Appendix to accompany the article:

When Funders Aren't Customers: Reputation Management and Capability Under-Investment in Multi-Audience Organizations

S1. Field Work Interview Guide

The following is an example of the interview guide used to direct conversations during the fieldwork conducted for this research. This interview guide was approved as part of the design of this qualitative fieldwork by the MIT Committee on the Use of Humans as Experimental Subjects, filed under Protocol # 1810543537

1. Let's begin with you telling me about a little about your background and role in the organization.
2. Now let's transition to the organization.
    a. What's the mission? Has that changed at all over the years?
    b. How do you measure success? What made you choose those measures over other potential measures?
    c. In what ways do you and your staff monitor performance?
    d. Is any kind of overhead cost measure important to your organization? Why?

3. How is the organization funded?
    a. What proportion of your revenue would you estimate is grant funded?
    b. What kinds of organizations are typically your big funders?
    c. In what ways, if at all, have you changed/built this organization to fit with their priorities or ways of working?

4. In your experience, what are the key elements of a successful appeal for funding (grant or individual donor)?
    a. What does a donor need to feel confident about in order to cut you a check?

5. How regularly do you find you're able to make investments in your own staff or organization - to develop new systems, redesign processes, provide professional development for people etc.?
    a. What are the things that make this possible?
    b. What are the challenges to doing this kind of work?

6. I wonder if there's ever been a point in time when you looked at your numbers/measures and said: "we're just not doing well enough"?

    a. If so, what did you do in response?
    b. What made you choose that course of action over, say, [working hard/investing in capabilities]?

S2. Model Availability

Accompanying the main article and this appendix is the full model available as a .mdl file, along with supporting data files to illustrate the how specific analyses were run and figures generated. These files can be obtained directly at:

https://github.com/jpain3/Multiaudience-Organizations

The .mdl file can be open and run using Vensim software, developed by Ventana Systems, Inc. A free version of the Vensim software for personal use, along with a standalone model viewer, is available from Ventana Systems, Inc. The .mdl file is divided into two views, an overview Dashboard, and a view of the full model itself. Different views can be access via the buttons in each view, or via the view menu. Examples of these two views are provided below.

