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Choong Yong Ahn, President

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Finance and Economic Development in East Asia

Yung Chul Park, Wonho Song, and Yunjong Wang

October 2003
Executive Summary

Despite the increasing trend toward market-based finance systems, most East Asian countries still have bank-based systems. The purpose of this paper is to examine the extent to which bank-based financial development in East Asia has contributed to economic growth. To do this, a series of empirical analyses are conducted to gauge the effects of changes in the exogenous component of financial development on economic growth by using data on East Asian and Latin American countries for the 1960-97 period. Our empirical results show that the exogenous changes to financial development in East Asia have a strong, positive impact on growth rates. However, we find that there is weak evidence of a negative relationship between finance and growth for Latin American countries, a finding consistent with that of de Gregorio and Guidotti (1995).

Key words: Economic development, East Asia, finance, financial development, GMM
JEL Classification Numbers: G10, G20, O12, O16
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Finance and Economic Development in East Asia*

Yung Chul Park**, Wonho Song***, and Yunjong Wang****

I. Introduction

Financial systems and their evolutionary development have been a fundamental component of the overall economic development process in East Asia. This process has been driven by real economic growth and the attendant growth and changes in demand for various types of financial services, by institutional development within the financial system and by changes in government policies concerning finance.

Before the financial crisis broke out in 1997, East Asia’s financial systems, which are often known as bank-based systems, had been

* An earlier version of this paper was presented at the workshop on “A New Financial Market Structure for East Asia: How to Promote Regional Financial Market Integration,” held in Hawaii and hosted by Korea Institute for International Economic Policy, 7-8 February 2003. We thank Gordon de Brouwer, Barry Eichengreen and Takatoshi Ito for their helpful comments. All errors are our own.

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characterized as ‘repressive’ in the sense that loan allocation was con-
trolled and the interest rates on deposits and loans were set often
below market clearing rates by the government. In many East Asian
countries, financial repression was predicated on a development strat-
ey that used finance as an industrial policy instrument to achieve
multiple objectives with considerable success: promoting exports;
building physical infrastructure; and supplying long-term finance at a
low cost to manufacturing firms.

In the early 1980s, many East Asian governments began to relax
their controls on interest rates and the lending policies at banks and
non-bank financial intermediaries toward fostering capital markets
and gradually opening financial markets to foreign competition. The
process of financial liberalization had accelerated as the liberal ideol-
ogy of the Washington consensus swept through the region before
the crisis broke out in 1997. Since then, a large number of recent
studies on the 1997-98 East Asian crisis have named the structural
weaknesses of the East Asian financial systems as one of the major
causes of the crisis. Some of these studies even go so far as to assert
that the crisis is proof that the market-oriented Anglo-American fi-
nancial system works better than the intermediary-based East Asian
system (Frankel and Roubini, 2000).

The purpose of this paper is to analyze the role of finance in East
Asian economic development during the past three decades. More
specifically, this paper focuses on three issues in finance and growth
that remain controversial in the context of East Asia.

Many writers claim that East Asia’s financial systems, except for
those of Singapore and Hong Kong, have been quintessentially inter-
mediary or bank-based systems. Others argue that most East Asian
countries had established market-based financial systems by the early 1990s. One issue is therefore to analyze structural changes in East Asia’s financial systems to determine whether these systems have evolved from bank-based systems to market-based systems during the past three decades when East Asian economies had succeeded in sustaining rapid growth before succumbing to devastating financial crises in 1997-98.

Another issue is to examine the extent to which financial development has contributed to economic growth. To do so, this paper conducts a series of empirical analyses to gauge the effects of changes in the exogenous component of financial development on economic growth. These analyses may throw some light on the question of whether the repressive financial policy was effective in spurring economic growth before the 1997-98 crisis.

A third issue is related to controversy over whether inherent weaknesses of and the cumulative effects of government control over the financial systems had made East Asian economies highly susceptible to currency speculation and banking crisis by the time the entire East Asia was thrown into financial turmoil in 1997.

The rest of the paper is organized as follows. Section 2 discusses changes in East Asia’s financial structure since the early 1970s. Section 3 empirically examines the relationship between finance and growth using panel data for seven East Asian countries. Section 4 analyzes whether structural weaknesses of East Asia’s financial systems were responsible for the 1997-98 crisis. Concluding remarks are found in the final section.
II. Changes in East Asia’s Financial Structure

Historical experience shows that financial development in general proceeds from simple lending and borrowing arrangements to a system dominated by commercial banking and eventually to a broader system complemented by a variety of non-bank financial institutions and money and capital markets. Thus, in most developing countries, largely because of problems related to lack of information and inefficient legal systems, capital markets for primary securities such as stocks, bonds, mortgages and commercial bills are insignificant channels for mobilizing and allocating savings. Therefore, for all practical purposes, the banking system—broadly defined to include a variety of depository institutions—dominates the financial system and is usually the only organized credit market available.

Since most East Asian countries, with the exception of Japan, are either emerging markets or developing economies, this evolutionary process of financial development suggests that East Asia’s financial systems were, and still are, dominated by banks and other financial intermediaries. In fact, many authors claim that East Asian financial systems can be characterized as bank-based systems (Aoki 2000, Eichengreen 1999). It is also widely accepted that for more than three decades preceding the 1997 crisis, most East Asian countries had relied on the banking system as instruments of industrial policy as a means of mobilizing savings and allocating them to strategic industries and favored projects (Haggard 2000, Chapter 1).

This notion of bank dominance has been challenged in a series of recent studies on finance and growth. These studies argue that it may
not be appropriate to characterize East Asian financial systems as bank-based because by the mid-1990s equity markets had become an important source of financing for business investment in many of these countries. Demirgüç-Kunt and Levine (2001) constructed a conglomerate financial structure index in the 1990s in terms of the size, activity and efficiency of the financial system to gauge the relative importance of banks and capital markets. Specifically, the index is a simple average of three indicator series, of which means are removed. The three series are: the ratio of market capitalization to bank assets (size), the ratio of total value of equities traded to bank credit (activity) and the total value of equities traded/GDP multiplied by overhead cost (efficiency).

The indices of the eight East Asian countries in Table 1 show that except for Indonesia and Japan, all had developed a market-based system prior to the 1997 crisis. The high conglomerate index values for the six East Asian countries (excluding Indonesia and Japan) may be explained by a sharp increase in the total value of equities traded as a share of GDP as a result of aggressive equity market development policies in these countries in the first half of 1990s. Both market capitalization and the total value of equities traded as a share of GDP were relatively small throughout the 1970s and 1980s in all countries except for a few high-income countries. In terms of the size, even the United States would be classified as bank-based in the 1980s when the size of the equity market was relatively small.\textsuperscript{1)\footnote{Based on the data collected by Demirgüç-Kunt and Levine (2001), the size and activity of financial market structure of East Asian countries can be calculated, but the efficiency cannot be measured because data is not available. In terms of the size and activity, all East Asian countries}}
tion, both variables reflecting the size and activity of the stock market are highly volatile. For instance, the market values of stocks as a percentage of GDP fell dramatically, whereas a similar ratio for money plus quasi money did not in 1997 and has not returned to pre-crisis levels in Indonesia, Malaysia or Thailand (see Table 2). The stock market capitalization in all countries has been highly unstable compared to the banking indicator that includes money and quasi money. The market capitalization appears to vary a great deal with cyclical fluctuations of income and output. In contrast, the banking sector indicator tends to be much less sensitive to business cycles.

