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Reduction of Interest-bearing Liabilities and Payout Policy by Japanese Companies

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Since the 1990s, fund raising behavior of Japanese companies has significantly changed. We conducted empirical studies based on the companies listed on the First Section of the Tokyo Stock Exchange. Our findings can be summarized as follows. (i) The debt-equity ratio of companies with relatively high credit ratings has approached to an optimal level mainly by reducing bank borrowings. (ii) On the other hand, companies with relatively low credit ratings are still suffering from excess debt. Such companies have adjusted their debt-equity ratios by issuing new equity and/or convertible bonds when their share prices were in a rising phase as well as by reducing bank borrowings. (iii) Among companies that are estimated to have completed their excess debt adjustments, there are many that have preferred to further accumulate retained earnings, rather than effect fixed-capital spending and/or adopt a more active payout policy through dividends or stock repurchases. Main factors for such a cautious stance may be cited as follows. Due to lingering uncertainties over the economic outlook, corporate managers have a strong incentive to hoard cash at hand. Should earnings turn much better hereafter, however, companies, particularly those that have progressed debt reduction, may adopt a more active payout policy commensurate with their financial capacities.

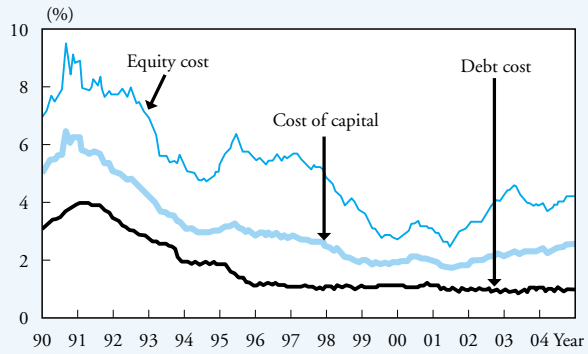
Introduction

Since the 1990s, fund raising behavior of Japanese companies has significantly changed. This *Review* discusses the progress of the Japanese companies' efforts to reduce interest-bearing liabilities and their fund applications hereafter. The following discussions are based on our own empirical studies about approximately 600 non-financial companies listed on the First Section of the Tokyo Stock Exchange that continued to disclose their financial statements through fiscal 2003.[1]

Cost of Capital since the 1990s

First, let us review the trend of the cost of capital for Japanese non-financial companies since the 1990s (Chart 1). The debt cost shows an almost flat trend in recent years, after a fall in response to a substantial drop in short-term interest rates in the first half of the 1990s. On the other hand, the equity cost[2] experienced a consistent fall in the 1990s due mainly to stagnant corporate earnings. Since 2001, however, it has been on an uptrend due partly to the recovery in corporate earnings and expectations of an advance in share prices. Putting together, the cost of capital, which is defined as the weighted average of the debt cost and the equity cost, having dropped throughout the 1990s, has turned slightly upward since 2001.

[Chart 1] Cost of Capital



(Note) Debt cost is calculated as the weighted average of interest rates on borrowing and yields on corporate bonds, while equity cost is calculated using the Edwards-Bell-Ohlson (EBO) model. Debt cost is after deduction of the tax shield effect of interests payable. For details, see Nakashima and Baba [2005]

Trend of Fund Raising

Next, let us look at the trend of fund raising by Japanese non-financial companies on a book-value basis since the 1990s using the flow of funds statistics. Chart 2 shows that the aggregate amount of fund raising, after hitting a peak in fiscal 1993, turned moderately downward, and then has shown a significant decline since fiscal 1999. Looking in more detail, loans, which account for about 60% of the aggregate fund raising, have exhibited a declining trend since fiscal 1994. On the other hand, while shares and other equities have been on a modest uptrend, corporate bonds have shown an almost flat trend since fiscal 2000, after an increase in the 1990s.

