



## 一、摘要

中文摘要：本計畫探討政府隱性保證與企業債務到期日結構間的關係。本計畫發現當政府對於企業債務提供隱性保證時，如果 (i) 計畫的風險性高 或 (ii) 政府的隱性保證政策非常穩定，則企業將傾向選擇短期負債。由於大量的企業短期負債可能會導致「擠兌式」的金融風暴，故政府對企業的隱性債務保證可能增加而非降低金融風暴發生的機會。本研究也發現政府隱性保證會降低企業改善公司治理結構的誘因。

關鍵詞：政府隱性保證、金融風暴、債務到期日結構

## 英文摘要：

This project investigates the relationship between implicit government guarantee and firms' debt maturity choices. It is found that, when implicit government guarantee is provided, a firm will issue short-term debt if the profitability of its investment project is volatile or if the government's policy on providing implicit debt guarantee is stable. Through affecting firms' debt maturity decisions, implicit government guarantee may increase the probability that a financial crisis will occur. It is also shown that firms enjoying implicit government guarantee may prefer a corporate governance system with more serious moral hazard problems.

關鍵詞：implicit government guarantee, financial crisis, debt maturity

## 二、計畫緣由與目的

Although the Asian financial crisis, which occurred in 1997, has already come to an end, the debate on its origins is not over yet. Some scholars argue that the crisis was the result of economic mismanagement. According to this view, implicit government guarantee, lax bank regulation, and crony capitalism together allowed firms and banks in certain Asian countries to speculate on highly risky investment projects with negative net present values. The investment inefficiencies finally caused economic downturns and triggered a financial crisis. In contrast, some propose that the crisis was a self-fulfilling panic. In this panic equilibrium, creditors refused to roll over the debts because they believed other creditors would take the same action. This debate has important policy implications. If the crisis was caused by economic mismanagement, then the most urgent jobs needed to be done are reforms on bank supervision and corporate governance. On the other hand, if the crisis is a self-fulfilling panic, then the remedy is to have an international lender of last resort who can provide liquidity to countries attacked by panic runs.

The purpose of this project is to propose a possible channel through which implicit government guarantee could contribute to the breakout of the Asian financial crisis. It suggests that, when implicit government guarantee is provided, firms will prefer short-term debt financing if the

profitability of investment projects is volatile or if the government holds a stable policy on providing implicit debt guarantee. By inducing firms to issue more short-term debt, implicit government guarantee can increase the chance that a financial crisis will occur. For the case of East Asia, since many of the countries in this area are emerging-market economies, returns on investments in these countries are volatile. Moreover, throughout the 1990s before the crisis broke out, many investors believed that Asian governments would bail out financially distressed firms if things really went wrong. According to the above result, in such an environment a large amount of short-term debts would be accumulated. Once it turned out that governments lost the ability to provide implicit debt guarantee, short-term debt holders would refuse to roll over loans to firms with poor prospects. A financial crisis would happen as a result.

The argument that too much short-term debt can lead to a financial crisis has been documented in the literature. For example, Radelet and Sachs (1998a) find that a financial crisis is more likely to occur when the ratio of short-term debts to total debts is higher. However, there has not been much discussion on why short-term debt financing is popular in Asia. The main contribution of this project is to point out that implicit government guarantee may distort firms' debt maturity choices toward short-term debt financing. It implies that, even though the Asian financial crisis can be explained as a self-fulfilling creditor panic, implicit government guarantee may still be held responsible for causing the crisis because it encouraged firms to choose a debt maturity structure that is more vulnerable to a creditor run.

In addition to the theory proposed in this project, there are other explanations for why short-term debt financing is popular in Asia. For example, some suggest that Asian firms are too risky to issue long-term debts. The lack of well-developed bond markets has been mentioned as another possible reason. Without a liquid bond market, firms have to borrow from banks, and banks usually prefer short-term loans. Although these explanations are reasonable, they provide only a partial answer to the question. For the former argument, short-term debt has been popular in Asia well before people suspected that something went wrong with Asian economies. There is no reason to believe that Asian firms could not issue long-term debts during the period when investors were optimistic about Asia. For the latter one, even if it was difficult to issue domestic long-term bonds, Asian firms could have chosen to issue long-term bonds in foreign markets if they really worried about the liquidity risks caused by short-term debts. There should be some other factors that induced Asian companies to prefer short-term debt financing. This project proposes that implicit government guarantee can be such a factor.

