Institutional Investors and Executive Compensation Redux: A Comment on "Do Concentrated Institutional Investors Really Reduce Executive Compensation Whilst Raising Incentives"

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ABSTRACT

Smith and Swan (2013), referred to as SS, question the robustness of the results of Hartzell and Starks (2003), referred to as HS. We discuss the fact that they have to make two significant and unwarranted changes to our model specifications in order to remove the significance of the HS results. Simply logging firm size does not affect the significance of the relation between pay for performance and institutional investor concentration. In order to find an insignificant relation, SS also must develop a different and inferior measure of institutional investor concentration, and use that measure in conjunction with changes to the firm size controls. Thus, we maintain our original conclusion, as well as that of other researchers, that institutional investors both care about and have the ability to influence corporate governance, including executive compensation.

Institutional Investors and Executive Compensation Redux

Smith and Swan (2013), hereafter referred to as SS, question the robustness of the findings of Hartzell and Starks (2003), referred to as HS, and by extension Almazan *et al.* (2005), referred to as AHS, regarding the relation between institutional investor concentration and the structure and level of executive compensation. In a prior version of their paper, SS question whether institutional investors are actually involved or interested in monitoring executive compensation in their portfolio companies, if the HS and AHS empirical results extend beyond the sample or sample period, whether the models of the relations are specified appropriately, and if the HS instrumental variable is appropriate.[1] In the more recent version, SS confine their criticism to the specification of the models, namely measuring institutional concentration as a fraction of all institutional investors instead of all investors, and the usage of size as a control instead of the natural logarithm of size. SS find that the original HS result holds out of sample and is robust to either of the aforementioned changes individually. They only find evidence that the HS results do *not* hold when *both* changes are made. In this short comment, we focus on the research question and its relevance as well as these specification issues.

Questioning whether a relation between institutional investor influence and the level and structure of executive compensation exists is a natural consequence of institutional investors' interest in executive compensation. Some of the world's largest, and most powerful, public and private pension funds and mutual funds have spoken out quite forcibly about executive compensation. For example, as early as 1992, California Public Employees' Retirement System (CalPERS) announced that they were targeting four companies for executive compensation reform — American Express Co., Dial Corp., IBM and ITT — and that they would be meeting with the management of these companies to discuss their reform ideas. Similarly, Fidelity, one of the world's largest mutual fund managers, announced in 2002 that they would vote against directors if executive compensation was not sufficiently linked to corporate performance.[2] In their corporate governance

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[1] In an earlier version, SS also questioned the sample in HS but it later became clear that their difficulty in replicating the HS sample was due to backfilling in the ExecuComp database rather than choices made in the original HS study. See Gillan *et al.* (2013) for more details on the backfilling issue in the ExecuComp database.

[2] See Luchetti (2002).

policy document, Teachers Insurance and Annuity Association — College Retirement Equities Fund (TIAA-CREF) states, "... we support compensation policies that promote and reward the creation of long-term sustainable shareholder value."[3] The document devotes significant discussion to what the institutional investor expects in terms of boards' compensation committees and the structure of executive compensation. Furthermore, some institutional investors and their advisory services advocated for the ability of shareholders to have a "say on pay" long before the Dodd-Frank Act made this a reality.[4] Beyond the anecdotal evidence, in a survey of institutional investors, McCahery *et al.* (2011) find that institutions believe that executive ownership of stock and executive compensation are the two most important corporate governance mechanisms.

In addition, a number of studies have hypothesized and documented relations between measures of institutional influence, corporate decisions, and governance consistent with this anecdotal and survey evidence and the results of HS and AHS. To pick a few recent examples: Aggarwal *et al.* (2011) document impacts of institutional investors on corporate governance worldwide, with changes in institutional investment predicting changes in governance (while the reverse is not true). Morse *et al.* (2011) find evidence suggesting that institutional investors mitigate powerful CEOs' ability to "rig" their pay. Frydman and Saks (2010) find that the presence of large investors or blockholders is associated with curtailed executive compensation in the 1930s and 1990s. Thus, overall, the anecdotal and academic evidence appears consistent with the results in HS and AHS.