<Table 1> Classification of Financial Structures in East Asia

<table>
<thead>
<tr>
<th>Country Name</th>
<th>Financial Structure Index</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>-0.50</td>
<td>Bank-based</td>
</tr>
<tr>
<td>Korea</td>
<td>0.89</td>
<td>Market-based</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2.93</td>
<td>Market-based</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.71</td>
<td>Market-based</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.39</td>
<td>Market-based</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2.10</td>
<td>Market-based</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.18</td>
<td>Market-based</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.19</td>
<td>Bank-based</td>
</tr>
<tr>
<td>Great Britain</td>
<td>0.92</td>
<td>Market-based</td>
</tr>
<tr>
<td>United States</td>
<td>1.96</td>
<td>Market-based</td>
</tr>
</tbody>
</table>

Source: Demirgüç-Kunt and Levine (2001), p. 118
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>7.1</td>
<td>40.1</td>
<td>40.3</td>
<td>52.2</td>
<td>13.5</td>
<td>55.4</td>
<td>22.2</td>
<td>59.5</td>
<td>45.4</td>
<td>57.6</td>
</tr>
<tr>
<td>Korea</td>
<td>43.8</td>
<td>38.4</td>
<td>28.6</td>
<td>42.6</td>
<td>8.8</td>
<td>44.9</td>
<td>36.1</td>
<td>58.2</td>
<td>76.0</td>
<td>68.2</td>
</tr>
<tr>
<td>Malaysia</td>
<td>110.4</td>
<td>64.4</td>
<td>309.6</td>
<td>92.3</td>
<td>93.4</td>
<td>97.6</td>
<td>148.3</td>
<td>95.3</td>
<td>184.1</td>
<td>105.7</td>
</tr>
<tr>
<td>Philippines</td>
<td>13.4</td>
<td>34.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63.1</td>
<td>64.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>28.0</td>
<td>70.0</td>
<td>53.9</td>
<td>80.6</td>
<td>15.6</td>
<td>91.6</td>
<td>31.2</td>
<td>102.9</td>
<td>47.8</td>
<td>108.7</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>111.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>384.8</td>
<td>223.5</td>
</tr>
<tr>
<td>Japan</td>
<td>98.2</td>
<td>115.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.9</td>
<td>125.7</td>
</tr>
<tr>
<td>Singapore</td>
<td>93.6</td>
<td>93.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>236.8</td>
<td>122.8</td>
</tr>
</tbody>
</table>

Once the cyclical component is removed from both indicators, it is clear that market capitalization as a proportion of GDP declines substantially, whereas a similar change is not observed in the case of the banking indicator. Investors in the stock market tends to be influenced by their expectations of economic prospects: when they perceive of an economic downturn, they would move out of the market en masse, and vice versa. In relationship banking, which is a salient feature of the East Asian banking, bank lending tends to be less cyclical. Taking a period average of the market capitalization will reduce the cyclical bias of the indicator depending on the period chosen to some extent, but not completely. For this reason, changes in stock market capitalization do not necessarily reflect the corresponding structural changes in the deepening of the stock market and hence are not good indicators of financial development. Using the capitalization data adjusted for the business cycle, one can argue that East Asian financial systems were bank- or financial intermediary-based during much of the period under discussion.

By using a Hodrick-Prescott filter, we construct the trend measure of financial structure based on the data collected by Demirgüç-Kunt and Levine (2001). As shown in Table 3, the UK can be classified as having a market-based financial system in the 1970s and 1980s. Again, the U.S. cannot be classified as having a market-based financial system. In East Asia, Malaysia and Singapore can be said to have had market-based financial systems in the 1980s. However, in the second half of 1980s, Japan had figures comparable to those of the U.S. In sum, this relative measure of financial structure in terms of the size cannot be said to be a reliable indicator. Furthermore, the measure of financial structure in terms of activity is more problematic.
Almost every East Asian country (except Japan) shows an increasing trend, and figures are quite high, reflecting that in the first half of 1990s, Korea, Malaysia and Singapore had much higher market activities vis-à-vis banking activity than the U.K. In this regard, there are no universally reliable indicators for measuring the structure of the financial system.

<table>
<thead>
<tr>
<th></th>
<th>ST_Size_HP</th>
<th>75-79</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95-97</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.050(0.012)</td>
<td>1.076(0.004)</td>
<td>1.024(0.035)</td>
<td>0.975(0.018)</td>
<td>1.063(0.032)</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>0.590(0.005)</td>
<td>0.621(0.015)</td>
<td>0.705(0.045)</td>
<td>0.968(0.124)</td>
<td>1.340(0.106)</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>0.118(0.002)</td>
<td>0.135(0.011)</td>
<td>0.177(0.012)</td>
<td>0.199(0.004)</td>
<td>0.211(0.004)</td>
<td></td>
</tr>
<tr>
<td><strong>East Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.001(0.001)</td>
<td>0.001(0.003)</td>
<td>0.042(0.037)</td>
<td>0.254(0.096)</td>
<td>0.522(0.070)</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>0.279(0.043)</td>
<td>0.454(0.072)</td>
<td>0.674(0.053)</td>
<td>0.679(0.042)</td>
<td>0.556(0.033)</td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>0.241(0.013)</td>
<td>0.251(0.034)</td>
<td>0.487(0.103)</td>
<td>0.686(0.017)</td>
<td>0.648(0.025)</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.764(0.021)</td>
<td>0.857(0.041)</td>
<td>1.159(0.188)</td>
<td>2.084(0.364)</td>
<td>2.909(0.171)</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>0.226(0.023)</td>
<td>0.199(0.023)</td>
<td>0.477(0.161)</td>
<td>1.116(0.224)</td>
<td>1.621(0.105)</td>
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<tr>
<td>Singapore</td>
<td>NA</td>
<td>1.728(0.263)</td>
<td>1.143(0.085)</td>
<td>1.254(0.115)</td>
<td>1.538(0.062)</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>0.079(0.004)</td>
<td>0.108(0.022)</td>
<td>0.274(0.088)</td>
<td>0.587(0.094)</td>
<td>0.754(0.022)</td>
<td></td>
</tr>
<tr>
<td><strong>Latin America</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>0.102(0.005)</td>
<td>0.089(0.004)</td>
<td>0.166(0.052)</td>
<td>0.410(0.095)</td>
<td>0.644(0.056)</td>
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</tr>
<tr>
<td>Brazil</td>
<td>NA</td>
<td>0.445(0.041)</td>
<td>0.494(0.010)</td>
<td>0.536(0.045)</td>
<td>0.678(0.040)</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>0.766(0.000)</td>
<td>0.561(0.083)</td>
<td>0.676(0.167)</td>
<td>1.446(0.282)</td>
<td>2.084(0.136)</td>
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</tr>
<tr>
<td>Mexico</td>
<td>0.313(0.019)</td>
<td>0.249(0.016)</td>
<td>0.434(0.136)</td>
<td>1.067(0.254)</td>
<td>1.761(0.188)</td>
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<tr>
<td>Uruguay</td>
<td>NA</td>
<td>0.010(0.000)</td>
<td>0.017(0.005)</td>
<td>0.037(0.007)</td>
<td>0.050(0.002)</td>
<td></td>
</tr>
</tbody>
</table>