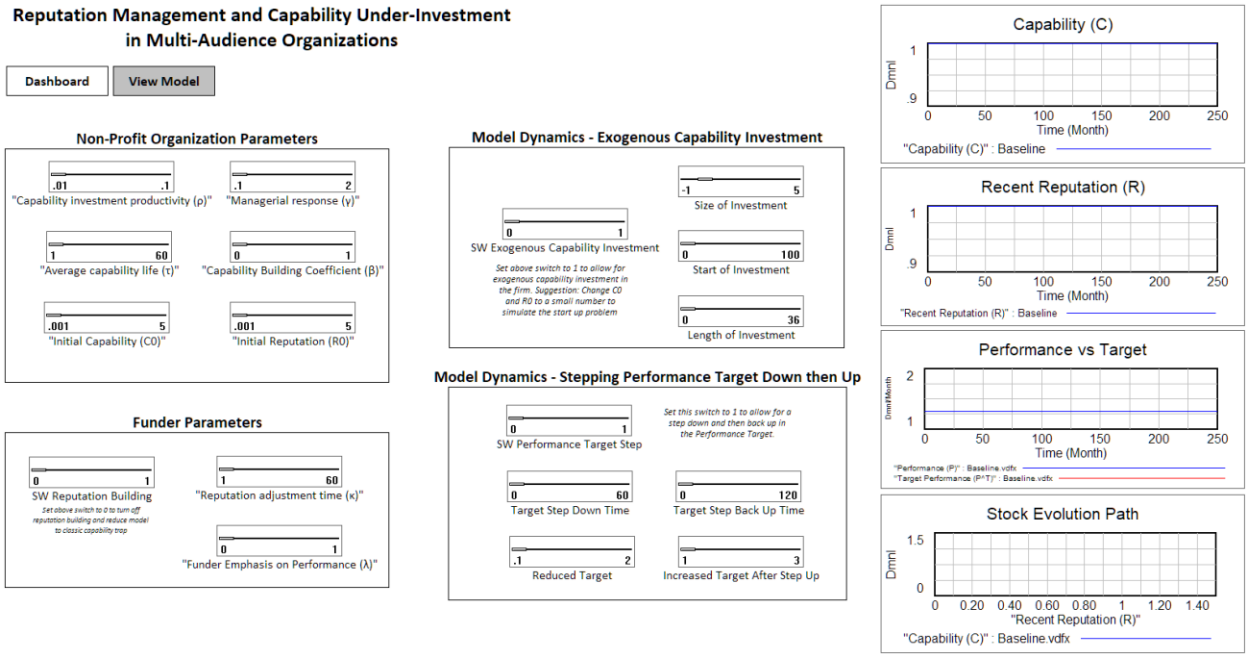


Figure S1: Dashboard View of the accompanying .mdl file in Vensim

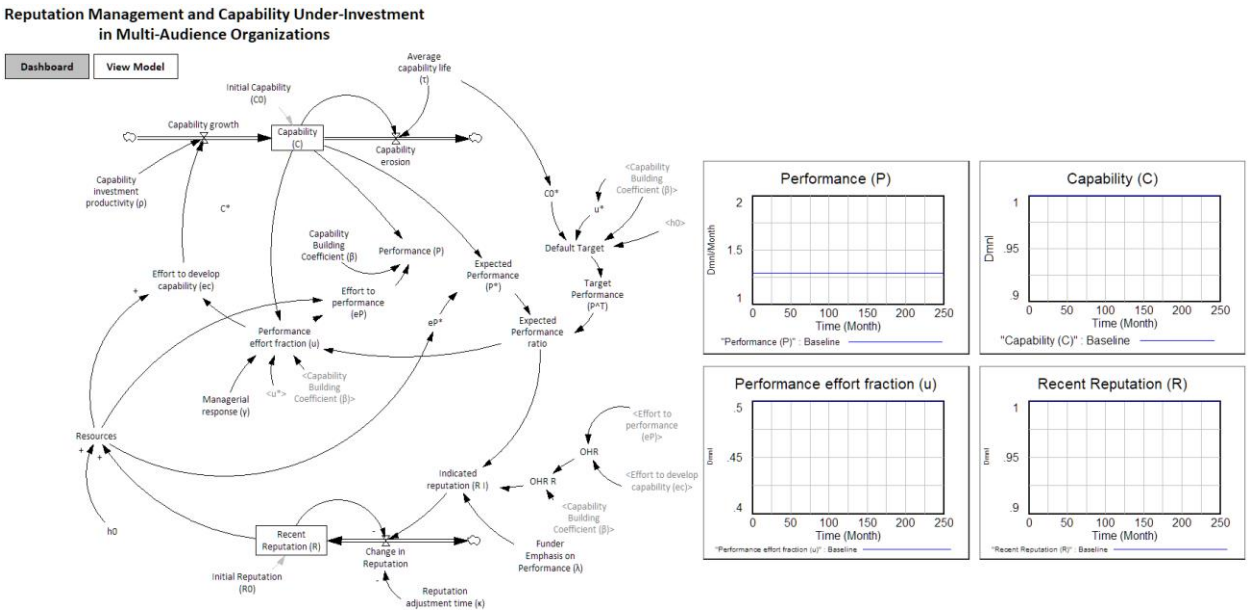
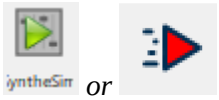


Figure S2: Full Model View of the accompanying .mdl file in Vensim

Ventana Systems, Inc provides detailed documentation on the Vensim software, including how to manipulate and examine specific formulations. However, the reader may quickly explore the influence of parameter choices on the model via the Synthesis mode on the main Dashboard view of the model. This can be accessed by pressing the corresponding button in the top toolbar of the software as seen below:



or

Furthermore, the .mdl file may be opened in any program that is able to read UTF-8 encoding and the formulations directly viewed in plaintext. Examples of program that can open the .mdl file for direct viewing in plaintext include Notepad in the Windows operating system and Texta in the Macintosh operating system. An example of this view of the model file is seen in Figure S3.