My project is closely related to Diamond (1991, 1993). In these papers, Diamond studies how a firm's optimal debt maturity structure is affected by information asymmetry and by the manager's

concern for preserving control rents. Similar to Diamond's papers, my project also studies factors affecting firms' debt maturity decisions. However, the factor I focus on is implicit government guarantee rather than information asymmetry or control rents.

### 三、結果與討論

In this part, I will first briefly describe the model in my project. I will then report the main results. The story of the project can be described as follows. Consider an entrepreneur who plans to issue either long-term or short-term debt to finance a long-term project. Suppose there is a moral hazard problem between the entrepreneur and investors, so part of the project's cash inflow is not verifiable. Because of this problem, the project may not be financed even if it has a positive net present value. To solve this underinvestment problem, the government implicitly guarantees the debts issued by the entrepreneur. Since the guarantee is implicit, the government has no explicit obligation to fulfill it, so the probability that the government will really bail out the entrepreneur may be strictly smaller than one.

The amounts of subsidy the entrepreneur can receive from implicit government guarantee are different under different debt maturity structures. Let  $V$  denote the value of implicit government guarantee to the entrepreneur,  $p$  denote the probability that the project will succeed, and  $g$  denote the probability that the government will really bail out the distressed entrepreneur. If the entrepreneur issues long-term debt, the value of implicit government guarantee is determined by the expected values of  $p$  and  $g$  estimated at the time when long-term debt is issued. On the other hand, if short-term debt is issued, the value of implicit government guarantee will be contingent on the updated  $p$  and  $g$  realized when the debt is refinanced. It will be shown that  $V$  is convex in  $p$  and is concave in  $g$ . This result implies that short-term debt allows the entrepreneur to receive more government subsidy if  $p$  is volatile or if  $g$  is not volatile. As a result, the entrepreneur will issue short-term debt if the profitability of the project is volatile or if the government's policy on providing implicit debt guarantee is stable.

In this project, it is also found that implicit government guarantee may induce firms to prefer an environment with more serious moral hazard problems. As moral hazard problems become more serious, more of the project's cash inflow becomes unverifiable, so the government has to pay more when it bails out the distressed entrepreneur. This means that the entrepreneur can grab more subsidy from the government. Hence, when implicit government guarantee is provided, companies may have no incentive to improve the corporate governance systems to reduce moral hazard problems.

To sum up, the main results of the projects are as follows.

First, implicit government guarantee can affect firms' debt maturity decisions.

Second, when implicit government guarantee is provided, firms are more likely to issue short-term rather than long-term debt if (i) the profitability of the project is volatile, and/or (ii) the government's policy on providing implicit debt guarantee is stable.

Third, implicit government guarantee may increase rather than decrease the chance of a financial crisis.

Fourth, implicit government guarantee may induce firms to prefer an environment with more serious moral hazard problems.

#### 四、計畫成果自評

This project has achieved its original goal, that is, to find the relationship between implicit government guarantee and firms' debt maturity decisions. Its results provide a plausible explanation for the stylized facts about the Asian financial crisis of 1997.

This project can be extended to investigate a more general issue, that is, how implicit government guarantee affects economic agents' behavior. Implicit government guarantee is a common practice in many countries. For example, Taiwan's government set up a fund to implicitly guarantee that stock returns would not be too volatile. Also, many investors believed the Korean government implicitly guaranteed that large Korean conglomerates would never go bankrupt. These implicit guarantees will change economic agents' behavior, and definitely have significant welfare effects. However, there have been few papers studying this issue. Although there have been a long literature on topics related to explicit government guarantee such as deposit insurance, the results in this literature cannot be directly applied to the case of implicit government guarantee. The main difference between explicit and implicit guarantees is the probability that the government will really fulfill its guarantee. This probability is one in the explicit guarantee case, and may be strictly smaller than one in the implicit guarantee case. Because of this difference, we need new models to analyze the effects of implicit government guarantee. This project can be viewed as the first step toward the study of this research topic.

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