It should be noted, however, that although many institutional investors have supported the concept that executive pay should be tied to performance, they have not maintained a consistent and unanimous view on the composition of executive compensation. For example, many institutional investors appear to have changed their opinions regarding the efficacy of stock option compensation. During the early 1990s, there was advocacy for the use of stock option compensation.[5] By the later 1990s, however, institutional investors had become less enamored with option compensation for executives.[6] Thus, as pointed out by AHS, one might expect the strength

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[3] *TIAA-CREF Policy Statement on Corporate Governance*, 6th Edition. https://www.tiaa-cref.org/ public/pdf/pubs/ pdf/governance_policy.pdf

[4] See Asci (2008).

[5] See, for example, *Financial Times* (1995).

[6] See, for example, Lublin and Scism (1999).

and even the direction of the relation between measures of potential institutional investor influence and measures of compensation to have changed over time.

SS question our hypotheses and evidence and allege that problems with the model specification in HS and AHS are responsible for the evidence and conclusions in those papers. It appears from their analysis that SS must make two major changes to the model specification in order to remove the significance of the HS and AHS results. In the remainder of this paper, we examine these changes, and conclude that the changes are not warranted.

1 Specification Issues Raised By Smith and Swan

The majority of the SS critique can be understood from their Table 6, which is analogous to Table II in HS. In column 1, SS use the original HS specification over a longer time period, from 1992 to 2010 rather than to 1997 (resulting in 135,343 firm years as opposed to 33,928 firm years). The coefficient on Lag Top-5 Hartzell Starks Institutional Concentration (HSIC) is larger (1.77 instead of 1.36), and more significant (a T-Stat of 21.85 instead of 8.42). In column 2, SS use the log of market capitalization as a control instead of market capitalization in raw (dollar) form. The coefficient on Lag Top-5 HSIC shrinks to 0.79 but is still positive, and economically and statistically significant (with a T-Stat of 8.57). In column 5, SS change the measure of institutional investor concentration, normalizing by total shares outstanding rather than total shares owned by institutions. The coefficient on the Smith and Swan Institutional Concentration (SSIC) is large and significant (1.34 with a 10.04 T-Stat). Finally, in column 6, SS use their measure of institutional concentration along with the log of market capitalization as a control, and find that their measure of institutional investor concentration is no longer significantly positively related to option grants. We discuss both of these changes — that is, changes to the concentration measure and size control — separately below.

1.1 Institutional Investor Concentration

In HS, we use two measures of institutional investor concentration. The first of these, Top 5, is the number of shares owned by the five institutional investors who own the largest position for a particular firm-year,

divided by the total shares owned by all institutions in that firm year. The second concentration measure is based on a Herfindahl index of institutional ownership. In their specification, SS introduce a different measure of institutional investor concentration than these two measures; essentially, they scale the Top 5 ownership using shares outstanding rather than total institutional ownership. They justify this measure by arguing that our Top 5 measure does not make sense in the extreme case where the five largest institutions each hold 1% of the shares of a particular company. However, this justification does not appear to be relevant in our sample. The ExecuComp database includes firms in the S & P 1500 as well as other firms that their institutional investor clients have requested to be added. Thus, the set of firms on the database are firms with considerable institutional investor interest. As is shown in HS's Table I and SS's Table 2, the 10th percentile for institutional investor holdings in our sample is 25.4% and 23.4% in the longer SS sample. Given HS's mean Top 5 holdings of 44% of all institutional ownership, this would imply that each of the top five owners held roughly two percent (on average), which is a big enough stake to warrant consideration of monitoring and/or influence effects. For example, this is the size of an ownership position that many have advocated (or feared) as a threshold for proxy access — see Cohn *et al.* (2013).