Note: The measure is constructed based on the data collected by Demirgüç-Kunt and Levine (2001) by using the Hodrick-Prescott filter. The numbers in parentheses are standard deviation values.
### Table 4: Trend Measure of Financial Structure in Terms of Activity

<table>
<thead>
<tr>
<th>ST_Activity_HP</th>
<th>75-79</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95-97</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.277(0.001)</td>
<td>0.316(0.030)</td>
<td>0.429(0.030)</td>
<td>0.504(0.029)</td>
<td>0.581(0.017)</td>
</tr>
<tr>
<td>United States</td>
<td>0.161(0.033)</td>
<td>0.287(0.049)</td>
<td>0.463(0.065)</td>
<td>0.808(0.170)</td>
<td>1.349(0.161)</td>
</tr>
<tr>
<td>Germany</td>
<td>0.013(0.018)</td>
<td>0.100(0.041)</td>
<td>0.247(0.043)</td>
<td>0.313(0.005)</td>
<td>0.334(0.009)</td>
</tr>
<tr>
<td><strong>East Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.001(0.000)</td>
<td>0.001(0.001)</td>
<td>0.017(0.016)</td>
<td>0.108(0.043)</td>
<td>0.237(0.037)</td>
</tr>
<tr>
<td>Japan</td>
<td>0.150(0.039)</td>
<td>0.304(0.061)</td>
<td>0.465(0.025)</td>
<td>0.371(0.063)</td>
<td>0.219(0.035)</td>
</tr>
<tr>
<td>Korea</td>
<td>0.130(0.003)</td>
<td>0.202(0.057)</td>
<td>0.518(0.131)</td>
<td>0.829(0.057)</td>
<td>0.881(0.008)</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.162(0.007)</td>
<td>0.143(0.008)</td>
<td>0.352(0.156)</td>
<td>1.159(0.328)</td>
<td>1.920(0.168)</td>
</tr>
<tr>
<td>Philippines</td>
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<td>0.064(0.009)</td>
<td>0.168(0.058)</td>
<td>0.408(0.092)</td>
<td>0.635(0.052)</td>
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<tr>
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<td>0.438(0.080)</td>
<td>0.749(0.097)</td>
<td>0.909(0.019)</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.119(0.013)</td>
<td>0.102(0.016)</td>
<td>0.265(0.085)</td>
<td>0.490(0.037)</td>
<td>0.465(0.030)</td>
</tr>
<tr>
<td><strong>Latin America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>0.056(0.003)</td>
<td>0.048(0.002)</td>
<td>0.092(0.029)</td>
<td>0.201(0.033)</td>
<td>0.271(0.017)</td>
</tr>
<tr>
<td>Brazil</td>
<td>NA</td>
<td>0.377(0.047)</td>
<td>0.424(0.019)</td>
<td>0.455(0.053)</td>
<td>0.645(0.060)</td>
</tr>
<tr>
<td>Chile</td>
<td>0.132(0.039)</td>
<td>0.039(0.017)</td>
<td>0.048(0.020)</td>
<td>0.144(0.038)</td>
<td>0.238(0.022)</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>NA</td>
<td>0.001(0.000)</td>
<td>0.003(0.002)</td>
<td>0.009(0.002)</td>
<td>0.012(0.001)</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.071(0.035)</td>
<td>0.223(0.068)</td>
<td>0.461(0.064)</td>
<td>0.596(0.037)</td>
<td>0.715(0.038)</td>
</tr>
<tr>
<td>Peru</td>
<td>0.034(0.004)</td>
<td>0.047(0.007)</td>
<td>0.113(0.038)</td>
<td>0.291(0.071)</td>
<td>0.453(0.034)</td>
</tr>
<tr>
<td>Uruguay</td>
<td>NA</td>
<td>0.001(0.000)</td>
<td>0.001(0.000)</td>
<td>0.002(0.000)</td>
<td>0.002(0.000)</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0.001(0.000)</td>
<td>0.005(0.009)</td>
<td>0.073(0.036)</td>
<td>0.207(0.043)</td>
<td>0.324(0.034)</td>
</tr>
</tbody>
</table>

Note: The measure is constructed based on the data collected by Demirgüç-Kunt and Levine (2001) by using the Hodrick-Prescott filter. The numbers in parentheses are standard deviation values.

Empirical studies also support this evolutionary process of financial development. According to Demirgüç-Kunt and Levine (2001), national financial systems tend to become more market oriented as
countries become richer. In higher income countries, they show that financial systems are more developed with the stock market becoming more active and efficient relative to banks.

What are the economic, institutional and social changes that lie behind the observed causal nexus between the sophistication and diversification of finance on the one hand and economic growth or the other? One plausible explanation is provided by a legal approach to the determination of financial structure and financial development. According to the legal-based view, financial contracts are defined and effective by legal rights and enforcement mechanisms. Therefore, it follows that a well-functioning legal system facilitates and improves the operation of both financial institutions and markets (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1999). In a recent paper, Levine (2000) shows that the legal rights and effectiveness of contract enforcement are strongly associated with long-run growth: the legal system is a crucial determinant of financial development. In another empirical paper on the legal-based view, Levine, Loayza and Beck (2000) show that the legal rights of investors, the efficiency of con-

2) Specifically, La Porta et al. (1998) classify countries into those with civil and common law origin. They find that common law origin countries are characterized by higher efficiency in contract enforcement. Common law countries are also documented to offer stronger legal protection of outside investors’ rights, for both shareholders and creditors. The legal decision process is also more predictable in common law systems. From these observations, they assert that common law systems are inherently superior to civil code legal systems in encouraging financial and economic development. By contrast, Chan-Lee and Ahn (2001) suggest that better enforcement rather than legal origins are critical.
tract enforcement and the accounting systems help explain the cross-country differences in the levels of financial development.

One important implication of the legal approach to finance is that countries with the English common law tradition tend to have market-based financial systems as they stress the rights of minority stockholders. Other legal origins such as the French civil law and the German civil law systems are associated with underdeveloped and bank-based systems. For example, the German legal system, which stresses creditor rights to a much greater degree than other systems, has beneficial repercussions for financial intermediary development. It is also shown that countries with weak accounting standards and explicit or implicit deposit insurance systems are likely to have bank-based financial systems. Among the advanced economies, Germany and Japan have a bank-based financial system. Japan’s legal system was molded after the German system. Japan was not known for strong accounting standards comparable to Anglo-American ones and had not instituted a formal deposit insurance system until the early 1990s. These legal and institutional features may explain the bank-based dominance of the Japanese financial system of the past.

