Web Appendix: Additional Robustness Analyses

A.1. Time Between Predictors and Dependent Variables

We also checked the robustness of our results by re-estimating the models using predictors from one year prior or three years prior instead of predictors from two years prior. We found that 25% of the bankrupt firms stopped reporting financial information in the year prior to filing for bankruptcy. The coefficient estimates for the hypothesized interactions in the bankruptcy risk model using predictors from one year prior were directionally consistent with the estimates using predictors from two years prior, though their significances were lower as a result of estimating coefficients on a subsample that has 25% fewer bankruptcies. Estimates for the hypothesized coefficients in the bankruptcy risk model using predictors from three years prior were also less significant, consistent with the notion that the impact of prior market turbulence diminishes over time. The results suggest that the bankruptcy literature's practice of using predictors from two years prior to maximize the data available for analysis, without letting an inordinate amount of time pass since the reporting of financial data, is appropriate.

For the shareholder value models, the estimated coefficients of advertising assets, R&D assets, and their interactions with market turbulence were directionally consistent using predictors from one, two, and three years prior. The magnitudes and significances of the estimated coefficients were greatest for predictors from one year prior and smallest for predictors from three years prior. Across all time frames, we find that advertising assets and R&D assets increase shareholder value and their impacts on shareholder value are not moderated by market turbulence.

A.2. Alternative Financial Control Variables Measures

We also analyzed the robustness of our results to alternative measures of the financial control variables. We checked the robustness of using the book value of assets to measure firm size by reestimating the models with $SIZE$ measured as firm revenues. We found that the impacts of advertising assets and R&D assets on both bankruptcy risk and shareholder value are not sensitive to the measure chosen for firm size. Similarly, we checked the robustness of using EBITDA (earnings before interest, taxes, depreciation, and amortization) divided by the book value of assets to measure $PROFIT$ by re-estimating the models with $PROFIT$ measured as EBIT divided by the book value of assets, as well as

net income divided by the book value of assets, and found that the impacts of advertising assets and R&D assets on both bankruptcy risk and shareholder value are not sensitive to the measure chosen for $PROFIT$. Finally, we checked the robustness of using long-term debt divided by the book value of assets to measure LEV by reestimating the models with LEV measured as total debt divided by the book value of assets and found that the impacts of advertising assets and R&D assets on both bankruptcy risk and shareholder value are not sensitive to the measure chosen for LEV. In summary, the empirical support for our hypotheses is not sensitive to alternative measures used for the financial control variables.

A.3. Alternative Market Control Variables Measures

We use Dess and Beard's (1984) measure of market turbulence, which is the predominant secondary-data measure of market turbulence used in marketing and management literature (Boyd 1990, Cannella et al. 2008, Carpenter and Fredrickson 2001, Gruca and Rego 2005). They estimate a linear regression of the market's sales on time (over the last five years), taking the coefficient of time as an estimate of the sales growth. They measure market turbulence, $TURB$, as the standard error of the sales growth estimate from this regression divided by the market's average sales.

As an additional robustness analysis, we check how the linear model of sales growth fits the data versus nonlinear models of sales growth. Recall that the sales growth models are estimated for each market over a rolling five-year window. We find that the median R-squared is 0.61 for an exponential model, 0.73 for a quadratic model, and 0.75 for our linear model, providing support for the management and marketing literature's linear model of sales growth. We also note that for both nonlinear models of sales growth (with their associated estimates for $TURB$), the signs of the coefficient estimates to test our hypotheses remain unchanged.

A.4. Instruments

We also checked the robustness of our results to alternative instruments. First, we reestimated the bankruptcy risk model and the shareholder value model with varying window sizes for the historical market averages of advertising intensity and R&D intensity and found that, while the fit of the models decreased, the results were consistent. Second, we replaced the historical market averages with market averages at $y-2$ and found that the coefficient estimates were consistent.

A.5. Interactions

We also checked for the presence of interaction effects between advertising assets and R&D assets. We first added the interaction between advertising assets and R&D assets to the bankruptcy risk and shareholder value models and found that the estimated coefficient for the interaction term was not significant. We then added an additional interaction term between advertising assets, R&D assets, and market turbulence and found that the estimated coefficient for this three-way interaction was not significant.

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