Our approach in HS and AHS was to consider the incentives and ability of significant institutional owners to exert influence. One plausible scenario is that larger institutional owners influence the firms in which they invest, or they serve as catalysts for other institutions to exert influence. The ability and incentives of institutions to do so should depend on their concentration among all institutions. To take an extreme example, if 50 institutions each owned 1% of the shares outstanding, SS's suggested concentration measure would be 5%, the same as if one institution owned 5% of the firm and no other institution were present (our measure would treat the latter as more indicative of likely monitoring). For firms in which institutions as a whole own small fractions, we can understand SS's alternative measure but we believe that for firms in which institutions as a whole own a sizable fraction of the shares outstanding (such as the ExecuComp sample), our measure conveys an important aspect of concentration that differs from that of overall institutional ownership in the firm. In contrast, SS's Top 5 measure (the fraction of shares outstanding held by the five largest institutional owners)

is strongly related to total institutional ownership (as seen by the pairwise correlation of 0.65, per SS's Table 5).[7]

Given this, it is perhaps not surprising that our original concentration (Top 5) measure is significant in some specifications where SS's measure is not, especially given that the total institutional ownership appears as a separate control. As for how to pick between these two concentration measures, we make three concluding points. First, SS's Table 6 results show that in order to *not* find a significant association between Top 5 ownership and the sensitivity of option grants, one must change both the size control specification *and* the concentration measure. Elsewhere in their paper, SS argue that, when choosing the size control, one should look at the likelihood ratio to guide the choice of specification. While this is a bit too mechanical for our tastes, it is worth noting that our concentration measure produces a greater fit than SS's concentration measure (that is, compare columns 1 and 5 of SS's Table 6, and columns 2 and 6), suggesting that our concentration measure explains the data better than the alternative, more collinear measure that is advocated by SS. Finally, and more intuitively, given the total institutional ownership in the sample of ExecuComp firms, the ratio of the shares owned by the five biggest institutions to all institutionally owned shares is an appropriate measure of the degree to which institutional investors' shares are concentrated. For these types of firms, institutions' ownership stakes are big enough to be meaningful. As shown in SS's Table 6, one finds similar results using this measure whether one controls for size using levels or logs. We focus on this size control issue next.

1.2   Controlling for Firm Size

It has long been known that examining the determinants of executive compensation is a difficult task. One of the most problematic determinants of compensation is firm size. The fact that executive compensation is related to firm size has been established in very early time periods (see, for example, Baker, 1939) as well as later time periods (for example, Baker *et al.*, 1988 and Murphy, 1999). Furthermore, Frydman and Saks (2010) show that the

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[7]   We reserve caution in using the log likelihood of a tobit to argue in favor of one measure over another but should point out that the HSIC log likelihood, using both size controls, is greater than the SSIC log likelihood regressions with their analogous size controls. See SS's Table 6, Columns 1 and 5, and 2 and 6.

cross-sectional relation between executive compensation and firm size has been persistent over the 1936–2005 period.

What makes the task of testing the hypothesis that institutions monitor executive compensation even more challenging is that besides the strong positive correlation between firm size and executive compensation, there is a strong positive correlation between institutional investor ownership and firm size, which has been well documented (see, for example, Sias and Starks, 1997 and Gompers and Metrick, 2001). The high correlations between firm size and both executive compensation and institutional ownership give rise to the problem of how to model the relation between executive compensation and institutional ownership while controlling for firm size. The model specification decisions are further complicated by the issues of potential nonlinearities and influential outliers in working with firm size. Unfortunately, there is no theory (either financial or econometric) to guide us in this decision. In order to be consistent with much of the previous literature, we have employed the original Jensen–Murphy (1988) (JM) model equation in our paper. This model used dollars of pay on the left-hand side and dollars of changes in shareholder value on the right-hand side, adding proxies for institutional investor influence. Because of our concern about the relation between institutional ownership and firm size, we have included a control variable for size in the same units (dollars) as the compensation and shareholder value variables.