[BOX] Theoretical Hypotheses about the Selection among Fund Raising Methods

(i) Theory of Optimal Capital Structure

Under a debt vs. capital (equity) dichotomy, an optimal debt-to-equity ratio (hereafter, optimal debt ratio) is searched. First, given that debt is senior to equity in the order of repayment when a company is liquidated, the debt cost should be lower than the equity cost. In addition, debt benefits from tax deduction on the interest payable. Such effects provide companies with an incentive to raise their debt ratio (effect ② in right figure). On the other hand, the higher the debt ratio is, the higher the probability of default. This provides an incentive to curb the debt ratio (effect ④ in right figure). Putting together this trade-off, companies try to achieve an optimal debt ratio to the point that maximizes their corporate values through minimizing the costs of capital. This is called the "theory of optimal capital structure."

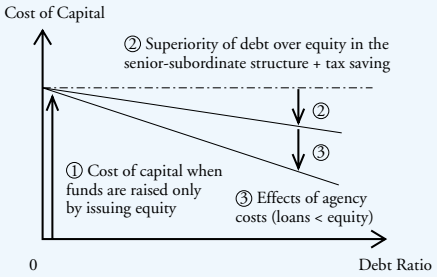
(ii) Pecking Order Hypothesis

The pecking order hypothesis states that corporate managers inherently have the priority order among fund raising methods *ex ante*, in terms of the ease of fund raising. Under this hypothesis, companies will first use retained earnings with the lowest cost, and next, use loans, which have a relatively low agency cost arising from informational asymmetries. Then, they raise funds in the capital markets by issuing corporate bonds and equities. This effect is shown as effect ③ in right figure. Thus, companies with higher profitability and thus more ample retained earnings tend to reduce loans first, which are relatively easier to repay.

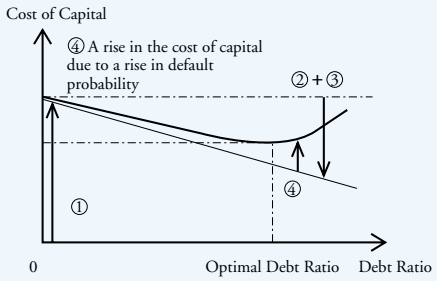
(iii) Market Timing Hypothesis

The market timing hypothesis states that companies tend to issue new equities and/or convertible bonds by taking advantage of an advance in their share prices.

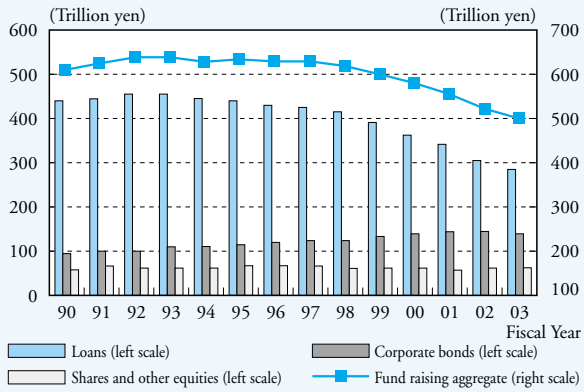
[The Effects of Tax Saving on Debt and the Pecking Order]



[Adding Default Risk]

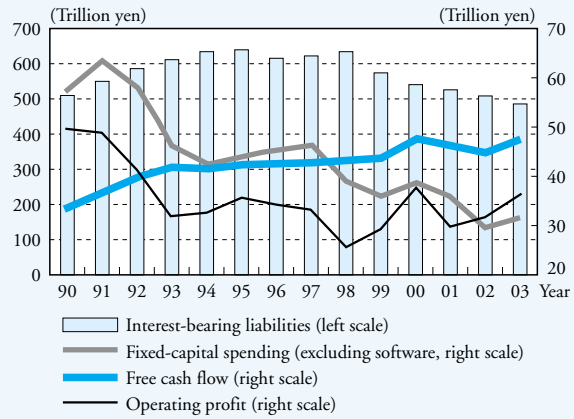


[Chart 2] Fund Raising Trend for Non-financial Companies



(Note1) "Fund raising aggregate"= (loans + shares and other equities issued by private-sector non-financial corporations) + (industrial securities issued by non-financial corporations + external securities issued by residents + commercial paper)
(Note2) "Corporate bonds" corresponds to the sum of industrial securities and external securities issued by residents.
(Source) Bank of Japan "Flow of Funds Statistics"

