionunit.gov.uk/

26 *In or out?* FSA (2000) p.82

27 *op. cit.*

28 MS. Peacock (2000)

29 See, for example, D. Boyle (*op. cit*) *passim*

currency: "On my visits to the UK, proponents and organizers of LETS have been cordial but guardedly ambivalent. They challenged the intrusion of Time Dollars into their world, asking: "Why do we need still another currency? What can 'your currency' do that ours can't do as well or better?"[30] Thus conclusions about the significance of all types of local currency in the UK would not be materially different from conclusions about the impact of LETS.

Modern local currencies in Japan

Whereas in the UK the local currency scene is now almost monopolised by LETS, in contemporary Japan there are three distinct local currency "schools", and within these also considerable variety. Numerically the most important, and by far the longest established, though not acknowledged by some Japanese writers on local currencies, is what Lietaer[31] calls "Japanese Healthcare Currency" and Fukushige[32] calls "network-style local currency". In these schemes, volunteers earn credits in proportion to time spent helping the elderly or disabled. They can save these credits for eventual use when they themselves need help, or they can transfer them to someone else. There is also often some limited scope for converting credits into yen. Where schemes have branches in different regions of Japan, those who have moved from rural areas to the cities may be able to look after their ageing parents by proxy: *i.e.* doing voluntary work and transferring their credits to their parents.

This type of arrangement, also known as the "Exchange Ticket System" (*fureai kippu seido*), dates back to at least 1973 in Japan, when Teruko Mizushima founded the Volunteer Labour Bank. Fukushige identifies 535 localities in Japan where this type of currency is operating.

The two other local currency "schools" are much more recent, and have both contributed to the upsurge in new currencies since (particularly) 2001. One of these is the "ecomoney" movement associated with Toshiharu Kato, a former senior MITI official who became interested in local currencies during a posting at the Japanese consulate in San Francisco. While acknowledging the influence of LETS on his ideas, Kato has presented ecomoney as his own distinct invention. He has seen it as primarily a way of rewarding voluntary work, and has argued for keeping a distance between the "volunteer economy" (using ecomoney) and the monetary economy (using normal money). It is not, he has said, the purpose of ecomoney to stimulate the local economy (in contrast with LETS, which should at least in principle provide the means for stimulating transactions in goods and services that are also traded in the normal cash economy).[33]

30 E. S. Cahn (2001); http://www.geog.le.ac.uk/ijccr/vol4-6/5toc.htm

31 B. Lietaer (2001)

32 *op. cit.*

33 T. Kato (2000) (in Japanese) pp.57-8

In practice, some of the local currencies involved in the ecomoney movement cover a range of transactions that go well beyond volunteer activities.[34] And Kato himself has recently published a paper[35] under the auspices of the Japan Productivity Center for Socio-Economic Development that argues for using ecomoney as a means of escape from Japan's deflation. (Though, in fact, the mechanisms for economic revival that he describes in the paper relate more to micro-credit than ecomoney.)

The third local currency school (which Kato recognises in his recent paper as "ecomoney in the broad sense") is more obviously inspired by local money movements in Europe and America.[36] It is also intellectually related to the Gesell Research Society Japan.[37] It was given a great boost by "*Ende no yuigon*" (Ende's Last Message), an NHK television programme first broadcast in May 1999, in which interviews with the dying German writer about the nature and significance of money were interspersed with discussion of the ideas of Gesell and other "alternative" thinkers, the history of stamp scrip and other modern local currencies. Much of Ende's message was essentially an ethical argument against usury, a way of thinking that goes back to Europe's Middle Ages, when usury was regarded as a mortal sin. Indeed, one of Ende's parables about the theft of time echoes a medieval attack on usurers.[38] (Incidentally, as the interest rate on a savings account in Japan at present is unlikely to be much in excess of 0.01 per cent a year, concern about usury does seem rather anachronistic.)

The timing of the upsurge of new local currencies in Japan seems more clearly related to this television programme than to any other factor. Some local currency groups hold regular screenings of the video of the programme, particularly for the benefit of new members. A book based on it was published in early 2000,[39] and there has also been a sequel television programme, as well as many repeats of the original.