Murphy (1999) points out that the methodological issues in estimating the JM equation lie in choosing "which components of compensation to include, choosing the performance measures and choosing the lag structures. In addition, researchers must choose whether to measure pay in dollars or logarithms, and whether to measure performance in dollars or in rate of return." In his discussion of the two methods, he states that neither approach dominates the other. He points out that pay-for-performance sensitivity varies with firm size while pay-for-performance elasticity generally does not. However, Murphy, who has employed both formulations in his research, points out that pay-for-performance sensitivities have an advantage because they have a natural economic interpretation. Firm size is typically measured by assets, sales, or market capitalization, with authors using either the raw (dollar) level of these variables, or using transformations, such as squared levels or logs to counter the outlier and nonlinearity issues. To us, it eases interpretation to have the dependent variable and independent variable in

the same units, so if executive compensation is measured in dollars, then as pointed out by Murphy, the performance measure should be in dollars as well. It is a natural extension that firm size should also be measured in dollars. We have a harder time interpreting the SS specification that mixes compensation in dollars with performance and size in other units.

Using size in dollars (rather than logs) does leave the issues of nonlinearities and the influence of outliers open. To that end, we checked in our original paper whether our results were robust to including squares and cubes of firm size, as well as Winsorizing the data (to handle outliers), and using sales or assets instead of market capitalization. We found similar (significant) results using these alternative specifications, giving us comfort that our results were robust to nonlinearities and outliers. However, we never tested a logarithmic transformation, as that would have changed the interpretation to some degree. Interestingly, SS's results (for example, their Table 6) provide support that our primary results on the positive association between institutional investors (using our Top 5 measure) and pay-for-performance sensitivities (using option grants) are indeed robust to a logarithmic transformation of firm size (in contrast to SS's statement in their abstract). Similarly, Cadman *et al.* (2010) find a significantly positive relation between the concentration of institutional ownership and option-grant sensitivity for a different time period, while also using the logarithm of firm size as a control. It is only the combination of such a log transformation and a change in the Top 5 measure that leads SS to find markedly different results.

2   Time Series Evidence on the Influence of Institutional Investors on Executive Compensation

One of the important sources of evidence in HS and AHS stems from time-series variation. Both HS and AHS show that changes in institutional investor concentration predict subsequent changes in pay-for-performance sensitivities (of option-grant compensation). Given the ever-present concerns over endogeneity in an empirical corporate finance setting — for example, omitted variables that somehow drive both the concentration of institutional ownership and executive compensation — this time-series evidence is perhaps the strongest evidence in the original studies. Given the increased

focus on identification over the last several years, these time-series results may have received even greater emphasis had these studies been published today.

SS argue that based on the evidence in their Table 9, the time-series evidence of HS and AHS is not robust. In response, we make two points. First, it is not surprising that they do not find their evidence consistent with ours when they attempt to replicate our methodology by dividing their 19-year sample in half. They divide their sample into nine- or ten-year periods, and ask whether changes in institutional concentration over the earlier decade predict changes in compensation between the later and earlier decade. This is in contrast with our original six-year sample, where we analyzed changes in institutional concentration over a three-year period and changes in compensation from one three-year period compared to the previous three-year period. Clearly, at some point, lengthening each window is likely to hurt the power of these tests rather than improve it. To take this approach to an extreme example, one would not expect changes in institutional concentration over one 50-year period to predict changes in compensation over two halves of a century — there are just too many other effects over a long horizon. Second, given that a large part of SS's critique stems from using firm size in levels rather than logs (as stated in the abstract), it is worth noting that logging firm size has no material effect on our original time-series tests.

Alternatively, using the change in the log of firm size, rather than the log or level of firm size, has no material effect, either. In all of these alternative specifications, we find that changes in institutional ownership over the earlier three-year period (1992–1994) are positively and significantly related to changes in option-grant sensitivity from the later period versus the earlier period (that is, 1995–1997 versus 1992–1994). Upon reflection, this makes sense. In our original tests, firm size was not significantly related to changes in option-grant sensitivity, and taking the log of firm size or using the change in logged size did little to explain these changes in compensation, either. Again, SS need two adjustments in order to alter the significance of our results — here, they need to use the log of firm size and decade-long windows of time to estimate changes in institutional ownership and compensation. Even given the decade-long windows in their tests, their results are consistent with HS and AHS until they combine such long windows with logs of firm size (see columns 1 and 2 of their Table 9).