[Chart 3] Free Cash Flow and Interest-bearing Liabilities Outstanding



(Note) "Interest-bearing liabilities" is the sum of loans and corporate bonds. "Free cash flow" is the 5-year moving average calculated based on the indirect method.
(Source) Ministry of Finance "Financial Statements Statistics of Corporations by Industry"

Since the late 1990s, free cash flow has been on an uptrend, reflecting the recovery of earnings and an increase in depreciation on investment (Chart 3). Free cash flow, defined as the sum of operating cash flow and investment cash flow, can be most freely used by corporate managers. Also, we can see that Japanese companies have put priority in repaying interest-bearing liabilities, refraining from capital investments.

In Search for Optimal Holding Level of Interest-bearing Liabilities

As noted above, a reduction of interest-bearing liabilities has continued almost consistently since the mid-1990s. Thus, the next question is "up to what point in time do companies continue to reduce their interest-bearing liabilities?" In order to address this question, we need to derive an optimal debt-equity ratio (hereafter, optimal debt ratio) for companies. In doing so, we rely on the theory of optimal capital structure, which assess this issue through minimizing the cost of capital defined as the weighted average of the fund raising costs for debt and equity by adjusting the debt ratio (for details, see BOX).

Here, look back at the trend of the cost of capital. Although the equity cost has been consistently at a higher level than the debt cost, in the latter half of the 1990s, the extent of decline in the equity cost was greater than that for the debt cost (Chart 1). Thus, purely in terms of the cost advantage, the relative superiority of debt over equity has

diminished. Debt funding declined and equity funding increased during this period (Chart 2). Thus, the overall movements in cost and fund raising seem to be consistent.

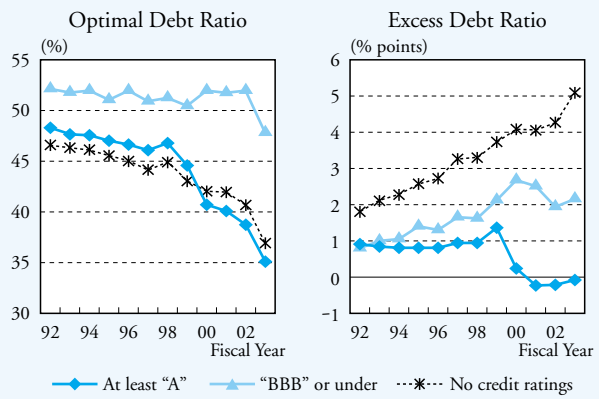
Since 2001, however, there has been no halt in the decline in debt funding, although the equity cost has turned upward while the debt cost has been on a flat trend. Thus, we face difficulty explaining recent movements in the actual debt ratio solely based on the theory of optimal capital structure, suggesting that we need to search for other factors.

Nishioka and Baba [2004] attempted to estimate the excess debt ratio defined as the deviation of the actual debt ratio from the optimal debt ratio. Their strategy is to estimate the optimal debt ratio that minimizes the cost of capital for each company based on the theory of optimal capital structure after controlling for other relevant factors that are likely to influence the adjustment of the debt ratio (for major hypotheses regarding the selection among fund raising methods, see BOX).

First, look at the optimal debt ratio averaged by credit rating (Chart 4). The optimal debt ratio has been on a declining trend since the 1990s, and particularly in recent years the pace of decline has accelerated (left figure in Chart 4). As the main driving force for this, we can cite the above-mentioned change in the relative cost advantage between debt and equity in the latter half of the 1990s. Also, since 2000, given the increase in retained earnings resulting from an improvement of earnings and a curtailment in fixed-capital spending, corporate managers are likely to have an incentive to reduce loans, which are more closely substitutable for retained earnings than other funding methods (see BOX).

