RESPONSE

IS THE STAGGERED BOARD DEBATE REALLY SETTLED?:
A CODA

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INTRODUCTION

In *Settling the Staggered Board Debate*[1] published in the *University of Pennsylvania Law Review*, we addressed the sometimes heated academic debate about the value of the staggered board.[2] In the article, we examined prior studies of the staggered board and conducted our own analysis which concluded that the staggered board had, on average, no effect on firm value.[3] Based on our results, we concluded that the staggered board is not in and of itself value-increasing or decreasing and that "[t]he staggered board debate is . . . not about per se rules but whether the staggered board is right for individual firms."[4] We thought our conclusions settled the debate. We may have spoken too soon.

In a response published in the *University of Pennsylvania Law Review Online*, Professors Cremers, Sepe, and Masconale (we will refer to them collectively as CSM) now argue that, contrary to our conclusion, the debate is "very much alive."[5] They assert that our analysis is flawed for two reasons. First, CSM argue that our results are "based on statistical tests that have 'poor

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[1] Yakov Amihud, Markus Schmid & Steven Davidoff Solomon, *Settling the Staggered Board Debate*, 166 U. PA. L. REV. 1475 (2018).

[2] We recount the debate to date, *id.* at 1484-87.

[3] *Id.* at 1477.

[4] *Id.* at 1508.

[5] K.J. Martijn Cremers, Simone M. Sepe & Saura Masconale, *Is the Staggered Board Debate Really Settled?*, 167 U. PA. L. REV. ONLINE 9, 9 (2019).

power,'" claiming that the methodology we used in *Settling the Staggered Board* lacked robustness and was predisposed to its conclusions.[6] Second, CSM conduct additional analysis to show that "the adoption of a staggered board is associated with a positive increase in firm value," even taking into account the results in *Settling the Staggered Board Debate*.[7]

In this Response (our response to CSM's response) we address CSM's arguments and conduct further analysis. We reject the argument that our previous results were driven by "poor power." The lack of a significant effect of the variable *Staggered Board* on firm value is not because of noise in estimating this effect but because the effect of a staggered board on firm value is too small in magnitude to be significantly different from zero, both statistically and economically.[8] As to CSM's findings that the staggered board is, on average, still associated with an *increase* in firm value, their new conclusions rely on suspension of the efficient market hypothesis since their results only occur years after the publicly announced adoption of the staggered board. CSM's findings are also contrary to a prior paper authored by two of the authors of their response which shows that destaggering of corporate boards in recent years has had insignificant effects on firm value.[9] Ultimately, our results again support the conclusion that the staggered board in and of itself has no effect on average firm value, reaffirming our original conclusion that it is firm characteristics which drive prior studies with respect to staggered board value.

I. BACKGROUND

In *Settling the Staggered Board Debate*, we examined the question of whether the existence of a staggered board affected firm value. In that article, we followed the methodology of Cremers, Litov, and Sepe (we will refer to them collectively as CLS) published in the *Journal of Financial Economics* in 2017.[10]

We found results similar to theirs: that the staggered board has a positive and significant effect on firm value as measured by Tobin's log(Q)

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[6] *Id.* at 12.

[7] *Id.* at 11-12. CSM build upon prior analysis which found similar results, *see* Cremers, Sepe & Masconale, *supra* note 5, at 12-13 (discussing K.J. Martijn Cremers, Lubomir P. Litov & Simone M. Sepe, *Staggered Boards and Long-Term Firm Value, Revisited*, 126 J. FIN. ECON. 422 (2017)), and which we address in our article. Amihud, Markus & Solomon, *supra* note 1, at 1484.

[8] We discuss the role and definition of Tobin's Q in our original article. Amihud, Markus & Solomon, *supra* note 1, at 1483 n.24.

[9] *See infra* Section III.C.

[10] *See generally* Cremers, Litov & Sepe, *supra* note 7.

(and Tobin's Q).[11] CLS's model premised its analysis on employing firm-fixed effects to control for unobserved, time-invariant firm characteristics that affect Tobin's Q and may be related to the staggered board.[12] The inclusion of fixed effects resolved the concern that in estimating the effect of a staggered board we may, in fact, be picking up effects from unobserved firm characteristics that are correlated with the *Staggered Board* variable.[13] In the end, CLS found that a staggered board has a positive and significant effect on Tobin's Q.[14]

However, in *Settling the Staggered Board Debate* we theorized that it was unreasonable to expect firm characteristics to remain unchanged over our entire sample period of twenty-three years, 1991–2013.[15] Therefore, we re-estimated our fixed-effects models over two (almost) equal subperiods of twelve and eleven years.[16] When we did this, the effect of the *Staggered Board* variable on Tobin's Q became insignificant.[17] Whereas for the entire period the coefficient of the *Staggered Board* variable was 0.031 with t = 1.96 (significant at about 5%), the coefficients for subperiods I and II were, respectively, -0.021 (t = 0.70) and 0.019 (t = 1.15), both far from being significant.[18] Besides the question of statistical significance, even the magnitude of the coefficients was consistently smaller in each subperiod than it was for the entire period.