Related to the legal approach, there is also the argument that the bank-based system is more efficient than the market-based system in monitoring corporate governance and performance of borrowers. The cross-country historical evidence and the case of Japan, indicate that under certain conditions, banks are better able than securities market institutions to evaluate the credit-worthiness of borrowers and the viability of new projects, monitor the ongoing performance of firms and to rescue or liquidate firms in distress. There are several reasons for this relative superiority of the bank-based financial systems over
corporate monitoring. Securities markets are ineffectual devices for exerting corporate controls. Insiders often do have more and better information about the corporation than outsiders largely because of the free rider problem that dissuades individual investors from spending time and money on researching firms. When stock markets become deep and liquid, they encourage more diffuse ownership so that each owner has fewer incentives to oversee managers actively.

In many developing countries, developing efficient legal systems and strong accounting standards is costly and takes time. In the absence of a credible accounting standard and transparent corporate governance, nascent equity markets can hardly perform the role of monitoring corporate behavior. In economies with a underdeveloped legal system, it would be relatively easier to protect creditor rights such as the rights of depositors than stockholders. It is because protection for depositors can be provided by government controls on banking institutions and the provision of implicit deposit insurance whereas protecting stockholders requires elaborate legal and regulatory systems and effective mechanisms of contract enforcement.

Debates on the relative merits of bank-based and market-based financial systems remain inconclusive. Historically, empirical research on the bank-based versus market-based debate has centered on Germany and Japan as bank-based financial systems and the United States and Great Britain as market-based systems (Beck and Levine,

3) See Allen and Gale (1999), Beck and Levine (2001), and Boot and Thakor (1997) for more references regarding the relative merits of bank-based and market-based financial systems in fostering economic performance. In particular, Allen and Gale (1999) argue that banks and stock markets are fundamentally different in the ways that they process information.
2001, p. 1). Beck and Levine (2001) recently compiled a new, broad cross-country database with measures on financial structure and examined the impact of financial structure on industrial expansion, the creation of new establishments and the efficiency of capital allocation across industries. In sum, they found that evidence was inconclusive for the market-based or the bank-based hypothesis. Instead, their empirical results support the financial services view. According to the financial services view argued by Levine (1997), the bank-based versus market-based debate is of second-order importance. The first-order issue is the ability of the financial system to ameliorate information and transaction costs, not whether banks or markets provide these services. Furthermore, banks and markets might act as complements in providing financial services (Boyd and Smith 1998; Huybens and Smith 1999).

The financial service view may be right in view of the disappearance of the traditional walls separating banking from securities and insurance business as a result of financial deregulation and market opening. Nevertheless, the relative importance of the banking sector to capital markets deserves further analyses because it is largely unknown whether differences in the financial structure have any bearing on financial market susceptibility to financial speculation, panic and mania.
III. The Role of Finance in Economic Development in East Asia

Empirical studies on correlation between economic development and financial sophistication suggest that financial institutions and markets play important roles in economic growth and development. However, it has been difficult to explain theoretically either the importance or the evolutionary process of financial structure. This difficulty stems largely from the lack of understanding of the mechanism of interactions between the financial system on the one hand and the real sector of the economy on the other. As a result, both the quantitative and qualitative importance of the efficiency of financial structure remains controversial.

Since the early 1980s, most of the studies on the interaction between finance and real economic variables have been particularly concerned with informational asymmetries as determinants of the behavior of financial markets and institutions. This application of information theory shows that financial contracts and institutions are endogenously and simultaneously determined together with real variables. It shows that the spending decisions of individual consumers and firms are influenced by financial variables such as rationed credit, balance sheet positions and cash flows. By providing more accurate information about production technologies and by exerting

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4) Robert Lucas (1998, p. 6) asserts that economists ‘badly over-stress’ the role of financial factors in economic growth, while development economists frequently express their skepticism regarding the role of the financial system by ignoring it (Levine 1997).
better corporate controls, banks can enhance resource allocation and accelerate growth.

Empirically, King and Levine (1993a) and Levine and Zervos (1998) show that the level of financial intermediation is a good predictor of long-run rates of economic growth, capital accumulation and productivity improvements. Beck, Levine and Loayza (2000) also find that higher levels of banking sector development produce faster rates of economic growth and total factor productivity growth. However, they do not find a robust relationship between banking sector development and physical capital accumulation or private saving rates. From these empirical results, they infer that banks affect economic development primarily by influencing total factor productivity growth rather than capital accumulation.

The theory also implies that information asymmetries reduce the level of financial market activity and increase the market’s sensitivity to exogenous disturbances, making the economy susceptible to financial crisis. The greater the degree of moral hazard and adverse selection problems, the greater the reduction in intermediation activity, and hence the lower the level of real investment and output.

With the sustained progress in financial market deregulation and opening, there has been a renewed interest in both theoretical and empirical research on the causal relationship between financial development and economic growth in recent years. Endogenous growth models use either capital externalities or capital goods produced using constant returns to scale but without the use of non-reproducible factors to generate steady-state per capita growth (Romer 1986; Lucas 1988; and Rebelo 1991). Based on these models, financial intermediation permits an economy to reduce the fraction of its savings
held in the form of unproductive liquid assets and to prevent the misallocation of invested capital due to liquidity needs (Bencivenga and Smith 1991; Boyd and Prescott 1986; Greenwood and Jovanovic 1990; King and Levin 1993b; Beck, Levine and Loayza 2000). Thus, the functions performed by the financial system affect steady-state growth by influencing the rate of capital formation.5)

Many researchers have provided empirical findings on the finance-growth relationship and have offered a much bolder appraisal of the causal relationship: firm-level, industry-level and cross-country studies all suggest that the level of financial development exerts a large, positive impact on economic growth. However, there have been only a few empirical studies in the context of East Asia. In explaining the superb growth performance of the East Asian countries, the role of financial development has hardly been mentioned.6)

In this section, we will investigate the relationship between finance and growth in East Asian countries. For the sake of comparison, we will also examine Latin American countries. Most previous studies including the ones mentioned earlier conclude that there is a strong and positive relationship between finance and growth. In con-

5) Levine (1997) discusses how specific market frictions motivate the emergence of financial instruments, markets and institutions and how these financial arrangements provide various financial functions that affect saving and allocations decisions in ways that influence economic growth.
6) See Choe and Moosa (1999) for the case of Korea and Aziz and Duenwald (2002) for the case of China. Both country studies find that financial development in general leads economic growth and that financial intermediaries are more important than capital markets in this relationship.
trast to this ‘conventional wisdom,’ Favara (2003) shows that the relationship is weak or ambiguous. De Gregorio and Guidotti (1995) found that for Latin American countries there is a strong negative relationship between financial intermediation and long-run growth. They obtained this result using as the financial development indicator ‘credit,’ which is the ratio of domestic credit from the central bank and commercial banks to the private sector to GDP. Our analysis differs from theirs in two aspects: First, we use as the financial development indicator ‘private credit’ which is the credit by deposit money banks and other financial institutions to the private sector divided by GDP. Second, we use a more efficient generalized method of moments (GMM) panel estimator, while they use the traditional random effect model.