3   Additional Analysis by Smith and Swan (2013)

SS also look at the grants of restricted stock grants and the level of stock ownership whereas HS and AHS focused on option grants (as in Yermack, 1995) and changes in annual compensation (as in Jensen and Murphy, 1990). In general, we do not have much to say on this topic, but we make two points. First, there is likely to be little power in tests based on restricted stock. The median pay-for-performance sensitivity from stock grants in the SS sample is zero (see SS Table 2), with a 90th percentile of 0.16. In contrast, the median pay-for-performance sensitivity from option grants in the SS sample is 0.20, with a 90th percentile of 1.96. Second, as is clear in both HS and AHS, these are papers about compensation — or, the flow of incentives that is under the control of the board of directors — not stock ownership. As noted in HS, this approach is supported by Core and Guay (1999), among others, who conclude that firms use the flow of equity incentives to reward past performance and to re-optimize incentives to improve future performance.

4   Conclusion

A wide range of anecdotal evidence, publicly stated policies, and academic evidence suggests that institutional investors care about and exert influence on corporate governance, including (and perhaps, especially) executive compensation. Several papers published in the last year or two alone find evidence consistent with this hypothesis, and with the earlier results of HS and AHS.

SS raise concerns over the methodologies used by HS and AHS, especially the choices for how to measure the concentration of institutional investors, and how to control for the effects of firm size. They show that if one makes both of these changes — that is, uses their concentration measure (which is scaled by shares outstanding rather than total institutional ownership), and uses the log of firm size as a control rather than raw firm size — then the results of HS do not hold.

In response, we make three primary arguments. First, the only apparent reason why SS prefer their concentration measure is a straw man argument. They argue that if institutional ownership is very small, then the original institutional concentration measure of HS and AHS is inappropriate.

However, among ExecuComp firms, institutional ownership is sizable enough to render this concern pointless. Within the relevant range of the data, if the five biggest institutional investors own a sizable fraction of all institutionally-owned shares, they own enough shares to have plausible incentives to monitor and/or influence the firm's practices.

Second, SS provide no theoretical justification for the benefit of logging firm size rather than using raw levels (which we agree is a complicated issue). Even then, and in contrast to the language in the SS abstract, one must change the specification to use both logs of firm size and their alternative concentration measure (which is much more similar to total institutional ownership) in order to eliminate our primary result in the cross section. Alternative means of controlling for nonlinearities and outliers (such as squares and cubes of firm size, or Winsorizing the data) is not enough to eliminate the primary cross-sectional result of HS, even with an updated and expanded sample. While SS argue that the Tobit regressions' goodness-of-fit measures suggest that logging firm size should be preferred to using raw firm size, this same argument would suggest that one should use HS and AHS's original institutional investor concentration measure. In this case, as pointed out, the use of the log size measure does not change the original HS and AHS results (which are similar in magnitude and significance). In other words, the original HS and AHS conclusions hold.

Finally, the time series evidence of HS and AHS — which is perhaps the best identified specification in those papers — is unaffected by logging firm size. Instead, SS again resort to two changes in order to reduce the result in the bigger and more recent sample. They not only use the log of firm size, they also widen the three-year windows of HS and AHS to nine or ten years. Given such long windows, it is not surprising that they have little power to detect changes in compensation stemming from changes in institutional ownership.

If the goal is to find a specification where previously documented results fail to hold out of sample, then there are myriad choices one can make in order to arrive at such a conclusion. These include changes to the primary explanatory variable (e.g., the concentration of institutional ownership), transformations of control variables (e.g., taking logs rather than using levels), and widening windows (e.g., from three to ten years) or using alternative dependent variables that exhibit little variation (e.g., restricted stock grants rather than option grants). The fact that these choices must be made

simultaneously in order to find a non-result must ultimately be weighed against the original body of evidence, combined with the anecdotal evidence from practice, and supporting evidence from the literature, all of which point to the idea that institutional investors both care about and have the ability to influence corporate governance.