We concluded based on our results that the staggered board, on average, has no effect on firm value. Instead, the value of the staggered board is idiosyncratic and dependent on the individual firm. Our results thus urge against wholesale adoption or condemnation of the staggered board for a more idiosyncratic, nuanced, and firm-specific approach. For example, CLS identified some firm characteristics that increase firm value in association with a staggered board. They find that the staggered board is value-increasing for firms with a high patent citation count and with high output response to expenditures in research and development, while for other firms the staggered board has insignificant effect on their value.[19] CLS also analyzed the 1990 adoption of the mandatory staggered board statute in the state of

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[11] In *Settling the Staggered Board Debate* we use log(Q) instead of Tobin's Q as the log transformation better fits our model, resulting in higher R-squares. Amihud, Markus & Solomon, *supra* note 1, at 1489. CLS employ Tobin's Q. Cremers, Litov & Sepe, *supra* note 7, at 423.

[12] *Id*. at 427.

[13] Amihud, Markus & Solomon, *supra* note 1, at 1498-99.

[14] Cremers, Litov & Sepe, *supra* note 7, at 424.

[15] Amihud, Markus & Solomon, *supra* note 1, at 1498-99.

[16] *Id.*

[17] The *Staggered Board* variable refers back to the table of values from our previous findings, *id*. at 1500 tbl.4.

[18] *Id.*

[19] Cremers, Litov & Sepe, *supra* note 7, at 440 & tbl.10.

Massachusetts as a natural experiment and found that the value of Massachusetts firms increased more than the value of other control firms.[20] However, Daines et al. found that the value-increase following the staggered board statute in Massachusetts was confined to innovating firms, defined as either young or R&D intensive.[21] Daines et al. also report that in general, a staggered board is value-increasing for firms characterized as being young (less than 6 years old), small (in the bottom quartile of market value), and with high information asymmetry (measured by stock illiquidity), while for other firms a staggered board is value-decreasing.[22] This result is notable since the combination of these characteristics changes over a firm's lifetime.

Thus, it is impossible to make a blanket statement that the staggered board is beneficial for firms. To a certain degree, it is beneficial for *some* firms while it is harmful for others. If it were beneficial for *all* firms, we would expect to see it adopted by more firms that go public. Nothing inhibits management from including the staggered board provision in the corporate charter. Yet, less than two thirds of firms at the initial public offering stage have a staggered board, and the propensity to adopt it seems to depend on firm-specific characteristics.[23] Given the evidence in Daines et al. that staggered boards are more valuable for younger innovative firms, it follows that fewer mature firms would find the mandatory imposition of a staggered board beneficial.[24]

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[20] *Id.* at 436-37. The state mandatory staggered board statute is described in Robert Daines et al., *Can Staggered Boards Improve Value? Evidence from the Massachusetts Natural Experiment* 11-14 (Harvard Bus. School Accounting & Mgmt. Unit, Working Paper No. 16-105, 2018), https://ssrn.com/abstract=2836463 [https://perma.cc/GQ6P-MAWN].

[21] *Id.* at 5.

[22] Daines et al. explains:

> On average, we find a negative and significant association between Tobin's Q and staggered boards in this sample of relatively large and mature firms. … The main coefficient on SB in this regression suggests that, among the firms that are more mature or larger, or that exhibit a lower degree of information asymmetry, the association between Tobin's Q remains negative and statistically significant at the 5% level.

Id. at 25.

[23] For example, according to Johnson et al.,

> 65.6% of IPO firms with large customers adopt classified boards, compared with 60.6% of IPO firms without a large customer (the difference is significant at the 10% level) and 68.9% of IPO firms with strategic alliances adopt classified boards, compared with 61.4% of IPO firms without large customers (the difference is significant at the 5% level).

William C. Johnson et al., *The Bonding Hypothesis of Takeover Defenses: Evidence from IPO Firms*, 117 J. FIN. ECON. 307, 326 (2015).