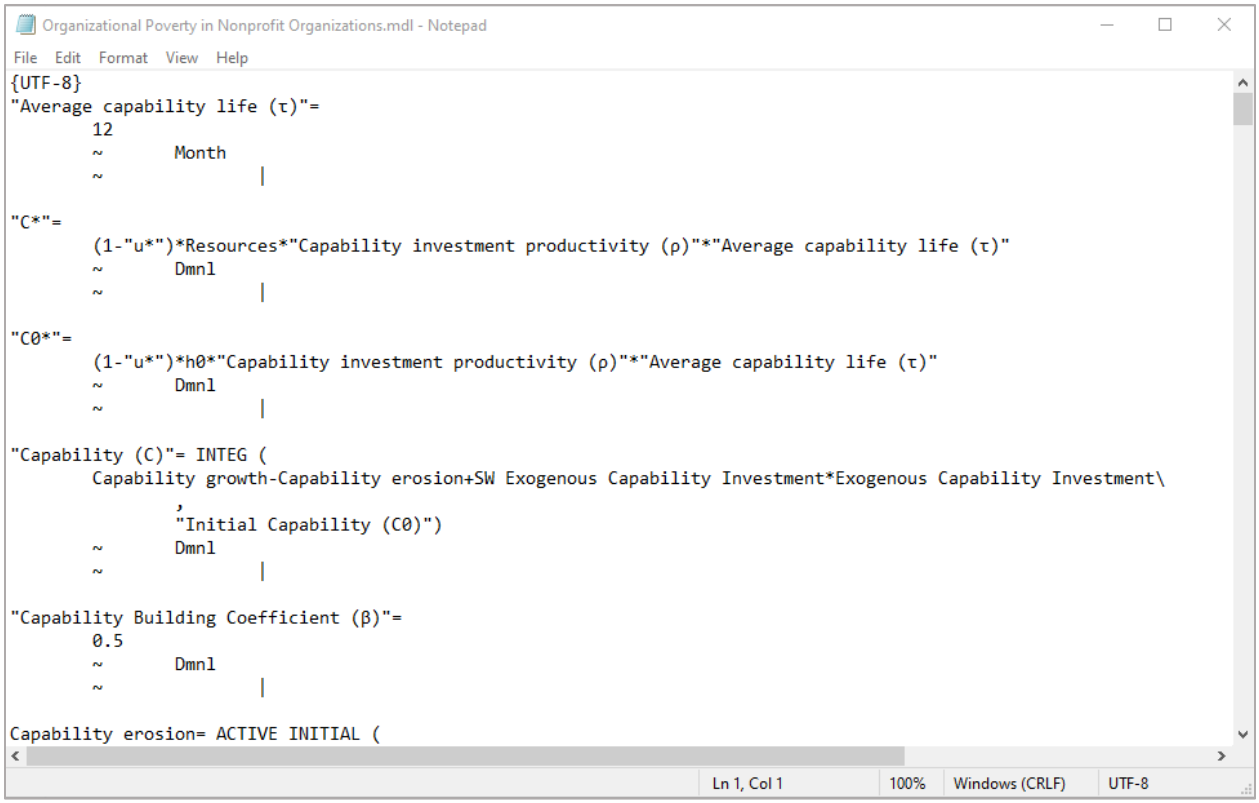


Figure S3: Example of Viewing the Supporting .mdl File in Notepad on Windows

S3. Notes on Model Formulation

S3.1 Expanded Description of the Allocation Rule, u*

The degree to which organizations respond to the pressure of the performance ratio is a function of the decision processes and time sensitivities of the managers of the organizations. We consider a fully long-term focused manager as one seeking the long-term steady state of capability, in which they adjust the performance allocation relative to the ratio of the current capability stock value to the optimal value:

$$u_{LR} = Min\left(1, u^*\left(\frac{C}{C^*}\right)\right) \quad (1)$$

We can also imagine short-term focused managers as being more concerned with the performance ratio than with the slower-acting ratio of capability to optimal capability. We further assume that the performance ratio is under the long-run steady state allocation u^* as fully observable to both the firm and the environment, while any influence of random variance from shocks on the actual firm capability C are known only to the firm itself.