References

Aggarwal, R., I. Erel, M. Ferreira, and P. Matos. 2011. "Does Governance Travel Around the World? Evidence from Institutional Investors." *Journal of Financial Economics* 100: 154–181.

Almazan, A., J. Hartzell, and L. Starks. 2005. "Active Institutional Investors and Costs of Monitoring: Evidence from Executive Compensation." *Financial Management* 34: 5–34.

Asci, S., 2008, "Shareholder Support for 'Say on Pay' Growing." *Pensions & Investments* 36(19).

Baker, J. C. 1939. "Executive Compensation Payments by Large and Small Industrial Companies." *The Quarterly Journal of Economics* 53: 404–434.

Baker, G., M. Jensen, and K. Murphy. 1988. "Compensation versus Incentives: Practice and Theory." *Journal of Finance* 43: 593–616.

Cadman, B., S. Klasa, and S. Matsunaga. 2010. "Determinants of CEO Pay: A Comparison of ExecuComp and Non-ExecuComp Firms." *The Accounting Review* 85: 1511–1543.

Cohn, J., S. Gillan, and J. Hartzell. 2013. "On Enhancing Shareholder Control: A (Dodd-) Frank Assessment of Proxy Access." Working Paper, The University of Texas at Austin.

Core, J. and W. Guay. 1999. "The Use of Equity Grants to Manage Optimal Equity Incentive Levels." *Journal of Accounting and Economics* 28: 151–184.

Gillan, S., J. Hartzell, A. Koch, and L. Starks. 2013. "Getting the Incentives Right: Backfilling and Biases in Executive Compensation." Working Paper, University of Georgia, University of Texas at Austin, and University of Pittsburgh.

Financial Times. 1995. "Matching Executive Compensation with Corporate Performance." August 19.

Frydman, C. and R. Saks. 2010. "Executive Compensation: A New View from a Long-Term Perspective, 1936–2005." *Review of Financial Studies* 23: 2099–2138.

Gompers, P. and A. Metrick. 2001. "Institutional Investors and Equity Prices." *Quarterly Journal of Economics* 116: 229–259.

Hartzell, J. and L. Starks. 2003. "Institutional Investors and Executive Compensation." *Journal of Finance* 52: 2351–2374.

Jensen, M. and K. J. Murphy. 1990. "Performance Pay and Top-Management Incentives." *Journal of Political Economy* 98: 225–264.

Lublin, J. and L. Scism. 1999. "Heard on the Street: Stock Options at Firms Irk Some Investors." *Wall Street Journal* January 12.

Lucchetti, A. 2002. "A Mutual-Fund Giant Is Stalking Excessive Pay — Fidelity Says That It Might Withhold Votes for Directors Favoring Generous Compensation." *Wall Street Journal* June 12.

McCahery, J., Z. Sautner, and L. Starks. 2011. "Behind the Scenes: The Corporate Governance Preferences of Institutional Investors." Working Paper, Tilburg University, University of Amsterdam, and University of Texas at Austin.

Morse, A., V. Nanda and A. Seru. 2011. "Are Incentive Contracts Rigged by Powerful CEOs?" *Journal of Finance* 66: 1779–1821.

Murphy, K. J. 1999. "Executive Compensation," In *Handbook of Labor Economics*, Orley Ashenfelter and David Card, eds. vol. 3b, Elsevier Science North Holland Chapter 38, pp. 2485–2563.

Sias, R. and L. Starks. 1997. "Institutions and Individuals at the Turn-of-the-Year." *Journal of Finance* 52: 1543–1562.

Smith, G. and P. Swan. 2013. "Do Concentrated Institutional Investors Really Reduce Executive Compensation Whilst Raising Incentives?" *Critical Finance Review*, forthcoming.

Yermack, D. 1995. "Do Corporations Award CEO Stock Options Effectively?" *Journal of Financial Economics* 39: 237–269.