[24] Moving away from cross-section panel estimations of the type done by CLS and CMS, there are studies of the effects on firm value of events associated with the existence of *Staggered*

We thus do not contest the view that for *some* firms, a staggered board may be preferable. Rather, our claim is that a staggered board is not beneficial for *all* firms. For some it is beneficial, for others it is harmful, and yet for others it is benign.[25] All we say is that on average, a staggered board has no significant effect on firm value. Firms must be scrupulous in their decision about whether to adopt a staggered board structure, which may be why most do not. Given agency problems—the natural propensity of management to be protected from undesired corporate raiders—it may be hard and costly for shareholders to amass sufficient votes to go through the long process of destaggering the board. Thus, we disagree with the proposition made by two of the CSM authors to legislate the staggered board as the default rule for all firms.[26]

II. ANALYSIS

A. *Insignificant Effect, Not "Poor Power"*

In their response essay, CSM explain the lack of statistical significance in our estimated effect of the staggered board on Tobin's Q as follows:

> As a result, pooled panel regressions of firm value with firm fixed effects may have "poor power," i.e., have a poor ability to identify an association of board

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Board. *E.g.*, Lucian Bebchuk & Alma Cohen, *The Costs of Entrenched Boards*, 78 J. FIN. ECON. 409 (2005). Amihud and Stoyanov find in an event study of two 2010 rulings in the state of Delaware that strengthening or weakening the potency of *Staggered Board* had on average no significant effect on firm value. *See generally* Yakov Amihud & Stoyan Stoyanov, *Do Staggered Boards Harm Shareholders?*, 123 J. FIN. ECON. 432 (2017). This result is consistent with our results in *Settling the Staggered Board Debat*e.

[25] For example, evidence shows that investors consider as valuable destaggering in firms targeted by activist hedge funds. Professors Guo, Kruse, and Nohel find that destaggering of the board of directors is value-increasing for some type of firms while being negative or benign for others, again supporting our view on the idiosyncratic value effect of *Staggered Board*. *See generally* Rejin Guo, Timothy A. Kruse & Tom Nohel, *Activism and the Shift to Annual Director Elections*, 14 J. ACCT. & FIN., no. 4, 2014, at 83. They study a sample of 465 firms that announced that they would destagger their board or that they would put the matter to a shareholder vote. *Id.* at 85. Nearly a quarter of the sampled firms were the target of a large shareholder activist (hedge fund) filing a Form 13D prior to the decision to destagger. *Id.* at 91, 99 tbl.2. They find that for this subsample of firms, there was a positive and significant stock price reaction to the announcement (controlling for the market), suggesting that for these firms, investors thought that staggered board was harmful. *Id.* at 93. For other firms, the effect of destaggering was benign or negative, depending on their ownership structure. *Id.* at 89, 93. Clearly, there is a strong idiosyncratic selection in these cases. This evidence implies that for firms selected as targets by activist hedge funds, a staggered board was value reducing, contrary to the claim of CLS and CSM that staggered board is value-increasing.

[26] *See* Martijn Cremers & Simone Sepe, *The Shareholder Value of Empowered Boards*, 68 STAN. L. REV. 67, 137-40 (2016) (arguing for "(1) adopting rules to make staggered elections quasi-mandatory, and (2) giving boards exclusive power over charter amendments that opt out of the staggered board system").

structure with firm value that is *actually present* in the data if the sample is too short, *too noisy*, or has too few changes in board structure.[27]

This, however, cannot explain the insignificant effect of the staggered board on Tobin's Q over the two subperiods. The reason for the lack of significance is *not* that the estimate is "too noisy," which would result in a low power of the test, but rather because the effect of the staggered board is too small to be significantly different from zero. A "noisy" estimate of a regression coefficient, which could arise when the sample is too small, would inflate its standard error but would not bias downward the magnitude of its estimated value.

If the standard error of the estimated coefficient of a staggered board is larger, then when dividing the coefficient by a higher standard error, the *t*-statistic (the ratio of the estimated coefficient to its standard error) would be lower and the estimation would be insignificantly different from zero. However, we found in our estimation over the two subperiods that the standard error was *not* higher than it was for the entire sample period, so the estimation was not "too noisy." Instead, the insignificant coefficient of *Staggered Board* is due to the coefficient being too small. When dividing a smaller coefficient by the same standard error, the *t*-statistic would be smaller, rendering the estimated coefficient insignificant.

In *Settling the Staggered Board Debate*, we found in our estimation in Table 4, Panel A that the entire period's standard error of the coefficient of *Staggered Board* was 0.0158 for the entire period, while in subperiod II it was 0.0162, practically similar.[28] That is, the estimated coefficient of *Staggered Board* in the second subperiod was not "too noisy." However, the estimated effect of *Staggered Board* in subperiod II was much smaller. Whereas the coefficient of *Staggered Board* was 0.025 for the entire period, it was only 0.017 (nearly 1/3 lower) for subperiod II. When using the complete model with ownership variables and the modified E-Index (Panel B), the coefficients for the entire period and for subperiod II are, respectively, 0.040 and 0.019, indicating a much smaller effect in the more recent period. The corresponding standard errors are 0.0175 and 0.0158, indicating a slightly greater precision in subperiod II.[29] Notably, it is in the second subperiod when the great majority of the staggered board changes occur. In the first subperiod, the estimated effect of *Staggered Board* on Tobin's Q was even *negative* and insignificant,[30] so greater precision does not seem to be the problem here. Our estimation

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[27] Cremers, Sepe & Masconale, *supra* note 5, at 17 (second emphasis added).

