Pay CEOs in debt

Business Spectator
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July 17, 2010

The recent financial crisis saw CEOs undertake risky actions that cost bondholders billions of dollars. Examples included excessive subprime lending, over-expansion, or diversifying away from their core business into derivatives trading, as happened at Enron and AIG.

Critics argue that CEOs had these incentives because they are compensated exclusively with equity-like instruments, such as stock and options. Since shareholders gain if a risky project pays off, but their losses are capped by limited liability if things go wrong, a CEO with significant equity will engage in excessive risk-taking.

This line of reasoning has led some to argue for caps on equity ownership as a solution. Yet this has potential side-effects – if the CEO has little equity, he has few incentives to engage in productive effort. In a paper with Qi Liu of Wharton, we propose an alternative solution to risk-shifting – pay the CEO with debt. This underpins recent calls to tie CEOs to the value of their bonds to prevent future crises. Indeed, such a change was recently adopted by AIG.

The vast majority of theoretical research on executive compensation has focused on justifying compensating CEOs with equity-like instruments alone, such as stock and options. This emphasis has been likely been driven by the long-standing belief that, empirically, executives don't hold debt. However, this belief arose not because CEOs actually don't hold debt, but because disclosure of debt compensation was extremely limited and so researchers missed this component of compensation. Indeed, recent empirical studies (eg, Bebchuk and Jackson 2005, Sundaram and Yermack 2007, and Gerakos 2007) found that CEOs do in fact hold substantial amounts of debt in their own firm (known as "inside debt"), in the form of defined benefit pensions and deferred compensation. In some cases, CEOs hold even more debt than equity. While the above papers had to hand-collect data on debt compensation, given limited disclosure, the Security and Exchanges Commission recently mandated disclosure of debt compensation starting from March 2007, which has allowed more systematic studies.

Inside debt is therefore widespread. Such compensation contrasts with existing theories, which don't advocate debt but instead the exclusive use of equity-like compensation. This sharp contrast between theory and reality has led some researchers (eg, Bebchuk and Jackson 2005) to argue that debt represents inefficient rent extraction – e.g. CEOs took advantage of limited disclosure rules to pay themselves high pensions even though they were not optimal. By contrast, we show that inside debt compensation can indeed be optimal, and that it should be used in the types of firms in which they are indeed used in reality.

We start with a model in which the CEO can choose between a risky and a safe project. The risky project can sometimes create value (eg, investing in R&D) but sometimes destroy value (eg, subprime lending). A CEO who holds exclusively equity will take the risky project even when it destroys value (a behaviour known as "risk shifting" or "asset substitution") because, if he gets lucky and it pays off, his equity will shoot up in value, but if the project is unsuccessful,

it is bondholders who suffer the bulk of the losses – as has been clear in the recent global crisis. Equity holders' losses are capped by limited liability – thus, if the firm is already close to bankruptcy and equity is close to zero, things can't get any worse and so the manager may "gamble for resurrection", taking riskier and riskier projects to try to salvage the firm.

Prior research suggested that this problem might be solved by giving the CEO a bonus if his firm is solvent, or equivalently hitting him with a penalty if he goes bankrupt. Unfortunately, this doesn't work because it only makes the CEO sensitive to the incidence of bankruptcy, but not the value of assets in bankruptcy. If the firm goes bankrupt, he loses his bonus or suffers his penalty – regardless of whether creditors recover 80 cents in the dollar or 10 cents in the dollar. Thus, again, the CEO is induced to gamble for resurrection even if this means sacrificing recovery values. By contrast, deferred compensation and pensions stand in line with other unsecured creditors in bankruptcy, so if debtholders receive 80 cents per dollar, so does the CEO. Thus, CEO compensation is aligned more closely with creditors. Bondholders will demand a lower return on their debt if they know that the manager is aligned with them and so won't risk-shift. This in turn benefits shareholders – thus, even though shareholders set pay, they take bondholders into account to reduce the firm's cost of debt.

With a project selection decision alone, the manager should hold debt and equity in equal proportions – eg, if he owns 2 per cent of the firm's shares, he should also own 2 per cent of its bonds. When the CEO chooses effort as well, the problem becomes more intricate. If the CEO's effort has a particularly high effect on the firm's solvency value (eg, they involve pursuing growth opportunities), the CEO should hold more equity than debt to induce effort. By contrast, if the CEO's effort has a particularly high effect on the firm's liquidation value (eg, they involve scrapping non-core assets), the CEO should hold more debt than equity. Consistent with recent evidence, the model predicts that inside debt should be higher in more levered firms and lower in growing firms, and that CEOs with high inside debt manage their firms more conservatively.

The paper thus provides a theoretical framework underpinning some recent proposals to compensate CEOs not just according to equity value, but to debt value as well – either directly by giving them debt-like securities (bonds, pensions or deferred compensation) or indirectly by linking their bonuses to the price of debt or a firm's credit rating or credit default spread. Indeed, AIG recently announced that, going forward, 80 per cent of their executives' bonuses will depend on the price of their firm's bonds and only the remaining 20 per cent will depend on the price of their equity. We believe that this is a positive move which should hopefully prevent future financial crises and more closely align the manager with all investors, both shareholders and bondholders.