7) Their empirical results were in sharp contrast with other cross-country studies in that there is a strong negative correlation between financial intermediation and growth during the 1970s and 1980s in Latin America. They explained this puzzling evidence by pointing out that financial markets in these sample countries were exposed to extreme conditions. After years of financial repression in Latin America, the 1970s witnessed substantial efforts to liberalize domestic capital markets in several of these countries. Many of these experiments collapsed in the early 1980s.

8) Since there are no such accurate and comparable indicators available for a large cross-country sample and over a longer time-span, most empirical studies rely on a proxy variable such as private capital. Although this proxy measures only part of the mobilized savings, it measures the part that is channeled to private firms. Although it is not a direct measure of efficiency, it captures part of it since it excludes credit to the private sector by the central bank, assuming that the latter is less efficient than private intermediaries in allocating resources.
Arellano and Bond (1991) developed the GMM estimator specifically for dynamic panel data models. This estimator improves upon cross-section analysis that was frequently used in empirical growth literature. Cross-section regression estimates have at least three drawbacks: First, they do not utilize the time-series variation of the data. Second, these estimates may be biased due to the omission of country-specific effects. Third, they do not control for the endogeneity of all the regressors. An additional disadvantage of cross-section analysis is that suitable instruments needed to cure endogeneity of the regressors are not easy to obtain. The GMM dynamic panel data methods can solve all these problems. That is, they exploit the information from the time series dimension, allow for individual effects and use lagged values of the regressors as instruments for the endogenous variables, including the lagged dependent variable. Applications of this method to the study of economic growth in relation to financial development are found in Levine, Loayza and Beck (2000) Beck, Levine and Loayza (2000) and Favara (2003), among others.

More specifically, we consider the following dynamic panel data version of the traditional growth regression:

\[ y_{i,t} - y_{i,t-1} = \alpha y_{i,t-1} + \beta x_{i,t} + \gamma FIN_{i,t} + \mu_i + \epsilon_{i,t} \]

where \( y_{i,t} \) is the logarithm of income per capita in country \( i \) in period \( t \), \( x_{i,t} \) is a vector of conditioning set, \( FIN_{i,t} \) is a financial development indicator, \( \mu_i \) is a country-specific unobservable effect and \( \epsilon_{i,t} \) is an idiosyncratic disturbance. A lagged dependent variable is included to control for convergence.

We estimate the coefficients using the difference GMM dynamic
panel estimator of Arellano and Bond (1991). The estimation is carried out as follows. First, we take first differences of all the variables, then the right hand side variables are instrumented using lagged values of the regressors. Under the assumption that the errors are serially uncorrelated, levels of the series lagged more than two periods are valid instruments for the equations in the first difference. Hence, the consistency of the GMM estimator depends both on the validity of the instruments and on the validity of the assumption that the error term does not display serial correlation. For the first condition, we use the Sargan test of over-identifying restrictions, and for the second we test whether the differenced residuals \( (\varepsilon_{1-t} - \varepsilon_{1,t-1}) \), which are probably first-order serially correlated by construction, exhibiting second-order serial correlation. Failure to reject both tests supports our specifications.

For this GMM method, two estimators, one-step and two-step GMM estimators, are available. In the one-step estimator, the error term is assumed to be independent and homoskedastic across coun-

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9) It is known that the system GMM estimator of Arellano and Bover (1995), which complements the difference specification with the original regression in levels, offers improvements in both efficiency and consistency over the difference GMM estimator. In this paper, however, we do not report the results from the system GMM estimator because we encountered complex numbers in most runs. This may be because our sample size is limited and we use more instruments than cross sections (7 countries for East Asia and 12 countries for Latin America). The problem is less serious with the difference GMM estimator. In addition, we do not report the results from cross-section analysis due to lack of cross-sectional units.
tries and time; in the two-step estimator, the residuals of the first step are used to consistently estimate the variance-covariance matrix of the residuals, relaxing the assumption of homoskedasticity. Although the two-step GMM estimator is asymptotically more efficient in the presence of heteroskedasticity errors, standard errors associated with the two-step estimator are known to be downward biased and thus may be inaccurate.\(^{10}\)

Hence, a one-step GMM estimator with standard errors corrected for heteroskedasticity is a better choice. Below, we report results from both one-step and two-step GMM estimators for comparison. To run the regressions, GAUSS program DPD98, which is written by Arellano and Bond (1998), was used.

As mentioned above, the empirical framework to evaluate the independent effect of financial development on economic growth is the one based on growth equation. The dependent variable is the growth rate of the real per capita gross domestic product (GDP). The independent variables include the financial development indicator, along with the conditioning information set. In the conditioning information set, we include inflation rate and government spending as indicators of macroeconomic stability, openness to trade to measure the degree of openness of a country and average years of secondary schooling as an indicator of the human capital stock in the economy. We use ‘private credit’ as a financial development indicator. We average data over non-overlapping five-year periods so that data permits six to eight observations per country (see the Appendix 1 for more details).

The data used in our analysis covers the 1960-1997 period, al-

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10) See Arellano and Bond (1991) and Blundell and Bond (1998) for more details.
though the sample periods are different across countries. Sample periods used for each country are reported in Appendix 2. East Asia includes seven countries (Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore and Thailand), and Latin America covers 12 countries (Argentina, Barbados, Bolivia, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Peru, Uruguay and Venezuela). Tables 5 and 6 provide summary statistics for all variables used in the estimation. These statistics refer to a panel with yearly observations. There are many differences between East Asian and Latin American countries, especially in growth rates, inflation rates and the degree of financial development.

<Table 5> Summary Statistics for East Asian Countries

<table>
<thead>
<tr>
<th></th>
<th>Growth</th>
<th>Initial</th>
<th>Inflation</th>
<th>Govern.</th>
<th>Openness</th>
<th>Schooling</th>
<th>P_credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.75</td>
<td>7255</td>
<td>7.05</td>
<td>11.18</td>
<td>95.64</td>
<td>1.56</td>
<td>63.09</td>
</tr>
<tr>
<td>Median</td>
<td>4.82</td>
<td>2362</td>
<td>4.86</td>
<td>10.66</td>
<td>55.03</td>
<td>1.46</td>
<td>48.44</td>
</tr>
<tr>
<td>Max</td>
<td>12.51</td>
<td>42186</td>
<td>46.67</td>
<td>18.77</td>
<td>439.03</td>
<td>4.65</td>
<td>207.89</td>
</tr>
<tr>
<td>Min</td>
<td>-9.54</td>
<td>298</td>
<td>-1.84</td>
<td>6.65</td>
<td>15.92</td>
<td>0.32</td>
<td>3.90</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>3.43</td>
<td>10491</td>
<td>7.13</td>
<td>2.27</td>
<td>102.46</td>
<td>0.99</td>
<td>47.82</td>
</tr>
</tbody>
</table>

