Discussion of "CEO Compensation, Regulation, and Risk in Banks: Theory and Evidence from the Financial Crisis"

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The Cerasi and Oliviero contribution in this issue explores an important question from the banking regulation perspective: how does bank CEO compensation affect risk taking? It first lays out a model that illustrates how using variable compensation for bank CEOs (an exogenous free parameter in the model) may have an ambiguous effect on the CEO's risk-taking behavior. The key feature of the model is that both the bank's CEO and its shareholders can monitor the project. In the presence of bank leverage constraints and a deposit insurance, more variable compensation may lead to the substitution of shareholder monitoring with monitoring by the CEO. This substitution implies that the direction of the effect of variable compensation on risk taking cannot be signed in general. This is an interesting point because it highlights that theory does not provide clear guidance on whether—and, if so, how—to regulate bank CEO pay to reduce risk taking. Whether capping bank CEO bonus pay curtails bank risk taking and, if so, by how much is a fundamentally empirical question.

The fundamental challenge in addressing this empirical question is one of providing the appropriate counterfactual. Suppose one observed in the data that CEOs with a higher proportion of variable compensation take more risk. Does this imply that capping variable compensation leads to less risk taking? Unfortunately, the answer is no. A correlation between variable compensation and risk taking may arise even if risk taking by the bank is unaffected by compensation. Cheng, Hong, and Scheinkman (2015) make this point in a model where banks with heterogeneous productivity and riskiness set the optimal variable component of the compensation contract. As in the present paper, the resulting correlation between bank risk and

variable compensation is ambiguous. On the one hand, for a given fixed wage, high-risk/high-productivity banks will pay higher compensation. On the other, for a given productivity, it will be costlier to provide incentives via variable compensation in high-risk banks.

Distinguishing which of these two models (exogenous compensation/endogenous risk versus exogenous risk/endogenous compensation) explains reality better is important from a policy perspective because the two models may have the opposite design prescriptions for reducing risk taking. In the most likely scenario, both risk taking and compensation are endogenous, in which case a theory that nests optimal choices in along both dimensions is required to provide an appropriate benchmark for empirical analysis.

When many, or all, of the observed analysis variables are decision outcomes—as in the plausible scenario described above—straightforward regression analysis almost never provides the empirical counterpart of a comparative statics theoretical exercise. Consider, for example, the main regression used in the empirical section of the paper: the level and standard deviation of bank stock returns during the 2007–8 crisis are regressed on measures of CEO variable compensation (and controls). If CEO variable compensation is exogenously set at random in a way that is uncorrelated with bank characteristics or the regulatory environment, then this regression provides a measure of the effect of variable compensation on stock performance. If compensation is an endogenous bank choice, related to the regulatory environment and the bank's business model, then the coefficient on compensation in this regression only has a statistical interpretation (it provides the best linear approximation of the conditional expectation function of bank returns on compensation). Thus, the empirical analysis does not provide the means to accepting or refuting the model. Instead, the empirical analysis can be linked to the theoretical model *only if* we are willing to assume that the assumptions of the model are true.

The assumptions underlying the interpretation of regression coefficients are even more stringent when they rely on comparisons across partitions of the data along choice variables. Consider, for example, subsection 5.1 (The Effect of Shareholder Supervision), which compares the coefficient from the regression described in the previous paragraph across banks with high and low shareholder dispersion. The analysis interprets this variable as the cost of shareholder

supervision, which in the model is also an exogenous free parameter, and interprets the difference of the coefficient across the two samples as a difference in the effect of compensation on stock returns in high-supervision-cost and low-supervision-cost environments. This interpretation is appropriate only if both variable compensation and shareholder dispersion are assigned to banks independently of bank and institutional environment characteristics, and independently of each other.

If shareholder dispersion is not a technological cost parameter but a choice variable—for example, because it is a means for shareholders to exercise supervision and control—then this last assumption (that variable compensation and shareholder dispersion are independent) cannot hold if the assumptions of the model are true. In the model, shareholders' incentive to monitor the CEO is a function of compensation, which implies that shareholder concentration is also a function of compensation. Partitioning the data along an endogenous variable renders the comparison of coefficients across subsamples impossible to interpret, even if compensation were randomly assigned across banks.

Answering the empirical questions posed by this paper is a very difficult task. This paper represents a very valuable first step towards understanding the theoretical and empirical relationships between bank risk taking, compensation, and regulation.

Reference

Cheng, H., H. Hong, and J. Scheinkman. 2015. "Yesterday's Heroes: Compensation and Risk at Financial Firms." *Journal of Finance* 70 (2): 839–79.