It is too early to get any idea of the eventual economic impact of these new currencies. While in a few cases they are financing quite large value transactions (such as purchases of second-hand cars and computers) and creating significant amounts of credit (up to ¥400,000

34 A list of local currencies (totalling around 60 as of mid-September 2002) is available (in Japanese) on Kato's website http://www.ecomoney.net/ (Some of the site is in English, but not the list of local currencies)

35 "Local currency (ecomoney) as a means of escape from Japan's economic predicament (deflation and so on)" July 2002. Available (in Japanese) at http://www.jpc-sed.or.jp/

36 A list of local currencies in this "school" can be found (in English and Spanish as well as Japanese) at http://www3.plala.or.jp/mig/japan-uk.html. The site also has sections on Gesell and Ende. As far as I can see, as of mid-September 2002, there was no overlap between the 31 local currencies listed on this site and those on the ecomoney website. This site, but not the ecomoney site, is widely included in lists of international local currency/ LETS Internet links.

37 http://www.grsj.org/

38 "Since they sell nothing but the expectation of money, which is time, they sell the day and the night. But the day is the time of light and the night of rest, and so consequently they sell light and rest". Stephen of Bourbon (d. 1261). Quoted in J. Munro (2001)

39 A. Kawamura, E. Morino, J. Murayama, H. Kamanaka (2000) (in Japanese)

per head in one case[40]) many of the schemes are going through a series of experimental stages, and the range of goods and (mainly) services available through the schemes is normally very limited.

Local currencies as an instrument of local economic finance

I have earlier discussed the potential role of local currencies in providing micro-credit. Many accounts of the effects of local currencies (including "*Ende no yuigon*") do not distinguish between schemes that involve micro-credit and the stamp scrip schemes of the 1930s that provided credit to local governments. Likewise, Maruyama[41] jumps from describing the role of *hansatsu* in financing local government to the potential role of LETS schemes in Japan without acknowledging that the latter do not normally create credit for local government.

Much of the current interest in local currencies among financially pressed local authorities in Japan derives from European and American experience with stamp scrips in the 1930s.[42] These scrips were issued by, for example, town halls; they were, in effect, subject to a negative interest rate, not (immediately) convertible into national currency and only useable within a limited geographical area.

The attraction of such scrips for local authorities is that, as they depreciate and can only be used locally, they may both raise total spending and change the composition of spending in favour of locally provided goods and services. Scrip circulates more quickly than national currency (because it loses its value if not spent) and does not leak from the local economy. Thus if the local authority puts a local scrip into circulation (e.g. by paying its employees and local suppliers in scrip) that spending may have a larger local multiplier effect than equivalent spending in national currency. Moreover, as local taxes can be paid in the scrip, taxes are paid more quickly (again to avoid the loss incurred in holding on to the scrip), bringing an additional benefit to the local authority's cash flow.

However, for the enhanced local multiplier to be observed the local scrip has to be a sufficiently large share of money in local circulation to affect people's budget constraints: if people can spend all the scrip they receive without spending more locally than they would have chosen to spend anyway, the use of scrip will lead to no additional multiplier effect. If people spend, say, 40 per cent of their income locally every month (the remaining 60 per

40 Information gained in discussion with members of the "yu" currency scheme in Hara Village, Suwa, Nagano Prefecture.

41 M. Maruyama (1999)

42 For a description of many of these schemes see Irving Fisher *Stamp Scrip* (1933). The book is difficult to obtain (at least in Japan), but the entire text can be downloaded from the Internet at http://userpage.fu-berlin.de/~roehrigw/fisher/ stamp1. html

cent being spent elsewhere or saved) then it should make no difference to their spending whether scrip accounts for 30 per cent of their monthly income, or 20 per cent, or whether all their income is in national currency. Only when scrip exceeds 40 per cent of their income would the timing and location of their spending be affected.