[28] *See* Amihud, Markus & Solomon, *supra* note 1, at 1500 tbl.4. In Table 4 we report the coefficients and their *t*-statistics, which is defined as the ratio coefficient/standard error. *Id.*

[29] *Id.*

[30] *Id.*

showed that in the second subperiod, the lack of a significant effect of *Staggered Board* on Tobin's Q was not because of noise in estimating this effect but because the effect of *Staggered Board* on Tobin's Q was muted to the point of being nonexistent statistically and economically. The *t*-statistic was lower not because the standard error was higher, which would indicate a noisy estimate—it was actually even lower—but because the numerator, which estimates the effect of *Staggered Board* on Tobin's Q, was much lower.

CSM's own analysis supports our view that the "culprit" in the insignificance of the effect of *Staggered Board* on Tobin's Q is not noise and lack of precision, but rather the low magnitude of the effect of *Staggered Board*, which is too small to be significant both statistically and economically. The coefficient of *Staggered Board* dropped from 0.098 for the full period (1996–2015) to 0.024—almost an entire quarter of its former size—for the shorter period from 2003–2015, when the majority of the changes in *Staggered Board* took place.[31] The standard error which measures the precision of these estimates was 0.036 for the whole period and 0.030 for the recent period,[32] which makes the effect of *Staggered Board* insignificant.[33] In their analysis, CSM do not report the estimate for the period 1996–2002, where we found that the coefficient of *Staggered Board* was negative, contrary to the proposition of CLS.[34]

[31] Cremers, Sepe & Masconale, *supra* note 5, at 25 tbl.1 (Panel A).

[32] The standard error is calculated as the ratio coefficient/*t*-statistic, using the numbers reported, *id.*

[33] *See id.* In CSM's Panel B, the results are similar. The coefficient of *Staggered Board* for the entire period, is 0.045 with standard error = 0.0147, and for the shorter period 2003–2015, it is 0.017 with standard error = 0.0140, again making the effect of *Staggered Board* insignificant. *See id.* 26 tbl.1 (Panel B).

[34] Notably, our split of the sample is intended to make the two parts about even. We did not search for a cutoff year that would produce specific results; we simply selected the approximate midpoint of the sample in terms of years. Alternatively, we spilt our sample into three (approximately) equally long subperiods of eight years (1991–1998), eight years (1999–2006), and seven years (2007–2013). We find that the coefficients on staggered board for subperiods I, II, and III are, respectively, 0.021, 0.071, and 0.008 with *t*-statistics of -0.57, 1.67, and 0.48, respectively. The effect of *Staggered Board* on logQ is positive and marginally significant—as suggested by CLS—only for subperiod II, when 23% of the changes for the entire sample period take place. In the first subperiod, the effect of *Staggered Board* is negative and insignificant. In the third subperiod when most of the changes in staggered board take place, the effect of *Staggered Board* on Tobin's Q is far from being significant. Is it because of lack of efficiency? The standard errors of the coefficients of *Staggered Board* are 0.0368, 0.0426, and 0.0166 for subperiods I, II, and III, respectively. For the three-subperiod regressions, R^2 values are 0.17, 0.20, and 0.26 for subperiods I, II, and III, respectively. Note that subperiod III, which includes about 66% of all staggered board changes in our sample, has the lowest standard deviation, and the highest R-square. Hence, this subperiod is least likely to be affected by power issues. Still, the coefficient on staggered board is far from being statistically significant in this subperiod. Since CLS use Tobin's Q instead of log(Q),

CSM's analysis demonstrates that the decay and disappearance of the effect of *Staggered Board* on firm value is not a one-off phenomenon but rather a systematic pattern. Figure 1 sets forth graphically CSM's estimates of the effect of *Staggered Board* on Tobin's Q and the precision of this estimate as they presented in their own Table 1, Panel A. It shows a clear pattern of decay in the effect of *Staggered Board* on Tobin's Q as estimated by CSM at the same time, the standard error of the estimate slightly declines over all eight periods in their analysis. That is, the estimated effect of *Staggered Board* on Tobin's Q is more precise rather than less precise as we move from using the entire sample period to using just the recent thirteen years.