<Table 6> Summary Statistics for Latin American Countries

<table>
<thead>
<tr>
<th></th>
<th>Growth</th>
<th>Initial</th>
<th>Inflation</th>
<th>Govern.</th>
<th>Openness</th>
<th>Schooling</th>
<th>P_credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.51</td>
<td>3006</td>
<td>105.04</td>
<td>11.06</td>
<td>45.91</td>
<td>1.30</td>
<td>22.07</td>
</tr>
<tr>
<td>Median</td>
<td>1.77</td>
<td>2399</td>
<td>16.49</td>
<td>10.76</td>
<td>40.15</td>
<td>1.29</td>
<td>18.13</td>
</tr>
<tr>
<td>Max</td>
<td>20.46</td>
<td>7785</td>
<td>11750</td>
<td>22.42</td>
<td>142.97</td>
<td>4.28</td>
<td>68.16</td>
</tr>
<tr>
<td>Min</td>
<td>-14.19</td>
<td>766</td>
<td>-0.80</td>
<td>2.98</td>
<td>10.34</td>
<td>0.16</td>
<td>1.86</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>4.21</td>
<td>1871</td>
<td>711.28</td>
<td>3.18</td>
<td>26.59</td>
<td>0.76</td>
<td>13.04</td>
</tr>
</tbody>
</table>
The estimation results are shown in Tables 7 and 8 for East Asian and Latin American countries, respectively. The first column gives two-step estimates, the second reports one-step estimates, and the p-values of coefficient estimates are in parentheses. P-values for the Sargan test and the second order serial correlation test are reported in the bottom of the tables. High p-values for these two tests give support to the validity of the instruments and hence the consistency of the GMM estimates.

<Table 7> Estimation Results for East Asian Countries

<table>
<thead>
<tr>
<th>Variables</th>
<th>Two-Step</th>
<th>One-Step</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient (p-values)</td>
<td>Coefficient (p-values)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0175 (0.563)</td>
<td>0.0240 (0.003)</td>
</tr>
<tr>
<td>Initial Income</td>
<td>-0.2580 (0.003)</td>
<td>-0.1800 (0.001)</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.1044 (0.023)</td>
<td>0.0267 (0.261)</td>
</tr>
<tr>
<td>Government</td>
<td>-0.1019 (0.249)</td>
<td>-0.1155 (0.001)</td>
</tr>
<tr>
<td>Openness</td>
<td>-0.2133 (0.048)</td>
<td>-0.0295 (0.222)</td>
</tr>
<tr>
<td>Schooling</td>
<td>0.9412 (0.144)</td>
<td>0.1057 (0.376)</td>
</tr>
<tr>
<td>Private Credit</td>
<td>0.0737 (0.039)</td>
<td>0.0395 (0.002)</td>
</tr>
<tr>
<td>Sargan Test</td>
<td>1.000</td>
<td>0.782</td>
</tr>
<tr>
<td>Serial Correlation Test</td>
<td>0.404</td>
<td>0.448</td>
</tr>
</tbody>
</table>

Notice first that all our models pass the specification tests. In Table 7, two-step results show that initial income per capita, inflation and openness are significant at the usual 5-percent level. Government and schooling variables have less power in explaining the variation of economic growth. Our focus is on the private credit coefficient. It has positive sign and is significant at the 5-percent level. This implies
that exogenous changes of financial development have a strong and positive impact on the growth rates, as argued by Levine, Loayza and Beck (2000) and Beck, Levine and Loayza (2000).

\textbf{<Table 8> Estimation Results for Latin American Countries}

<table>
<thead>
<tr>
<th>Variables</th>
<th>Two-Step Coeff. (p-values)</th>
<th>One-Step Coeff. (p-values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.0118 (0.300)</td>
<td>0.0133 (0.052)</td>
</tr>
<tr>
<td>Initial Income</td>
<td>-0.2138 (0.029)</td>
<td>-0.0817 (0.001)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.0417 (0.001)</td>
<td>-0.0210 (0.003)</td>
</tr>
<tr>
<td>Government</td>
<td>-0.0732 (0.160)</td>
<td>-0.0659 (0.057)</td>
</tr>
<tr>
<td>Openness</td>
<td>-0.1838 (0.092)</td>
<td>-0.0582 (0.152)</td>
</tr>
<tr>
<td>Schooling</td>
<td>0.0459 (0.751)</td>
<td>-0.0295 (0.828)</td>
</tr>
<tr>
<td>Private Credit</td>
<td>-0.0470 (0.004)</td>
<td>-0.0186 (0.223)</td>
</tr>
<tr>
<td>Sargan Test</td>
<td>0.683</td>
<td>0.485</td>
</tr>
<tr>
<td>Serial Correlation Test</td>
<td>0.712</td>
<td>0.687</td>
</tr>
</tbody>
</table>

Column 2 reports the results from the one-step estimator. As noted earlier, one-step results are more reliable in finite samples, while two-step results are asymptotically more efficient. The results show that the signs of the coefficients do not change compared with those from two-step results, although their magnitude and significance change somewhat. Notice that private credit becomes even more significant at the 1-percent level. From both results, we conclude that the exogenous component of financial development exerted a positive and significant impact on economic growth in the case of East Asian countries.

The results for Latin American countries show different pictures from those of East Asian countries. Two-step estimates show that pri-
Private credit has a strong and negative relationship with economic growth. This result is consistent with that of De Gregorio and Guidotti (1995). However, its significance falls to 22 percent level with the more reliable one-step estimator. From this observation, we conclude that there is weak evidence of a negative relationship between finance and growth for Latin American countries.
IV. What Went Wrong in East Asian Financial Systems?

On the effects of financial development on the allocation of capital, there was a general consensus before the 1997 crisis that East Asian financial systems, which were often characterized as repressive bank-based systems, were effective in allocating external funds to the manufacturing sector (the engine of growth). In this way, East Asian financial systems sustained rapid growth for almost three decades before the outbreak of the crisis. The most comprehensive analysis of finance and growth from the early 1960s to the late 1980s is found in a study on the East Asian miracle by the World Bank (1993). The study approbates and justifies the repressive financial policies of East Asian countries, asserting that such policies ameliorated the adverse consequences of financial market imperfections. In managing the financial systems, the study attributes the East Asian success to the efforts of policy authorities to duplicate market outcomes. While the East Asian financial systems may have been effective in financing the export-oriented business sector, it is not clear whether financial growth and sophistication have been associated with improvements in the efficiency of the economy. A number of TFP studies show that economic growth in East Asia was driven by input growth rather than improved efficiency (Kim and Lau 1994; Young 1994, 1995).11)

11) In comparison, Drysdale and Huang (1997) find that TFP growth and factor accumulation are equally important to output growth for Hong Kong, Japan, Taiwan, Korea, Indonesia and Thailand, but less important in Singapore and Malaysia. Liang (2002) also finds that TFP was the
These studies imply that expansion and diversification of financial instruments, institutions and markets may have had limited effects on improving the efficiency of capital allocation.