With a steady issuance of local scrip, however, the share of the local money stock accounted for by scrip would steadily increase, simply because the national currency part of people's incomes would tend to flow out of the locality while the scrip would accumulate locally (unless the constant inflow of scrip could all be taken out of circulation by the payment of local taxes). If businesses accepted the scrip but their customers were not willing to accept it in change (or forced by legal tender rules to accept it), the scrip would accumulate with businesses, which would eventually be unable to pay non-local suppliers. To the extent that this led to a diversion of orders to local suppliers, there would be a boost to the local economy.

Local authority employees would certainly be constrained by the properties of scrip if they received a large proportion of their salaries in scrip. But it is hard to see why regular employees or suppliers would (other than in desperate circumstances, such as those currently prevailing in Argentina) accept a large proportion of payment in scrip rather than national currency. Thus local monies issued by local authorities are, in normal circumstances, likely to be most useful in rewarding workers who are not primarily working for the financial return, *i.e.* as a form of payment for voluntary work.

This form of payment would probably not be possible in the UK (where remuneration of volunteers, above reimbursement of expenses, is illegal unless they are paid the minimum wage); but it is used in Japan. In addition to the "*fureai kippu*" type of currency, some of the more recent currencies—for example Oumi in southern Shiga—are issued by an NPO in return for voluntary work, and can be spent on services provided by or in association with the local authority. Rewarding volunteers in this way will obviously benefit local authority finances as compared to paying the equivalent compensation in yen, but is unlikely to have the large economic impact that was apparently seen with some of the 1930s scrip experiments.

"Atatakai okane/warm money"

This account of the rationale for local currency is so far missing an important element, perhaps the most important element. Kato is really referring to it when he describes ecomoney as "*atatakai okane*" (warm money).[43] Here we have to leave the normal realm of economics and enter that of sociology and psychology.

43 In the title of the first chapter of Kato (2000)

Money, in the words of Simmel, "is conducive to the removal of the personal element from human relationships through its indifferent and objective nature".[44] Simmel also compared the effect of the use of money to that of the typewriter (for him, a recent innovation) that displaced hand-written, and hence personalised, communication. Simmel welcomed money's role in liberating the individual from group-based life. A more negative way of looking at it is that it has dissolved the glue that bound traditional communities together. The use of money (national currency) to finance exchanges is not the same (in the implication for the level of trust in society, for example) as the use of reciprocity. Reciprocation is almost never immediate and reciprocity therefore inevitably involves credit/trust.

Anthropologists record that primitive societies often have a variety of moneys, with particular moneys only being acceptable for particular purposes. In modern societies money is in many circumstances not acceptable as a gift, even when it would be apparently be the most efficient gift.[45] (Japan is something of an exception to this rule, presumably because the tradition of money gifts has developed from what used to be the exchange of gifts of rice.) A gift of money is too "cold", too impersonal.

Still more significant is the finding that money is often unacceptable as a payment for services between friends and neighbours.[46] These are the very transactions that LETS schemes facilitate. Thus there is, after all, a sense in which LETS schemes may be making good a shortfall of transactions media, even in countries where the central bank issues cash on demand: the central bank is simply not competent to supply the sort of money that can be used to finance transactions between friends and neighbours.

In Japan (in contrast to Western Europe and North America) much of the replacement of reciprocity by monetary transactions has occurred relatively recently in rural areas, within the lifetimes of older village inhabitants. Such people may also remember the use of rice as a means of payment. Western sociologists and anthropologists noted the persistence of traditional forms of exchange in Japan both before and just after the Second World War. Embree, on the basis of fieldwork carried out in rural Kyushu in the mid-1930s estimated that "about 50 per cent of an ordinary farmer's living expenses are in money and about 50 per cent in kind. The increasing importance of the near-by towns as shopping centers has increased the money expense.... Formerly a farmer's living costs would probably have included less than 10 per cent of money expense".[47] A subsequent stimulus to the use of cash came when the 1946-47 Land Reform forbade the practice "until then general"[48] of paying of rents in kind.