Next, look at the excess debt ratio (right figure in Chart 4). The excess debt ratio for companies with a credit rating of at least "A" has rapidly decreased since 2000, and has been approaching to almost zero recently. On the other hand, for those with a credit rating of BBB or under, the debt ratio still remains within an excess zone, although the excess debt ratio has been declining in recent years. Further, when it comes to the companies with no credit ratings, the decline in the debt ratio has not caught up with the sharp fall in the optimal debt ratio, so their excess debt ratio still continues to rise.

[Chart 4] Optimal and Excess Debt Ratios



(Note) We used the credit ratings given by Rating and Investment Information, Inc. (R&I); Among sample companies, approx. 30%/20%/50% correspond to those with at least "A"/"BBB" or under/no credit ratings, respectively.
(Source) Nishioka and Baba [2004]

Selection of Fund Raising Methods

Under the theory of optimal capital structure, fund raising methods are simply divided into debt and equity. In reality, however, debt has categories other than loans such as corporate (straight) bonds and convertible bonds. Indeed, convertible bonds have features as both debt and equity. Thus, in what follows, we examine what specific fund raising methods Japanese companies have used as an adjusting tool toward achieving the optimal debt ratio.

Shimatani and Baba [2005] analyzed how individual companies have made a decision about the choice of fund raising methods using the multinomial logit model[3], where companies have several funding options to choose from; loans, issuance of corporate bonds, convertible bonds, capital increase by issuing new equity, and these combinations.

Their empirical results can be summarized as follows. (i) The higher the excess debt ratio, the greater the incentive of the company to curb loans. This is consistent with the theory of optimal capital structure. In addition, in making a decision about fund raising, companies are under influence of (ii) the pecking order hypothesis that claims a priority among fund raising methods in the order of "retained earnings," "loans," and "other capital market funding," and, (iii) the market timing hypothesis that predicts issuing of convertible bonds or equities when the share price of the company advances relative to the overall stock market. This suggests that companies care more about the equity-related features, rather than the bond-related features, when they issue convertible bonds. Also, it was confirmed that (iv) fund raising methods through the capital markets, i.e. other than through loans, are selected mostly by large-scale corporations.

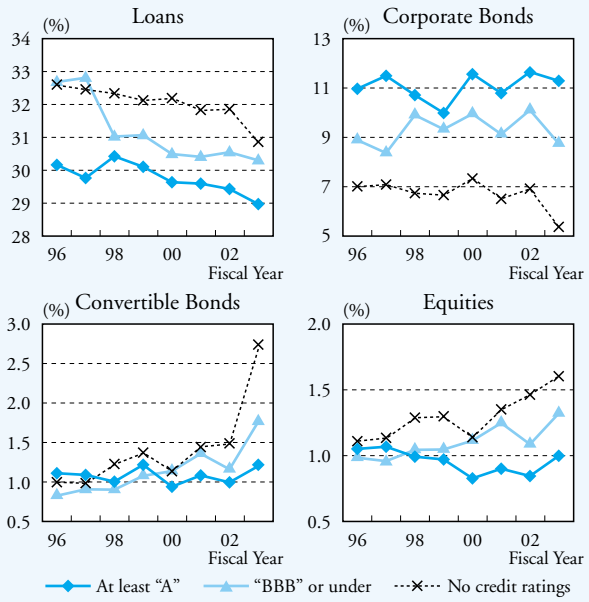
Next, based on the estimation results of the multinomial logit model, we looked at the probability of selecting each fund raising method as average values by credit rating (Chart 5). Combining these results, the following observation can be made by credit rating.

Companies with a credit rating of at least "A" tend to moderate further borrowing and fund-raising from the capital markets through equities, in particular, given the ample retained earnings they have. However, they do not have an incentive to curb issuance of corporate bonds, possibly with a view to diversifying their fund raising means.