$$u_{SR} = Min\left(1, u^*\left(\frac{P(u^*, C^*)}{P(u^*, C)}\right)\right) \tag{2}$$

This decision rule depends on the inverse performance ratio assessed not at the actual instantaneous firm performance *P* but rather at the value the firm should be performing at under the exogenous shocks the management experiences and the optimal allocation policy u^*. In this manner the short run focused manager adjusts his or her instantaneous allocation to the value necessary to restore firm performance to external expectations, given that external actors can only view u^* and not the influence of any randomness on capability *C*. We define this performance metric as P^*.

$$P^* = P(u^*, C) = C^{\beta} e^{*(1-\beta)}_{P} \tag{3}$$

We imagine that managers operated along a spectrum of this concept of short-term focused and long-term focused behavior, and define a variable γ to control this focus between the two extremes. We combine both the long and short term managerial perspectives given above into a single decision expression which uses γ to vary from purely long term decision making (at γ = 0) and purely short term (at γ = 1/(1-β)). Under this decision rule, managers adjust their performance to match both needed long run capacity building and short run performance relative to the factors that are externally observable.

$$u = Min\left(1, u^*\left(\frac{P^T}{P^*}\right)^{\gamma}\left(\frac{C}{C^*}\right)^{1+\gamma(\beta-1)}\right) \tag{4}$$

Note that γ is bounded on $0 \leq \gamma \leq \frac{1}{1-\beta}$ versus some more natural appearing bound such as between 0 and 1. This bound a function of β is a choice to make the definition of u simpler and more clearly mapped to the definitions of either totally short-term (performance) focused or totally long term (capability) focused as defined above. The use of seemingly more natural range of γ being bounded on [0,1] would make that mapping less apparent and the resulting allocation rule for u more complex.

S4. Recreating the Figures in the Article

S4.1 Capability Investment Paths seen in Figures 3 and 5

Figure 3 of the main article is repeated below:

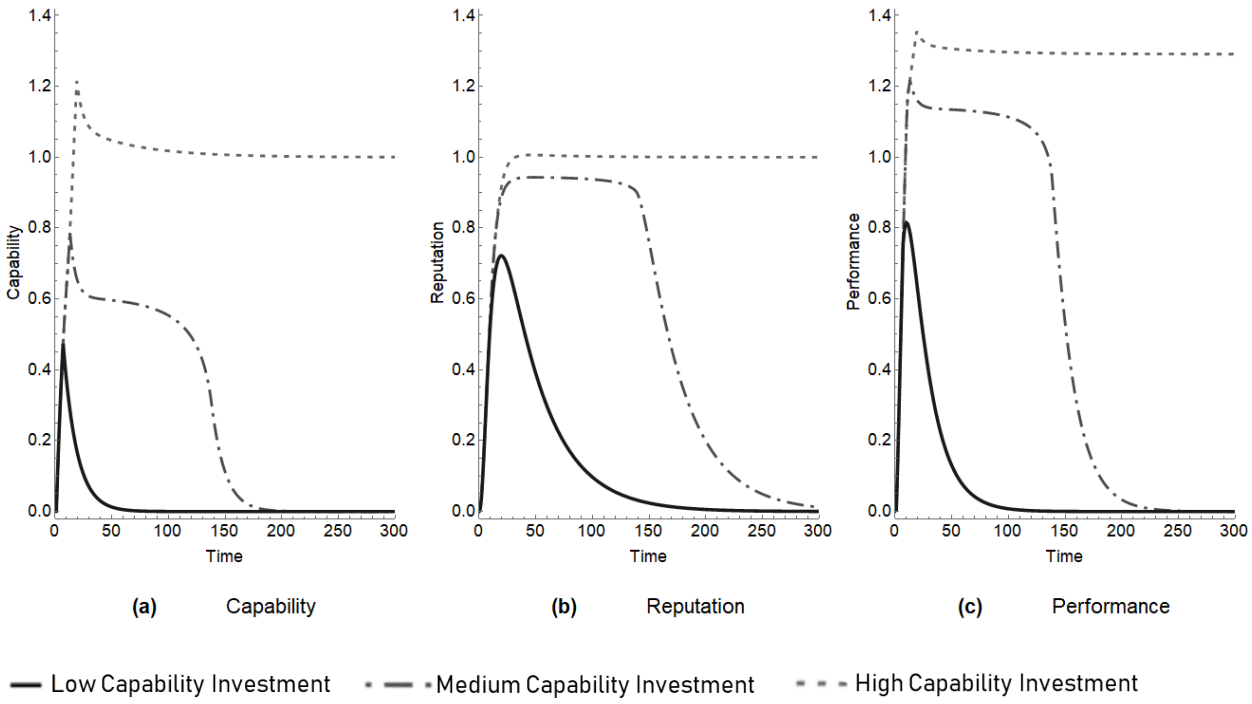


Figure 3 (replicated): Evolution of Capability and Reputation with Different Capability Investments

As stated in the main document, the key distinguishing feature of each of the scenarios (Low, Medium, and High Capability Investment) presented in the above figure is the length of time that the firm receives some exogenous investment in organizational capability. In all other ways, the scenarios are identical. The specific parameter values that define and distinguish these three scenarios are summarized in the table below:

Table S1. Scenario Details for Recreating Figure 3

	Low Capability Investment	**Medium Capability Investment**	**High Capability Investment**
Initial Capability (C0)	0.001	0.001	0.001
Initial Reputation (R0)	0.001	0.001	0.001
Size of Investment	0.1 / month	0.1 / month	0.1 / month
Start of Investment	Month 1	Month 1	Month 1
Length of Investment	6 months	12 months	18 months

All other model parameters are identical to those shown in Table 1 of the main document, which is also replicated as Table S3 below.

Along with this supplement, a Vensim .mdl file is provided which can be used to recreate the data used to draw the figures seen in the main document. For example, to create the data used to generate the lines for the 'Medium Capability' portion of Figure 5, the inputs on the dashboard in the provided .mdl file can be changed as seen in the figure below. Note that the controls for the 'Model Dynamics – Stepping Performance Target Down then Up' are not relevant to generating these specific figures.