---

44 G. Simmel (1990) p.297

45 See e.g. P. Webley, SEG. Lea and R. Portalska (1983)

46 P. Webley and SEG. Lea (1993)

47 J. F. Embree (1939)

48 T. Fukutake (1967)

Robert Smith, returning in the mid-1970s to the site of his doctoral fieldwork (in rural Shikoku), was struck by the decline in reciprocal and co-operative activity: "If asked to single out the one feature that best exemplified the character of rural communities in the early 1950's, most observers would have pointed to the complex patterns of cooperation and mutual aid....In the case of Kurusu, there were many such groups....The joint planting of rice seedbeds, transplanting, and harvesting were all occasions for organizing work on the basis of labor-exchange (*temagae*)..... Repayment of labor received was expected to be made in precise equivalents, even though no formal records were kept.... It was widely remarked in those days that with the introduction of cash and machines, the exchange system was in trouble and would fade rapidly. It did just that.... Since [the 1950's] Kurusu has come partly unstuck....there has been a partial disintegration of links between the households of the community."[49]

Labour exchange, which went under different names according to the region (*temagae, yui, moyai*), now survives mainly as a tourist attraction: every April, thousands flock to Shirakawago in Gifu Prefecture to see the whole village re-thatching a proportion of the village houses. (Minor forms of more or less compulsory collective activity — communal weeding or cleaning, often very early on a Sunday morning — together with rotating responsibilities for clearing up after rubbish disposal, or for collecting contributions to the local community association, still persist, however, sometimes even in city suburbs.)

Many members of Japan's new community currencies are very aware of the still recent tradition of reciprocity and see the local currencies as partly restoring the tradition (even though the members of the currencies in rural areas are overwhelmingly incomers from the cities, and have not personally experienced traditional Japanese village life). Members of a local currency in Nagano prefecture told me about the traditional use in that area of "*yui chou*" (reciprocal labour accounts), which they described as the Japanese precursor of LETS accounts.

Golfing Alone? (Social Capital in Japan)

The second half of the 1990s saw a massive in increase of interest among economists in the economic effect of communities and social networks, or what has become known as "social capital". While the concept was originally set out by Bourdieu in 1983,[50] its most popularly known exponent is Robert Putnam. His *Bowling Alone*[51] documents in great detail a collapse in various forms of social interaction in the United States since the 1960s, implying a significant decline in America's "social capital" over the last thirty years. In an

49 R. J. Smith (1978)

50 The article can be conveniently found as chapter 4 of M. Granovetter and R. Swedberg (eds) (2000)

51 R. Putnam (2000)

earlier and highly influential study he had explained the contrasting performance of southern and northern Italian regional governments by reference to their very different traditions of community activity.[52]

While the term "social capital" was used increasingly by economists, especially development economists,[53] during the 1990s, it seems to have almost as many definitions as it has users. Most definitions are, however, related to Putnam's own relatively clear explanation of the term: "By analogy with notions of physical capital and human capital....the core idea of social capital theory is that social networks have value. Just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective), so too social contacts affect the productivity of individuals and groups."

The OECD Glossary tells us that: "social capital is defined as the norms and social relations embedded in the social structures of societies that enable people to co-ordinate action to achieve desired goals". According to Sobel in a recent JEL survey[54] "social capital describes circumstances in which individuals can use membership in groups and networks to secure benefits".

Some economists are dismissive of the concept: Solow[55] calls it "an attempt to gain conviction from a bad analogy". Bowles and Gintis see some possible merit in the concept but suggest a change of name: "social capital.... may even be a good idea. A good *term* it is not. Capital refers to a thing that can be owned-even a social isolate like Robinson Crusoe had an axe and a fishing net. By contrast, the attributes said to make up social capital describe relationships among people....we think it better to drop the term in favor of something more precise. "Community" better captures the aspects of good governance that explain social capital's popularity, as it focuses attention on what groups *do* rather than what people *own*."[56]

Over and above the imprecision of the English definition, there is a further difficulty when talking about "social capital" in Japanese. The obvious translation of "social capital" in Japanese is "*shakai shihon*". "*shakai*" was established during the 1870s, after some competition, as the standard Japanese translation for "society", coming into widespread use in translations of the works of Herbert Spencer.[57] (It would not be quite correct to say that there had been "no such thing as *shakai*" before the 1870s; the word had previously meant a

52 R. Putnam with R. Leonardi and R. Nanetti (1993)

53 See for example the extensive section of the World Bank's website which is devoted to the subject: http://www.worldbank.org/poverty/scapital/. This provides an introduction to the subject and a comprehensive bibliography.