On the other hand, companies with a credit rating of "BBB" or under, or those with no credit ratings have a strong incentive to reduce their debts, given the still high excess debt ratio. However, they do not have much retained earnings and also cannot easily issue corporate bonds, compared with companies with higher credit ratings. Thus, their dependence on loans still keeps at a high level, although it has been on the decline in recent years. On the other hand, although the probability is low, convertible bonds are issued, when the

company's share price advances. This behavior is likely to be motivated to reduce their debt ratio in the future.

[Chart 5] Selection Probabilities for each Fund Raising Method



(Source) Shimatani and Baba [2005]

Fund Application after Reduction of Excess Debt

As seen above, the progress in debt reduction and the use of specific funding tools significantly differ by credit rating. Companies with relatively low credit ratings have not made adequate progress in reducing their excess debt, thus even hereafter they are likely to continue repaying debts. On the contrary, among companies with relatively high credit ratings whose reduction in excess debt has gone a stage further, there seem to be companies that are likely to move on to the next phase.

To assess this issue, we compared the proportion of companies that effected fixed-capital spending, raised retained earnings, repurchased their own stocks, increased dividends, and reduced debt between the following two groups; the first group consists of companies that completed a reduction in excess debt and the other consists of those that still have excess debt. The grouping of companies is based on the estimation result by Nishioka and Baba [2004] (Chart 6).

The result shows that companies that have eliminated excess debt tend to apply funds to fixed-capital spending, an increase in retained earnings, stock repurchases, and an increase in dividends, in that order of precedence, compared with companies still having excess debt. On the other hand, the tendency to further reduce debt has become less pronounced.

[Chart 6] Fund Application after Reduction of Excess Debt

(%, % points)

	Proportion to companies that have eliminated excess debt (a)	Proportion to companies that still have excess debt (b)	(a)−(b)
Fixed-capital spending	54	46	+8
Increase in retained earnings	66	61	+5
Stock repurchases	9	6	+3
Increase in dividends	24	21	+3
Reduction of interest-bearing liabilities	58	65	△7

(Note1) Fiscal years 1996 through 2003
(Note2) Fixed-capital spending is investment in tangible fixed assets; retained earnings are defined as total shareholders' equity, less capital surplus, less shareholders' equity.

Determinants of Fund Application

Then our next question is, "what factors do companies consider in selecting among their application of funds, namely, fixed-capital spending, an increase in retained earnings, an increase in payout to shareholders (hereafter, payout policy)?" The following are the big picture from a theoretical viewpoint, given that companies' objective is to maximize own corporate values.

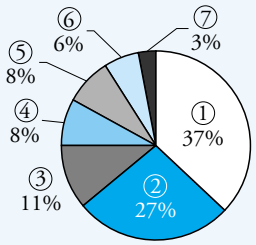
(i) If there exist promising investment projects with an expected return exceeding the cost of capital, then companies will opt for fixed-capital spending and expand their businesses.

(ii) Companies without promising investment projects will pay out profits in the form of increased dividends and stock repurchases, or will further reduce interest-bearing liabilities with a view to raising the scope for future borrowing.

(iii) However, companies facing uncertainties over their future earnings prospects will leave their funds at hand as retained earnings, and when the future outlook becomes less uncertain, they will again make a decision on fund application[4].

In this regard, the Development Bank of Japan released interesting survey results[5] carried out in November 2004 (Chart 7). Specifically, to the question about "fund applications after the reduction of interest-bearing liabilities", 37% of corporate respondents replied "an increase in domestic fixed-capital spending", 27% "a further reduction of interest-bearing liabilities" and 11% "an increase in payout to shareholders through an increase in dividends, and stock repurchases." Given that fixed-capital spending reflects a positive view of the future, and further debt reduction and increased payout of profits reflect a neutral or negative view of the future, we can infer that there are mixed views on the future outlook held by corporate managers.