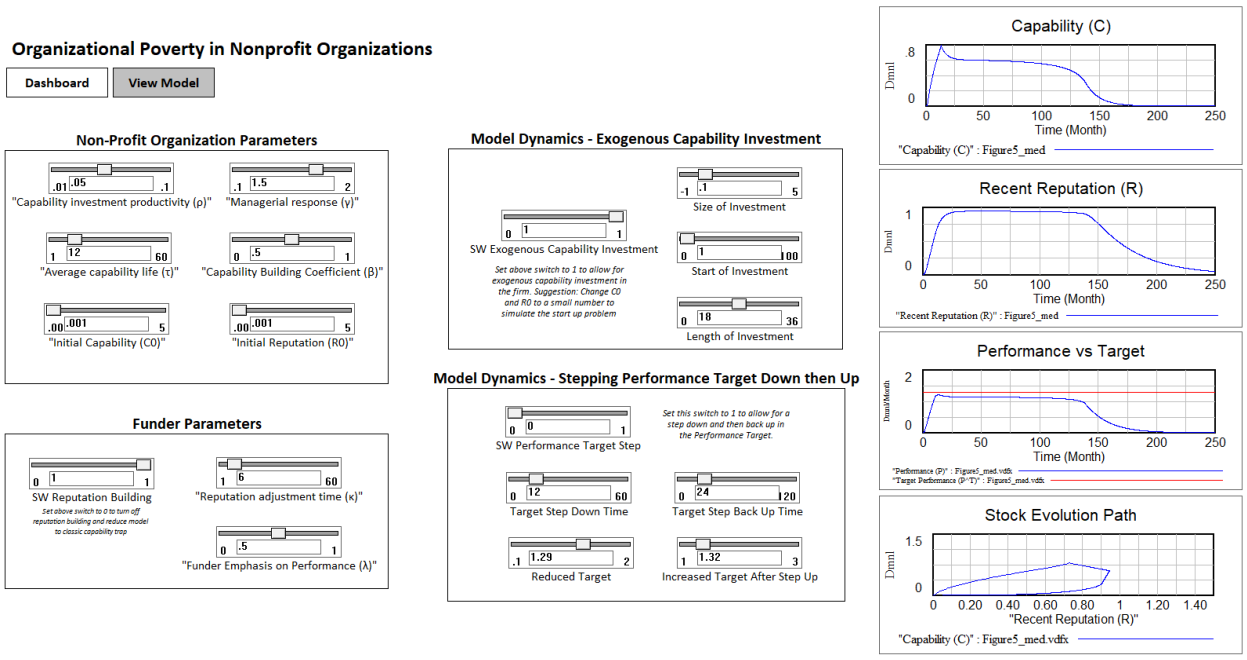


Figure S4: Example of Model Dashboard Used to Generate Medium Capability Trace in Figure 3 of Main Article

Similarly, Figure 5 utilizes these same three scenarios of exogenous capability investment to generate the stock evolutions seen on the two-dimensional phase plots. This figure is replicated below:

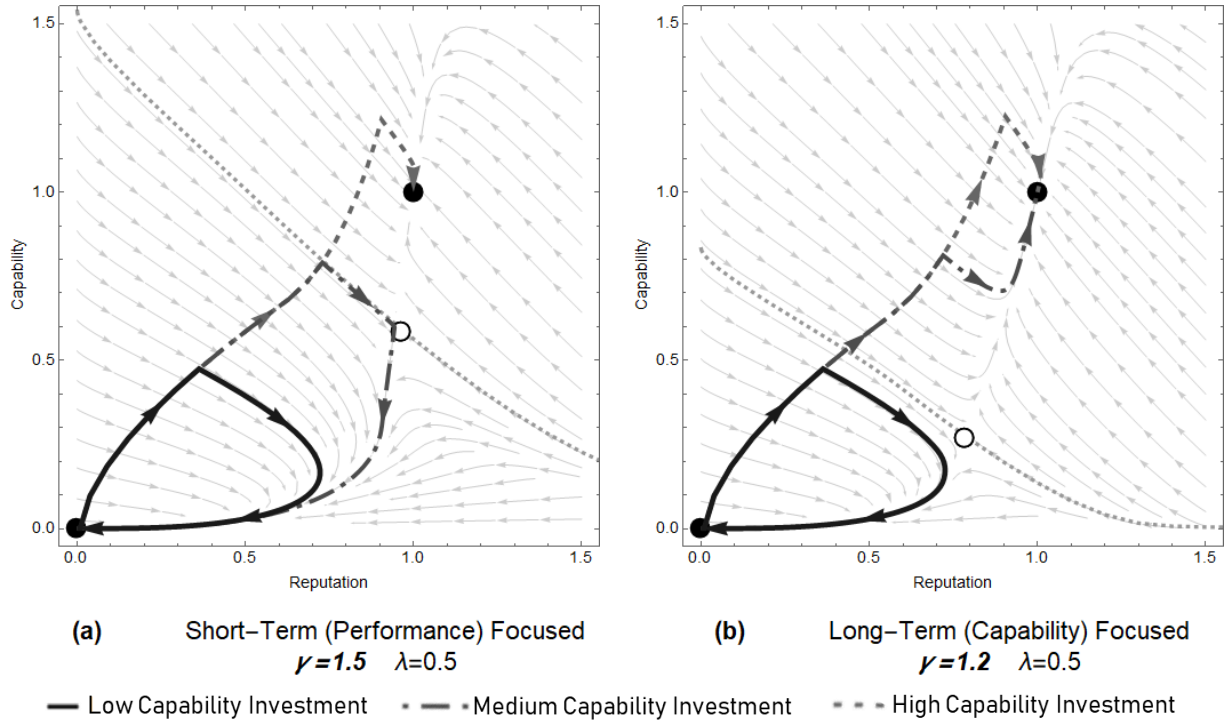


Figure 5 (replicated): Paths of Capability Investment for γ=1.5 and γ=1.2

These paths correspond to the 'Stock Evolution Path' output seen in the dashboard of the accompanying model .mdl file an illustrated in the bottom right corner of Figure S4. Both 5a and 5b were generated using the scenarios described in Table S1, but differ in that for 5a, the value of γ is set to 1.5, while for 5b γ is set to 1.2. The figure below provides and example of the settings in the dashboard of the accompanying model file used to generate the stock evolution path for the Medium Capability Investment scenario shown in 7b specifically. Note that the controls for the 'Model Dynamics – Stepping Performance Target Down then Up' are not relevant to generating these specific figures.

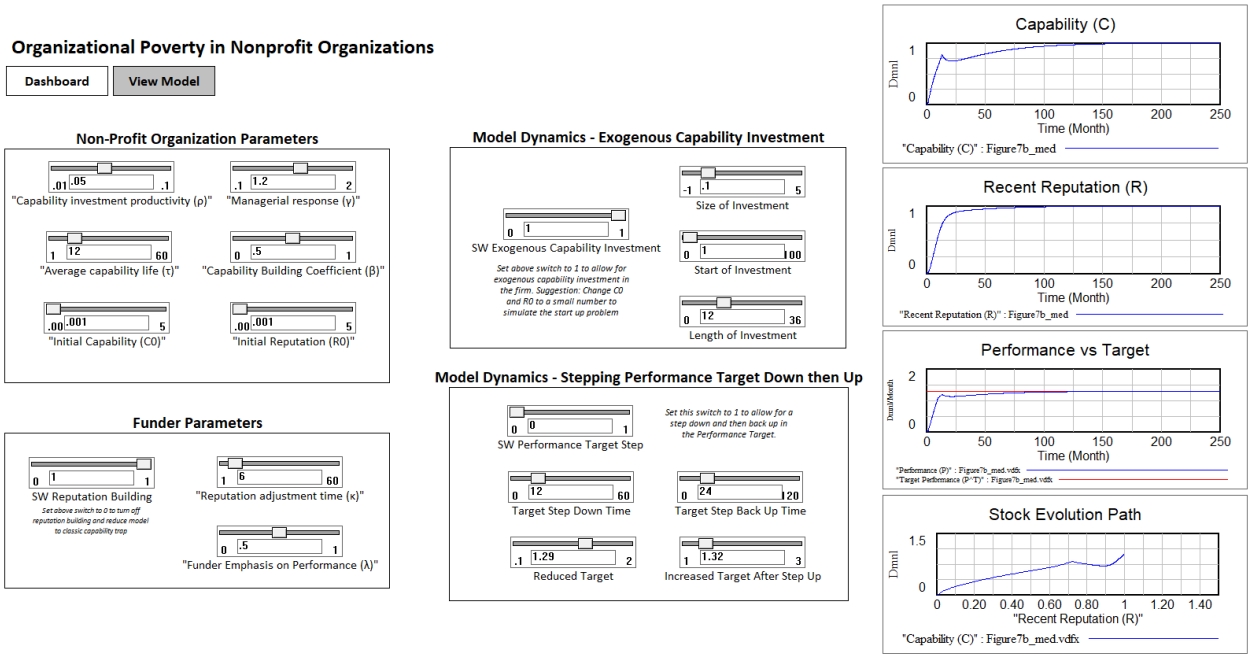


Figure S5: Example of Model Dashboard Used to Generate Medium Stock Evolution Trace in Figure 5b of Main Article

S4.2 Two Dimensional Phase Plots of Capability versus Reputation in Figures 4, 5 and 6

Figures 4, 5, and 6 of the main document utilize a two-dimensional phase plot of capability versus reputation to illustrate the overarching landscape of the firm as modeled and parameterized.