Figure 1: Coefficients Estimating the Effect of Staggered Board on Tobin's Q over Eight Periods[35]
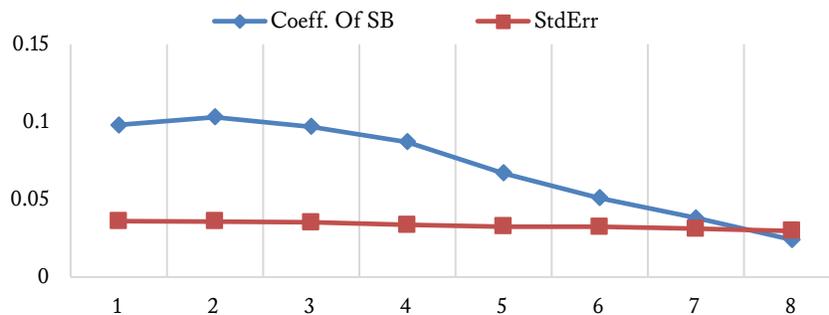
The vertical axis in Figure 1 is the magnitude of the estimated coefficient and the standard error, which measures its precision. The numbers on the horizontal axis, 1 to 8, represent the periods over which the coefficients are estimated. Period 1, 2, . . . 7, 8 corresponds to 1996–2015, 1997–2015, . . . 2002–2015, 2003–2015. Period 8 is the shortest and the most recent.

CSM's own analysis shows that estimation over a shorter period of time does not diminish the precision of the estimated coefficient of *Staggered Board*, hence there is no support for their criticism of using estimations of shorter subperiods. Also, R^2, which measures the explanatory power of the model, does not vary as the estimation moves from the entire period to the recent period where the effect of *Staggered Board* is quite insignificant both statistically and economically. This is consistent with our estimation when the

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we estimate the model with Tobin's Q as dependent variable. We find that the coefficient of *Staggered Board* has *t*-statistics of -0.34, 0.82, and -0.31 for subperiods I, II, and III, respectively—all quite insignificant. Notably, in two of the three subperiods the coefficient of *Staggered Board* is negative, which is inconsistent with CLS's claim that staggered board is value-increasing.

[35] Cremers, Sepe & Masconale, *supra* note 5, at 25 tbl.1 (Panel A).

R² in subperiod II is slightly higher than it is when the model is estimated over the entire period.[36]

The estimation results led us to conclude that the staggered board has no significant effect on firm value. In these analyses, the power of the test is a mute concern. When splitting the sample into two subperiods, we have 11,753 and 12,471 observations, respectively, compared with 24,295 observations over the entire period.[37] These large sample sizes mean that there is no meaningful difference in the estimation efficiency and the power of the tests between the full sample and the two subsamples. Notably, the identification in these estimates comes from the firms that experienced a change in their staggered board status during the sample period.[38] In the full sample used in *Settling the Staggered Board Debate*, there were 358 instances of firms changing staggered boards.[39] When we split the sample into two (roughly) equally sized subsamples, the great majority of *Staggered Board* changes—about three quarters of them—occurred in the *second* subperiod.[40] In that subperiod, the significance of the estimated coefficient of *Staggered Board* was insignificant, further supporting our results.[41]

As a further robustness test, we buttress our result regarding the insignificant effect of *Staggered Board* by estimating CLS's model with the dependent variable Tobin's Q replaced by Total Q, a measure proposed by Professors Peters and Taylor, which includes in the calculation of asset value the imputed value of intangible assets which constitute an important part of some firms' value.[42] We find that even for the entire period, the coefficient of *Staggered Board* is 0.12 with $t = 0.97$, which is insignificant.

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[36] Amihud, Markus & Solomon, *supra* note 1, at 1500 tbl.4 (Panel A).

[37] When including ownership variables, there are 16,650 observations for the entire period and 7096 and 9482 observations in subperiods I and II.

[38] We further explore the identification issue in Yakov Amihud, Markus Schmid & Steven Davidoff Solomon, Do Staggered Boards Affect Firm Value? (June 30, 2017) (unpublished manuscript), https://ssrn.com/abstract=2948141 [https://perma.cc/K3TS-5L7A].

[39] Amihud, Markus & Solomon, *supra* note 1, at 1501.

[40] *See infra* p. 124.

[41] Amihud, Markus & Solomon, *supra* note 1, at 1500 tbl.1 (Panel A). In the analysis using three subsamples, *supra* note 34, two-thirds of changes in staggered board are in the third subsample. Yet, in this subperiod the *t*-statistic of the coefficient on staggered board is far from significant. When two ownership variables are added to the set of control variables, the coefficient decreases to 0.010 with a *t*-statistic of 0.62—even further away from statistical significance.