[Chart 7] Fund Applications after Reduction of Interest-bearing riabitities



① Increase in domestic fixed-capital spending
② Further reduction of interest-bearing liabilities
③ Payout to shareholders through increased dividends and stock repurchases
④ Increase in overseas investment, ⑤ Increase in financial assets
⑥ Others, ⑦ Domestic M&A

(Source) Development Bank of Japan

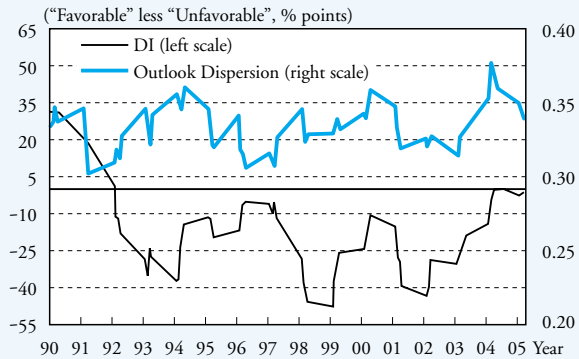
Future Business Outlook

Using the Bank of Japan's "Tankan Survey" (short-term economic survey of enterprises in Japan), we looked at the future business outlook (Chart 8). The Diffusion Index (DI) is defined as the proportion of those that responded "favorable" to the question of the business outlook, less the proportion of those that answered "unfavorable". The DI has been in the negative territory since 1992. Since 2002, however, a marked improvement has been shown, and in 2004, it returned to almost a neutral level.

On the other hand, the dispersion of business outlook among respondent companies shows a high level even recently, after reaching the highest in 2004 since 1990. This result reflects the fact that since 2002 while the number of companies that responded "not so favorable" has not changed markedly, and the number of companies that responded with other answers is almost equally divided into "favorable" and "unfavorable."

Thus, while the overall business outlook shows an improving trend, the dispersion among companies is still high, although its level has been on a downtrend recently.

[Chart 8] Future Business Outlook (up to 3 months forward)



(Note) The "outlook dispersion" is quantified as "0" for "unfavorable," "1" for "not so favorable," and "2" for "favorable". A "dispersion" index is calculated as a variance of the proportions of response to each answer choice. Based on all enterprises.
(Source) Bank of Japan "Tankan Survey" (short-term economic survey of enterprises in Japan)

Determinants of Payout Policy

Next, we explore whether companies will adopt a more active payout policy to shareholders in the form of dividends or stock repurchases in the near future. In order to address this issue, we first clarify the factors companies consider in determining their payout policy. The following are the main findings of Ueno and Baba [2005][6], who analyzed the determinants of dividends and the total amount of payout defined as the sum of dividends and stock repurchases.

(i) The target ratio of total amount of payout to profit (here after, the target ratio of payout) becomes higher: the higher the profit ratio, the less volatile the operating profit, the greater the company size, and, the lower the debt ratio.

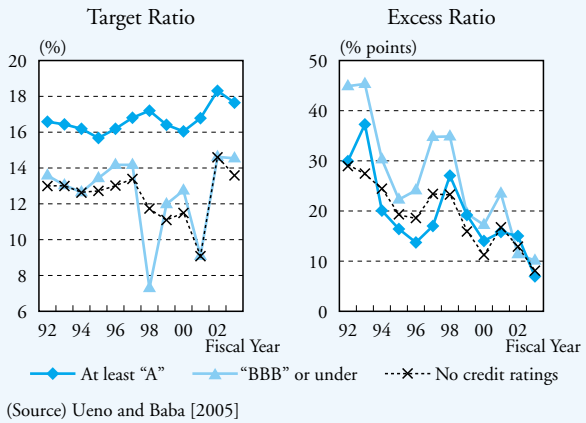
(ii) The target ratio of payout for companies with a credit rating of at least "A" has been on a moderate upward trend, reflecting the turn for the better in earnings and the declining trend in interest-bearing liabilities. For companies with a credit rating of "BBB" or under, or those with no credit ratings, on the other hand, the target ratio exhibits a significant variation, due to the large variation of their operating profits (left figure in Chart 9).

(iii) Companies' payout policy, particularly, dividend policy has strong rigidity over time. Specifically, corporate managers tend to hesitate to lower the payout amount in times of profit decline or red ink, due mainly to consideration for shareholders. The rigidity in payout policy has been diminishing recently, however.