However, the previous studies implicitly assume that the economies are producing on their frontiers and there are no gaps between actual and potential outputs. This further implies that the economies have been allocating their resources (both labor and capital) most efficiently. However, in reality, some economies may be producing not on, but inside the frontiers. Han, Kalirajan and Singh (2002) decompose the TFP growth of the four East Asian countries (Japan, Hong Kong, Korea and Singapore) into technical progress and technical efficiency improvement.\(^{12}\) Their empirical results support some evidence for positive technical efficiency change, while there is little or no support for the role of pure technological progress. One interpretation of this empirical finding is that if financial development means improved capital allocation and provides a more effective system of governing a better practice of corporate management, the technical efficiency can be improved.

The alleged or perceived superiority of the bank-based system in allocating capital and monitoring the behavior and performance of firms in the context of East Asia was questioned even before the crisis broke out in 1997 (Yusuf 2001). In particular, financial liberalization and market opening weakened the monitoring capacity of banks considerably, although such financial deregulation was expected to

\(^{12}\) Chang and Luh (2000) also find that Hong Kong and Singapore (most developed financial centers in East Asia) are good at moving towards the frontier.
improve the allocative efficiency in the long run. Consequently, such a transition without proper institutions in place led to difficulties in preventing moral hazard and the eventual financial crisis when banks and regulators lacked adequate human capital and resources. Indeed, the structural weakness of East Asia’s bank-based system was manifested in the crisis. To many critics of East Asia’s development strategies, the bank system, which was either heavily controlled by the government or captured by large businesses, provoked and exacerbated the crisis.

One weakness was that banks became “too big to fail.” The moral hazard syndrome associated with this implicit government guarantee led to poor risk management, which in turn caused a massive deterioration in the quality of assets held by the banks. This problem undoubtedly stems from the failure to monitor the monitor. Another weakness was that direct government control over the management and credit allocation at banks and other financial institutions left little room and few incentives for the regulatory authorities to develop and improve their capacity for prudential supervision and regulation. It also meant that the banks and other financial institutions did not develop their own risk management capacities. The absence of rigorous auditing and accounting requirements caused bank balance sheets to lack transparency. A lack of transparency and disclosure created fertile ground for corruption. The cumulative effect of corruption together with the inefficient allocation of credit, in part due to government intervention in asset management, eventually manifested in poor economic performance.

A third problem was that the dominant position of banks interfered with and delayed the diversification of financial assets, in-
stitutions and markets. In particular, the dominance of bank inter-
mediaries impeded the development of capital markets. In order to
develop capital markets, detailed information on the financial posi-
tion and legal structures of firms are needed to protect minority
shareholders. Financing through capital markets rather than banks,
including the greater use of financial derivatives, and liberalizing the
capital account all require a reliable disclosure system. Insofar as East
Asian countries relied on banks for financial intermediation, they
were less inclined to improve accounting, auditing and disclosure
standards.

Of all probable structural weaknesses, the absence of vibrant bond
markets never fails to make the long list of causes for the 1997-98
Asian financial crisis. A year after the financial crisis, Donald Tsang,
financial secretary of Hong Kong, citing the failure to establish a
strong and robust Asian bond market as one of the reasons of the fi-
nancial turmoil in East Asia, deplored “how it is that we in Asia
have never been able to replicate the Eurobond market success in this
part of the world.” International financial institutions, including the
IMF and the World Bank, invariably pointed to the absence of effi-
cient domestic bond markets as one of the major causes of the 1997
financial crisis.

More cautious observers would argue that the absence of domestic
and regional bond markets deepened the crisis in terms of output
losses and dislocation of the financial sector as it precipitated a mas-
sive outflow of foreign capital. As these observers saw it, foreign
bank lenders and equity holders were not able to shift into bonds
with the build up of the crisis. Had there been efficient domestic
bond markets, foreign investors locked in bonds could not have left
East Asia as banks and other investors hurriedly did. This argument does not appear to be convincing, however. When the future prospects of East Asian economies were as bleak as they were at the beginning of the crisis, it is hard to believe that foreign investors would have held domestic bonds instead of dumping them on domestic bond markets.

A recent report by the Independent Evaluation Office of the IMF (2003) argues that the underdevelopment and closedness of bond and short-term money markets exacerbated the 1997-98 crisis. Because the long-term bond market and the short-term money market were shallow, illiquid and closed to foreign investors, a policy of high interest rates was not effective in arresting the decline of the exchange rate and stabilizing the market. Foreign entities did not have many investments to direct to local currency denominated assets. Therefore, higher interest policy could not stabilize the local currencies by increasing the cost of speculation against them, given that there was no evidence that speculators were taking large short positions in the local currencies. The crisis-hit countries were facing increased demand for liquidation of foreign currency claims rather than a speculative currency attack. At the height of the crisis, however, it was not clear whether any level of interest rates offered by East Asian borrowers would have been high enough to induce foreign banks to roll over their loans. The absence of local bond markets open to foreign investors was not a serious cause of the crisis.

Finally, the government control of banks created opportunities for collusion between bank owners and managers on the one hand, and politicians and large business groups that were favored borrowers on the other.
During the early period of economic development, Eichengreen (1999) argues, when high-return investments were abundant in East Asia, the industrial policy of using banks as instrumental channels of resource allocation did not pose any serious efficiency problems. Once these opportunities were exhausted, sustaining rapid growth required a more efficient allocation of resources, which in turn dictated the liberalization and opening of domestic financial markets. The East Asian governments, however, stuck to the old strategy of bank-dominated control. The government directed credit allocation in a way that disregarded market signals. Eventually, non-performing loans began to pile up at banks and brought the solvency of these institutions to risky levels.

Krugman (1994) was the first to point out that East Asia was running into diminishing returns and that rapid growth was only being sustained by a massive infusion of capital, much of which came from abroad in the form of short-term credit. Supporting this line of argument, Eichengreen (1999) also claims that the East Asian governments decided to liberalize their capital accounts to facilitate borrowing from abroad, not to improve the efficiency of their economies. Unfortunately, as he argues, they did it backward by deregulating short-term borrowing first.

Accordingly, a large number of recent studies on the 1997-98 East Asian crisis have identified the structural weakness of East Asia’s bank-based financial system as being one of the major causes of the crisis. However, there is no theory or empirical evidence suggesting that bank-based financial systems per se are more vulnerable to financial crises than market-based ones. Without due consideration of the level of financial market development, a simple dichotomy be-
tween banks and markets may not help much in assessing financial vulnerability to crises. Although the higher the level of income, the more likely that mixture will be weighted toward equity, there is a diverse spectrum of financial structures after controlling for income levels. There are no known structural flaws inherent in East Asian financial systems that make them more susceptible to financial crises. The problem was that East Asian policymakers abused their financial systems as a means of industrial policy before the crisis. That abuse, rather than any structural characteristics of East Asian financial systems, may therefore have been responsible for the 1997 crisis.