54 J. Sobel (2002)

55 quoted in Sobel (*op. cit.*)

56 S. Bowles and H. Gintis (forthcoming). Available at http://www-unix.oit.umass.edu/~bowles/index.htm

57 Douglas Howland (2002) is the source for all this information about the origins of the word "shakai".

religious group, and had been used by Dutch-learning scholars to refer to places of assembly.)

However, the translation of "social capital" as "*shakai shihon*" creates some risk of confusion and misunderstanding for Japanese economists. "*shakai shihon*" has been used in the past as an abbreviated translation for the very different concept of "social overhead capital",[58] whose full translation is "*shakaiteki koutsuu shihon*". The importance of social overhead capital has perhaps attracted more long-lasting attention in Japan than elsewhere, mainly because of the writings of Professor Hirofumi Uzawa.

In his overview contribution to a volume on Social Overhead Capital published in 1994,[59] Uzawa used the shorter term "*shakai shihon*" to cover "embankments, roads, harbours, gas and electricity supply, water supply and drainage, etc." (my translation). A Japanese dictionary of economics published the same year gives a very similar definition under the heading "*shakai shihon* [English: social capital]". Obviously *shakai shihon*/social capital thus defined is a form of physical capital, and is not at all what Putnam *et al.* mean.

To avoid the risk of confusion for Japanese readers, Yamagishi[61] uses the term "*kankei shihon*" (literally, "relationship capital") to refer to social capital *a la* Putnam. However, there is probably little future in Japanese scholars attempting to resist the use of "*shakai shihon*" in the sense (s) that social capital is now used by non-Japanese economists.[62]

It seems almost certain that Japan has experienced a decline in social capital in this sense over the second half of the last century, not only because of the decline of co-operative activity within rural villages but also because of the shift of population from the villages to the cities of Japan. Participation rates in voluntary social activities are much lower in the cities than in the villages of Japan. In the villages, in 1996, 33.1 per cent of the population aged 10 years and over took part in voluntary social activities (26.6 per cent took part in activities for the local community and neighbourhood). In medium-sized conurbations, the corresponding participation rates were 23.2 per cent and 16.7 per cent; in the large conurbations the participation rates were just 18.1 per cent and 11.3 per cent.[63]

---

58 Hirschman (1958) discusses the "recent distinction between Social Overhead Capital (SOC) and Directly Productive Activities (DPA)". He describes the logic of the distinction as "far from compelling" but theoretically and practically useful. As far as I can see, Hirschman uses the terms "Social Overhead Capital" and "Overhead Capital" but not the abbreviation "Social Capital". However a Japanese book on the subject published nine years later (by Miyamoto) was entitled simply "*shakai shihon ron*" (social capital theory)

59 H. Uzawa and A. Mogi (editors) (1994) (in Japanese). The Japanese title uses the non-abbreviated form "*shakaiteki koutsuu shihon*".

60 Iwanami Small Economics Dictionary. 3rd Edition (1994)

61 T. Yamagishi (1998) (in Japanese)

62 Of three papers presented at an "Economic Analysis of Social Capital" session at the autumn 2002 meeting of the Japan Economics Society, two were about infrastructure investment (social capital *a la* Uzawa) but the third was about optimal club size and volunteer activity (evidently more related to social capital *a la* Putnam)

63 Government of Japan Statistics Bureau *1996 Survey on Time Use and Leisure Activities* Volume 6 Table 31-1, p.296 (details in Japanese)