(iv) The ratio of excess payout, defined as the deviation of the actual ratio from the target ratio, has been in a positive territory reflecting companies' incentive to smooth out dividends over time even when they reduced profits or posted red ink. In recent years, however, this ratio has declined markedly (right figure in Chart 9). This suggests that the determinants of payout policy of Japanese companies have shifted toward their individual and current financial capacities.

Putting together these results, we can tentatively conclude that if earnings turn for the much better hereafter, Japanese companies, particularly those that significantly progressed debt reduction, are likely to step forward to further payout in accordance with their financial capacities.

[Chart 9] Target and Excess Ratios of Total Payout



(Source) Ueno and Baba [2005]

Concluding Remarks

Since the 1990s, Japanese companies have continued to reduce their excess debt. Such a tendency is likely to continue in the near future, particularly among those with relatively low credit ratings. At the same time, however, it seems that companies, particularly those with relatively high credit ratings, have completed their adjustments of excess debt.

Hereafter, the attention will be shifted toward how such companies will apply their funds. They have many choices: fixed-capital spending, accumulation of retained earnings, an increase in payout by dividends or stock repurchases, or a further reduction in debt. Which choices companies will select depend on their views on future earnings, the extent of uncertainties, and the individual differences in financial capacities. Above all, companies whose earnings have improved and made progress in reducing their interest-bearing liabilities are likely to adopt a more active payout policy.

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[1] For details of analyses that this *Review* rely on, see references.

[2] The equity cost corresponds to the expected rate of return on equity, as seen from investors. The expected rate of return consists of the expected income gain from cash flow and the expected capital gain from an anticipated advance in the equity price. Under the Edwards-Bell-Ohlson (EBO) model used in this *Review*, the residual profit defined as the excess of the profit over the cost of capital is regarded as the source for the equity value. According to this model, the expected income gain is calculated from the return-on-equity (ROE) and the expected capital gain is calculated from the difference between market and book values for the shareholders' equity. For details, see Nakashima and Baba [2005].

[3] The multinomial logit model is one of the empirical methods to calculate the probability of selecting from at least 2 choices. The probability calculation is based on the utility of a company from selecting a particular choice (in this *Review*: choices are no fund raising, loans, corporate straight bonds, convertible bonds, equities, and combinations of these). The utility from the choice of funding methods is formulated as determined by the financial attributes of each company. Each of the specific financial variables is linked to each of the theoretical hypotheses introduced in the BOX.

[4] The value of accumulating retained earnings can be understood as a real option (deferred option). When the outlook is highly uncertain, companies will have a strong incentive to retain funds at hand, reduce investments and debts, and refrain from payout of profits to shareholders. Here, retained earnings have the characteristics as an option that enables corporate managers to (i) invest once uncertainties subsides in the future, or (ii) reduce debts and pay out to shareholders if the earnings outlook further deteriorates. By using the option-like nature of retained earnings in this way, companies can raise value by reducing investments and debts during highly uncertain periods.

[5] The number of respondent companies is 1,572 out of 3,638 companies that surveyed by Japan Development Bank.

[6] Empirical analysis is conducted under the assumption that there exists the target ratio of dividends and stock repurchases to profit that enables the corporate values to be maximized and each company adjusts its actual payout ratio toward the target ratio in each period. The target ratio differs depending on the financial attributes of companies and each financial variable is linked to the theoretical hypotheses. The theoretical hypotheses include the following. (i) Free cash flow hypothesis: corporate managers with ample free cash flow tend to conduct discretionary expenses that do not enhance corporate value. In order to curb such a tendency, shareholders should demand more payout through dividends and stock repurchases. (ii) Maturity hypothesis: as companies shift from an emerging phase to a more matured phase, their incentive to pay out profits to shareholders becomes stronger, as the number of promising investments decreases. (iii) Pecking order hypothesis: as corporate managers prefer to use retained earnings for fund raising, which have the lowest agency cost, the more ample the retained earnings held by companies, the greater their scope to effect a payout of profit.

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