There is also no clear evidence that by the mid-1990s the East Asian policy regime was crumbling under the inefficiencies of crony capitalism, bringing the period of rapid growth to an end. For example, a World Bank (2000) report suggests that the East Asian countries managed to invest their savings productively, so that the return on capital investment remained higher than in most other developing countries, at least until the mid-1990s. Even before capital account transactions were liberalized and increasing volumes of foreign capital began to flow into East Asia, most East Asian countries were already growing at rates much higher than the rest of the world. In fact, it is this success and the potential for future success that had attracted foreign capital into the region. Not only had there been both rapid growth and domestic stability, but also the rates of return on capital had been high before the crisis.

Since the mid-1980s, all of the countries in the region had pursued policies of trade and financial liberalization. Given these sound fundamentals and the region’s commitment to liberalization, foreign investors saw enormous opportunities for profit and moved vast sums
of money into the region. Because of this massive inflow, investment as a proportion of the GDP in all of these countries was significantly higher than it had been in the 1980s. At the same time, savings rates were stable, resulting in large increases in current account deficits.

Therefore, it may not be correct to argue that East Asian countries were intent on borrowing heavily from abroad despite the losses in efficiency that were slowing economic growth. Certainly, the assertion that these countries began liberalizing their capital accounts to facilitate capital inflows is at variance with the facts.¹³)

Before the crisis, foreign lenders gained access to much of the information needed for their investment decisions, including information that the balance sheets of banks and corporations in East Asia were not reliable. Foreign market participants either ignored or were not able to process the available information. If the lack of

¹³) Chan-Lee and Ahn (2001) stressed that Asian countries did not draw the crucial policy lessons from the earlier, very costly banking crises in Latin America and elsewhere and the regulatory authorities were either complacent or ignorant of how capital account liberalization had undermined financial stability. They pointed to opaque and inadequate prudential regulations as banks' excessive risk-taking behavior before the crisis. This assessment is partly true. For instance, when Korea joined the OECD in 1996, the Korean government maintained many controls on capital account transactions. However, the absence of regulatory vigilance does not mean the Korean government was strongly intent on to attracting international capital through capital market opening. Putting in place an adequate set of prudential and regulatory standards and institutions to prevent moral hazard and excessive risk-taking in the domestic banking system is a lot easier said than done (Rodrik, 1998).
transparency and inadequate disclosure of information made East Asia vulnerable to financial crises, how serious was the problem? Furman and Stiglitz (1998) show that increased transparency in the form of disclosure requirements is not needed, since markets can and do provide optimal incentives for disclosure. They also argue that under certain circumstances, information disclosure could exacerbate fluctuations in the financial markets and precipitate a financial crisis (you do not cry fire in a full theater). As far as the flow of information was concerned, many small foreign lenders had limited capability or found it too costly to analyze macroeconomic and financial as well as borrower-specific information. These small lenders assumed that if large and reputable banks were lending, then it must be safe for them to lend as well. Consequently, these lenders immediately left the East Asian financial markets when they saw their leader banks making a hurried exit, creating confusion and panic in the financial systems.

The seriousness of crony capitalism, or widespread corruption in East Asia, was also well known among foreign investors. But according to several measures of corruption, the risk of corruption had declined or remained unchanged before the crisis (Furman and Stiglitz 1998). It is also instructive to note that the Nordic countries like Sweden, Norway, and Finland, which did not suffer from lack of transparency nearly as much as the East Asian countries, could not fend off a crisis in the early 1990s (Rodrik 1999).

Foreign investors knew quite well that East Asian firms, both small and large, relied almost exclusively on banks to finance their investments and working capital requirements. In such a bank-based financial system, the debt-equity ratios of these firms are expected to
be much higher than those of the firms operating in a well-developed capital market-based system. However, the dichotomy between banks and markets does not closely correspond to the dichotomy between debt and equity. According to Demirgüç-Kunt and Levine (1999), the mean debt-to-equity ratio for 30 countries is only loosely correlated with the financial structure index. Apparently before the crisis, foreign lenders did not believe that the weaknesses in the balance sheets would pose any serious default and liquidity risks or that the weaknesses were serious enough to discourage their lending to those highly leveraged firms. Once the crisis erupted, however, the lending problem was suddenly brought up as one of the major vulnerabilities of East Asian economies.
V. Concluding Remarks

That the structural frailties of financial systems increased the susceptibility of the East Asian countries to financial crisis is not disputed. However, it is not altogether clear whether those frailties directly caused the crisis. Moreover, the crisis does not provide any evidence suggesting that the Anglo-American market-based system works better than the bank-based system. The East Asian financial frailties were by no means inherent in the intermediary-based financial system; they were the consequences of its general lack of transparency and the repressive financial policies which resulted in the inefficient allocation of resources and collusion between large businesses on the one hand and politicians and government policymakers on the other. The moral hazard syndrome stemming from the implicit government guarantee that banks would never fail further compounded the balance sheet problems at the financial institutions.

Since the crisis, East Asian countries have introduced and enforced new rules for accounting and auditing that conform to international standards. Along with these institutional reforms, most East Asian countries have made impressive progress in deregulating and opening financial markets. As a result, financial institutions, markets, and government policies have been evolving to a competitive and market-oriented financial system. These developments are expected to overcome the inflexibility of the existing bank-based financial systems. However, the market-led strategy does not mean that East Asian governments have no important role to play and must blindly move toward becoming minimalist states. The challenge facing East
Asia is, rather, to develop strong governments able both to resist political pressures from domestic financial establishments and to push forward market-led financial development along with necessary institutional reforms (Rajan and Zingales 2002). Within such a framework, the East Asian countries may have a better chance of converging with advanced financial systems in the future.
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Appendix

1. Data Description

<Table A1> Data Definitions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Income</td>
<td>Log of real per capita GDP in the first year of the respective time period</td>
<td>WDI</td>
</tr>
<tr>
<td>Inflation</td>
<td>Log of one plus the inflation rate</td>
<td>IFS</td>
</tr>
<tr>
<td>Government</td>
<td>Log of real general government consumption as share of real GDP</td>
<td>WDI</td>
</tr>
<tr>
<td>Openness</td>
<td>Log of the sum of real exports and imports of goods and services as share of real GDP</td>
<td>WDI</td>
</tr>
<tr>
<td>Schooling</td>
<td>Log of one plus average years of secondary schooling in the total population over 15</td>
<td>Barro and Lee (1996)</td>
</tr>
<tr>
<td>Private Credit</td>
<td>Log of credit by deposit money banks and other financial institutions to the private sector divided by GDP</td>
<td>Demirgüç-Kunt and Levine (2001)</td>
</tr>
</tbody>
</table>

Sources: 1. World Development Indicators 2002 CD-ROM
2. CD-ROM Data provided by Demirgüç-Kunt and Levine (2001)

2. Country List

Although the data used in this paper covers the 1960-1997 period, the sample periods are different for each country. Sample periods for each country are listed below. The number of observations averaged over a five-year period is given in parentheses.
<table>
<thead>
<tr>
<th>East Asia</th>
<th>Latin America</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>Chile</td>
<td>1961-1997 (8)</td>
</tr>
</tbody>
</table>

Total Observations 50

Total Observations 95
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