[42] *See generally* Ryan H. Peters & Lucian Taylor, *Intangible Capital and the Investment-Q Relation*, 123 J. FIN. ECON. 251 (2017). They also provide data on the values of Total Q for each year. *Id.* at 267 fig.2. Peters and Taylor include in the asset value of the firm the capitalized value of its research and development expenditures and part of its selling, general, and administrative costs. *Id.* at 252. *See generally* Robert P. Bartlett & Frank Partnoy, *The Misuse of Tobin's Q*, 73 VAND. L. REV. 353 (2020) (arguing that basic Tobin's Q mismeasures economic value).

B.	*CSM's New Analysis Is Contrary to the Efficient Market Hypothesis*

CLS and in CSM present an estimation which shows that *Staggered Board* is value-increasing. Instead of estimating a panel regression with firm-fixed effects, they estimate a model where all variables are estimated as one-year *changes*. CSM state:

> However, firm fixed effect regressions estimate differences in the average firm value before versus after changes in board structure. Instead, change-in-value regressions estimate whether firm value changes *immediately following* the change in board structure, where it is possible that such changes would subsequently be reversed (e.g., due to other, perhaps unrelated, changes affecting the firm).[43]

Consistent with our claim that the staggered board has no significant change on firm value, CSM find that "firm value changes *immediately following* the change in board structure" are *insignificantly different from zero*.[44] Specifically, in CSM Table 2, Panel A, when regressing the change in Tobin's Q from year t to year $t+1$, denoted $\Delta Q_{[t,\,t+1]}$, on ΔSB_t—the change on the staggered board status of the board from year t-1 to year t—the coefficient of ΔSB_t is 0.00138 with t-statistic of 0.06,[45] meaning that the effect of changes in staggered board on subsequent Tobin's Q is practically zero. In further analysis, CSM find that ΔSB_t has positive and significant *delayed* effect on $\Delta Q_{[t,\,t+2]}$ and $\Delta Q_{[t,\,t+3]}$.[46] That is, changes in staggered board increase Tobin's Q *two and three years after* the changes in staggered board have taken place. CSM conclude: "The average change in *Q* a year after the change in board structure is insignificant, but it becomes consistently positive and statistically significant *in the second and third years* after the change in board structure."[47]

This analysis is inconsistent with the efficient market hypothesis. CSM suggest that changes in firms' Tobin's Q values occur long after the change in their staggered board status, something for which CSM provide neither a channel nor explanation. Indeed, once we abandon the market efficiency principle—that is, if the firm's *market* value does not promptly incorporate all publicly available information about the company—there is no basis for using the Tobin's Q, calculated as the ratio of market value to book value, as an indicator of a policy's value. If Tobin's Q is not rationally determined, what is its meaning?

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[43] Cremers, Sepe & Masconale, *supra* note 5, at 17.
[44] *Id.* at 28 tbl.28 (Panel A).
[45] *Id.*
[46] *Id.*
[47] *Id.* at 28 (emphasis added).

Specifically, Tobin's Q equals the sum the market value of equity and the book value of debt divided by the book value of assets (subject to some adjustments for accounting items). We use the logarithmic change, $\Delta Q_{[t,t+k]} = \Delta MV_{[t,t+k]} - \Delta TA_{[t,t+k]}$, where *MV* and *TA* are, respectively, the market value of the firm and the accounting value of its total assets. This means that the percentage change in Q equals the percentage change in the firm's market value minus the percentage change in its assets. For simplicity, assume that the firm's total assets are constant throughout at 100 and $MV_t = 100$, so $Q_t = 100/100 = 1$. By CSM's estimations in Table 2, following the year of adoption of *Staggered Board*, $MV_{t+1} = 100.14$, $MV_{t+2} = 107.28$, and $MV_{t+3} = 113.50$ (all benchmarked against other firms that did not experience a change in staggered board).[48] By this analysis, investors who have observed the adoption of *Staggered Board* in year *t*-1 and could expect it to be valuable did not buy the stock immediately in anticipation of the sizable expected increase of 13.5% in the firm's value (relative to the market) but waited some three years for the result of staggering the board before they bid up the stock price. This is an interesting phenomenon, but it is not consistent with investor rationality.

The essence of rationality and market efficiency is that the stock price reflects the expected future values of the assets and the cash flows that it generates, discounted to the present. Therefore, the stock price rises immediately even if the expected benefit accrues in the future. If a firm finds oil, its stock price will rise immediately reflecting the present value of the expected cash flows from the oil that will be extracted without waiting for it to be actually pumped out. Or, if a firm announces a new product that is deemed valuable, investors do not wait for it to start selling—the stock price rises upon the announcement. Finally, we know that in mergers and acquisitions, the values of bidder and target firms change immediately upon the announcement and well before the consummation of the merger to reflect the market's expectations on the value of the deal and the likelihood that it will be consummated. To be sure, the market may be wrong in some cases, but its expectation is rational and unbiased. Colloquially, we say that the market is right on average.