The time series of results from the quinquennial Time Use surveys do not go back far enough to pick up the main effects of the post-war exodus from villages to the cities, but even so, they show a 13 per cent fall in average time spent nation-wide in activities under the heading *kousai/tsukiai* (socialising and fellowship) between 1976 and 1981; since then, however, the amount of time spent in this way has been more or less stable. A rise in time spent on sport participation (some forms of which might contribute positively to social capital) more or less equalled the fall in socialising and fellowship between 1976 and 1981; this has also been quite stable in subsequent surveys. (As it happens, participation in bowling increased enormously between 1976 and 1996, from 1.6 per cent of respondents to 29.1 per cent of respondents, but only 0.1 per cent of respondents were "bowling alone" in 1996. Golfing alone was much more common—2.3 per cent of respondents—presumably mainly in the ubiquitous golf drive practice nets.)

Japan is often thought of as a "high-trust society"[64] and thus perhaps in no need of additional social capital. However, successive World Values Surveys show the level of trust in Japan lower than in the United States and even slightly lower than in the United Kingdom. Yamagishi[65] argues that a group-oriented society (such as in Japan) creates peace of mind but destroys trust: the rare stranger in the *mura* will be assumed to be a threat. (This is a logical extension of Fukuyama's argument that countries with family-oriented societies—such as China—have low levels of trust outside the family.) To create a higher degree of generalised trust, he argues, it is necessary not just to strengthen relationships (*kankei kyouka*) but also to expand relationships (*kankei kakuchou*).

Yamagishi presents the results of various questionnaire-based tests that showed Americans displaying a much higher level of generalised trust than Japanese. He also argues, and supports the argument with experimental evidence, that people who are ready to trust others are not in fact the gullible but those who are good at discriminating between those who are trustworthy and those who are not. Within the *mura*, there was not the chance to become skilled in such discrimination.

The creation of new networks through local currencies, the creation of trust relationships between scheme members, including the occasional experiences when trust is betrayed, can thus be seen as having a role to play in raising the level of generalised trust among the Japanese, or, in other words, in increasing Japanese "social capital".

Concluding remark

The extensive media coverage of local currencies in Japan over the last two years may

64 It is so categorised, for example, in F. Fukuyama (1995)

65 Yamagishi (1998)

imply some risk of exaggerating the potential role of local currencies in modern Japan. Suggestions that local currencies may make a major contribution to Japan escaping from deflation (as recently argued by Kato), or that they can make a big contribution to solving local authorities' financial difficulties are likely to prove overoptimistic. Their main role will probably be in:

- financing voluntary work;
- contributing to building networks and trust in Japan; that is to say in adding to Japan's social capital.

Further research is needed before we will have a clear idea of how important such contributions will be.

References

T. Aldridge, R. Lee, A. Leyshon, N. Thrift, J. Tooke and CC. Williams *The Role of the Third Sector in Paving a Third Way: Some Lessons from Local Exchange and Trading Schemes in the United Kingdom.* Journal of Community Currency Research (2001) Vol.5

S. Bowles and H. Gintis *Social Capital and Community Governance* Economic Journal (forthcoming)

D. Boyle *Funny Money* Harper Collins (1999)

F. Braudel *The Wheels of Commerce* (English translation) Harpers and Row (1982)

C. Cipolla *Money Prices and Civilisation in the Mediterranean World* Gordian Press (1956)

C. Cipolla *Before the Industrial Revolution* Routledge (1993)

J. Clapham *The Bank of England* CUP (1944)

GDH. Cole *The Life of Robert Owen* 3rd edition Archon Books (1966)

J. Craig *The Mint* Cambridge (1953)

J. F. Embree *Suye Mura A Japanese Village* University of Chicago Press (1939)

In or out? FSA Consumer Research Report No.3 (July 2000)

I. Fisher *Stamp Scrip* (1933).

M. Fukushige *Factors Influencing the Emergence of Community Currencies* The Nonprofit Review Vol.2 No.1, (2002) pp.23-24

T. Fukutake (trans R. Dore) *Japanese Rural Society* OUP (1967)

F. Fukuyama *Trust* Hamish Hamilton (1995)

E. Gilbert and E. Helleiner (eds) *Nation-States and Money* Routledge (1999)

M. Granovetter and R. Swedberg (eds) *The Sociology of Economic Life*, 2nd edition, Westview Press (2000)

A. Hirschman *The Strategy of Economic Development* Yale University Press (1958)

D. Howland *Translating the West. Language and Political Reason in Nineteenth-Century Japan.* University of Hawaii Press (2002)