Here, too, we expect that in an efficient market, the firm's Tobin's Q value should change in the very year when the change in staggered board takes place, as this change is publicly available information. In order to further examine this point, we estimate the *contemporaneous* (same-year) effect of changes in *Staggered Board* on a firm's Tobin's Q values. Our model is similar to the one we used in our 2018 article,[49] but here we use *changes* in all the variables (and we do not include firm fixed effects). Importantly, the

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[48] *Id.*

[49] *See* Amihud, Markus & Solomon, *supra* note 1, at 1490 tbl.1.

dependent variable is $\Delta \log Q_t$ and the explanatory variable is ΔSB_t with all the other variables being as of year t. ΔSB_t equals +1 or -1 if in that year the firm staggered or destaggered the board, respectively, and zero otherwise. The model also includes the first difference in all the variables in column 3 of Table 1 as well as year fixed effects.[50] The sample includes 23,701 firm years with 333 changes in *Staggered Board* values. In a rational, efficient market, the propositions of CLS and of CSM imply that the value of Tobin's Q rises immediately following the adoption of a staggered board (and for destaggering the board, respectively, falls).

We find that changes in *Staggered Bo*ard have no contemporaneous (same-year) effect on changes in Tobin's Q. The coefficient of ΔSB_t is 0.006 with $t =$ 0.62—insignificant ($R^2 = 0.24$). For subperiods I and II the coefficients of $\Delta SB_t = 0.030$ with $t = 1.11$ and $\Delta SB_t = -0.001$ with $t = -0.10$, respectively—both insignificant (R^2 is 0.18 and 0.33, respectively). The number of changes in *Staggered Board* values in the first and second subperiods are 88 and 245, respectively. So, in the second subperiod, when most changes in *Staggered Board* took place, even the sign of the effect on Tobin's Q is not consistent with CSM's claim that staggering the board is value-increasing. CLS explain the delayed response of changes in market value to changes in *Staggered Board* as follows: "This suggests that market participants need some time to fully learn and process the changed prospects of the firm that occur after the change in board structure."[51]

However, investors had many years of staggering and destaggering of firms' boards to learn its effect by the time of subperiod II—2003 to 2015— in our analysis and in CSM's analysis. By then, investors should have already observed the consequences of *Staggered Board* and should have known its average effect on firm value. They also had at least thirteen years to have digested the effect of the 1990 Massachusetts statute which, by CLS's analysis, was value-increasing.[52] Surely, investors learn over time the effect of a staggered board on firm value. But staggering and destaggering of corporate boards have been going on for many years and investors had a lot of time to learn their effects. Had investors realized after years of experience that *on average* staggered boards were value-increasing, then by 2003 and thereafter they could have reacted immediately to changes firms made in their staggered boards; this would naturally translate immediately to changes in stock prices. However, our evidence from the recent subperiod shows that the contemporaneous effect of changes in *Staggered Board* on firm value is negative and negligibly small, so the lack of a significant effect does

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[50] *Id.*

[51] Cremers, Litov & Sepe, *supra* note 7, at 430.

[52] *See generally id.*

not result from lack of information or from investors not having learned by then the value of a staggered board. Our results thus show further that CSM's assertions in their online article as to the effect of the staggered board on firm value in later years are unsupported by evidence in line with the efficient market hypothesis.[53]

C. *Cremers's and Sepe's Recent Research on Destaggering Supports Our Conclusion*

Finally, Professor Cremers's and Sepe's (to whom we collectively refer to as CS) recent research provides a significant support for our main result that on average the presence of a staggered board has no significant effect on firm value.[54] CS analyze the effects of board destaggering induced by the Harvard Law School's Shareholder Rights Project (SRP) during the years 2011–2014.[55] CS studied 526 firms that in 2011 were included in the S&P 1500 index and had staggered boards.[56] Out of the 163 firms in this sample that destaggered during the years 2012–2014, 79 were targeted by the SRP and 84 were not targeted by the SRP.[57] If CLS and CSM were correct in claiming that staggered boards are value-increasing, destaggering should have had a *negative* effect on Tobin's Q.

CS found that "declassification . . . is, on average, *not associated with changes in firm value* . . . ."[58] This statement is consistent with our results that staggered boards have no effect on firm value.[59] CS found that firm

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[53] We emphasize the difference between the analyses using Tobin's Q or ΔQ. In a panel regression with Tobin's Q as the dependent variable and using firm-fixed effects, the coefficient of *Staggered Board* equals the average level of Tobin's Q after the staggered board is adopted minus the average Tobin's Q beforehand. That is, the coefficient of *Staggered Board* is positive reflecting the added value that stays over the entire post-staggering period. When regressing ΔQ on ΔSB, we expect ΔQ > 0 when the information is incorporated into the stock price and ΔQ = 0 thereafter, ceteris paribus. Thus, in a rational market, extending the postevent period over which we estimate the impact on the firm value should *not* raise the value of this effect. We expect to find no effect of ΔSB$_t$ on ΔQ in the following years t+1, t+2 and t+3 unless investors were asleep at the wheel.

[54] *See generally* Martijn Cremers & Simone M. Sepe, Board Declassification Activism: The Financial Value of the Shareholder Rights Project (June 21, 2017) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2962162 [https://perma.cc/CDR6-276G].

[55] *Id*. at 3.

[56] *Id*. at 9.

[57] *Id*. at 12.

[58] *Id*. at 18 (emphasis added).

[59] CS also state: "[O]nce we disentangle board declassifications at SRP targets versus non-SRP targets, we find that firm value significantly declines following declassification in SRP targets but not following declassification in non-SRP targets." *Id*. at 18-19. SRP-targeted destaggering may reflect coerced action by the firms, while destaggering by non-SRP targets reflects optimal choice by firms. CS present a refined analysis that accounts for their finding that firms targeted by the SRP

value significantly declined following declassification in SRP targets but not following declassification in non-SRP targets.[60] It follows that uncoerced destaggering, or where destaggering reflects optimal firm choice, has on average no effect on firm value, which is inconsistent with CLS and with CSM. These destaggerings, possibly engendered by Harvard's SRP, led to negative value effect on average and support CLS's proposition that a staggered board is value-increasing.[61]

CONCLUSION

We conclude that both our evidence in our 2018 article and the evidence in CS's board destaggering study continue to show that the staggered board debate is settled.[62] Staggering or destaggering is benign on average. It is only once one begins to stretch the bounds of market efficiency and rationality that one can find effects on the staggered board and firm value. We certainly do not dispute that for *some* firms, staggered board is value-increasing, yet for

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have different characteristics than other firms. In a regression of Tobin's Q on a dummy variable *Declassified*, which equals one for declassified firms, and *Declassified * SRP Proposal* they find that

> the coefficient of *Declassified* is negative and statistically significant at 0.113 (*t*-statistic of 1.70). This result is consistent with [Cremers, Litov & Sepe, *supra* note 7], who use a much longer time series in which they document that declassifications are associated with decreases in firm value. In our sample, however, . . . the negative coefficient of *Declassified* is due to declassifications of firms that were targeted by the SRP, as *Declassified * SRP Proposal* has a negative coefficient of -0.240 with a *t*-statistic 1.87, while *the coefficient on* Declassified *by itself is positive but insignificant* (equal to 0.089 with a *t*-statistic of 0.74).

Id. at 19 (emphasis added).

[60] *Id.* at 18-19.

[61] CS's findings that in general destaggering had insignificant effect on firm value (except in cases coerced by Harvard's SRP) is supported by recent evidence from Professors Catan and Klausner. *See generally* Emiliano Catan & Michael D. Klausner, *Board Declassification and Firm Value: Have Shareholders and Boards Really Destroyed Billions in Value?* (N.Y.U Law & Econ. Research Paper Series, Working Paper No. 17-39, 2017), https://ssrn.com/abstract=2994559 [https://perma.cc/6UX3-5LRE]. They find that there is no significant association between destaggering and a drop in firm's Tobin's Q once a proper adjustment is made by benchmarking the affected firms with other unaffected firms with similar market capitalization. *Id.* at 1. Catan and Klausner state: "[O]nce one takes account of unrelated differential fluctuations in Q among high- and low- R&D firms, there is no evidence that destaggering a board reduces the value of high-R&D firms." *Id.* Again, this finding is consistent with our findings that staggered board has no effect on firm's value and inconsistent with those of CLS and CSM on staggered board being value-increasing.

[62] As we noted in our original article, this does not mean that the staggered board may not, in more confined circumstances, add value. *See* Amihud, Markus & Solomon, *supra* note 1, at 1505 ("Our findings also do not mean that in the heat of a takeover battle, the staggered board has no real effect in either frustrating a bid or causing a higher premium to be paid. Prior studies have addressed these issues . . . ."); *see also* Cremers, Sepe & Masconale, *supra* note 5, at 10-11 (recounting prior findings of *Staggered Board* value); Daines et al., *supra* note 20, at 26-27 (finding that the staggered board, on average, results in increased value for more innovative firms).

other firms it is value-decreasing and still for others it is value-neutral. We of course are happy to debate this further, but the latest analysis of CSM does not change our conclusions in *Settling the Staggered Board Debate*: the staggered board has no independent effect on firm value, on average.