Iwanami *Small Economics Dictionary.* 3rd Edition (1994)

T. Kato The *World of Ecomoney Begins* Kodansha (2000)

A. Kawamura, E. Morino, J. Murayama, H. Kamanaka *Ende's Last Message* NHK Publications (2000)

ET. Leeds *Oxford Tokens* pp.358-443 of *Surveys and Tokens* Ed. H. E. Salter Oxford Historical Society (1923)

B. Lietaer *The Future of Money* Century (2001)

M. Maruyama *Local currencies in pre-industrial Japan,* chapter 4 of E. Gilbert and E. Helleiner (eds) (1999)

M. Morishima *Japan at a Deadlock* Macmillan (2000)

J. Munro *The Origins of the Modern Financial Revolution: Responses to Impediments from Church and State in Western Europe, 1200-1600* University of Toronto Working Paper UT-ECIPA-01-02 (2001)

Nikkei *Regional Economic Report* no 385 (February 2002)

M. Pastoureau *Jetons, mereaux et medailles* Brepols Turnhout-Belgium (1984)

MS. Peacock *Local Exchange Trading Systems: a Solution to the Employment Dilemma?* Annals of public and co-operative economics (2000) Vol.71 No.1

L. Pressnell *Country Banking in the Industrial Revolution* Clarendon Press (1956)

R. Putnam *Bowling Alone* Touchstone (2000)

R. Putnam with R. Leonardi and R. Nanetti *Making Democracy Work: Civic Tradition in Modern Italy* Princeton University Press (1993)

M. Rowlinson *The Scotch hate gold,* chapter 3 of E. Gilbert and E. Helleiner (eds) (1999)

T. Sargent and F. Velde *The Big Problem of Small Change* (2002), Princeton University Press

M. Senoo *Yamada Hagaki and the History of Paper Currency in Japan* Bank of Japan Institute for Monetary and Economic Studies Discussion Paper 96-E-25 (1996)

H. Shimbo *A Study on Paper Money (Hansatsu) in Tokugawa Era* The Annals of Economic Studies Kobe University No.19 (1972) pp.1-37

G. Simmel (trans T. Bottomore and D. Frisby) *The Philosophy of Money* Routledge (1990) p.297

R. J. Smith *Kurusu. The Price of Progress in a Japanese Village* 1951-1975 Stanford (1978)

J. Sobel *Can We Trust Social Capital* Journal of Economic Literature (March 2002) Vol.XL No.1 pp.139-154

H. Uzawa and A. Mogi, (editors) *Social Overhead Capital. Cities and the Commons. Economic Affairs,* Volume 4. University of Tokyo Press (1994)

P. Webley and SEG. Lea *The partial unacceptability of money as a repayment for neighbourly help* Human Relations, 46 (1993), pp.65-76.

P. Webley, SEG. Lea and R. Portalska *The Unacceptability of Money as a Gift* Journal of Economic Psychology 4 (1983) pp.223-238

G. Williamson *Trade Tokens Issued in the Seventeenth Century A New and Revised Edition of William Boyne's Work* Burt Franklin NY (1970) (reprint of 1889-1891 edition)

T. Yamagishi *The Structure of Trust. The Evolutionary Games of Mind and Society.* University of Tokyo Press (1998)

V. A. Zelizer *The Social Meaning of Money* Princeton University Press (1997)

KOBE ECONOMIC & BUSINESS REVIEW
CONTENTS

No.46 (2001)

No.45 (2000)

No.44 (1999)

No.43 (1998)

No.42 (1997)

Published on February 2003
by
Research Institute for Economics & Business
Administration (RIEB)
Kobe University

2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501 Japan
Phone : 81-78-803-7036
F a x : 81-78-803-7059
Home Page at http://www.rieb.kobe-u.ac.jp/

Printed in Japan