To generate these phase plots, the change in each stock as a function of the instantaneous value of the other stock and itself, along with the exogenous model parameters. For this model, it is possible to analytically derive the necessary formulations.

Beginning from the definition of the stock variable for organizational capability, we can substitute in the various definitions of model parameters until we are left with an expression that is a function of stock variables, C and R, exogenous model parameters, and the allocation function u.

$$\frac{dC}{dt} = e_c\rho - \frac{C}{\tau}, \qquad where\ e_c = (1-u)h$$

$$\therefore \frac{dC}{dt} = (1-u)h_0 R\rho - \frac{C}{\tau}$$

We can do similar for the stock of Reputation, R.

$$\frac{dR}{dt} = \frac{R_I - R}{\kappa}, where\ R_I = \left(PR^{\lambda}\right)\left(OHR_R^{(1-\lambda)}\right)$$

Expanding the definitions of the performance ratio and the relative overhead ratio from the main article yields the following:

$$\frac{dR}{dt} = \frac{\left(PR^{\lambda}\right)(1 - OHR + OHR_E)^{1-\gamma} - R}{\kappa}$$

$$\frac{dR}{dt} = \frac{\left(PR^{\lambda}\right)\left(1 - \frac{e_C}{e_C + e_P} + OHR_E\right)^{1-\gamma} - R}{\kappa}$$

$$\therefore \frac{dR}{dt} = \frac{\left(R^{\gamma\lambda(1-\beta)}\left(\frac{C}{\beta h\rho\tau}\right)^{\beta\gamma\lambda}\right)\left(1 - \frac{(1-u)R}{(1-u)R + uR} + \beta\right)^{1-\gamma} - R}{\kappa}$$

The value of the allocation function u can be determined from the information provided in the article, but given that the parameters employed here are all non-negative we can further rearrange the function to be in terms of only exogenous parameter values and of R and C.

$$u = Min\left(1, u^*\left(\frac{P^T}{P^*}\right)^{\gamma}\left(\frac{C}{C^*}\right)^{1+\gamma(\beta-1)}\right)$$

$$u = Min\left(1, u^*\left(\frac{C^{*\beta}(u^* h_0)^{1-\beta}}{C^{\beta}(u^* h)^{1-\beta}}\right)^{\gamma}\left(\frac{C}{(1-u^*)h\rho\tau}\right)^{1+\gamma(\beta-1)}\right)$$

$$u = Min\left(1, u^*\left(\frac{(\beta h\rho\tau)^{\beta}}{C^{\beta}R^{1-\beta}}\right)^{\gamma}\left(\frac{C}{\beta h\rho\tau}\right)^{1+\gamma(\beta-1)}\right)$$

$$\therefore u = Min\left(1, (1-\beta)R^{\gamma(\beta-1)}\left(\frac{\beta h \rho \tau}{C}\right)^{\gamma-1}\right)$$

Given a value of organizational capacity, C, and reputation, R, the above expression can be used to determine the allocation fraction, u, and next the instantaneous changes, $\frac{dC}{dt}$ and $\frac{dR}{dt}$ at that value of C and R. This is then used to generate the phase plots seen in the main document, which are overlaid with the path evolution of the stocks as needed.

While the specific model developed here allows for an analytical solution for these phase plots, this is not always possible, especially if the model is numerically exercised in a manner making the above closed form solutions infeasible. Therefore, in practice, the method to generate the actual plots seen in article was not by direct application of the closed form numerical solutions derived above, but rather by varying R and C and observing the changes in those stocks over the integration time of the numeric model. This was done both for ease of graphic generation, and as a confirmation of the derivations performed above. For the specific analyses seen in this article, there are no significant differences between the use of the analytical solutions

S4.3 Sustaining a Higher Performance Target as Seen in Figure 7

The analysis surrounding Figure 9 in the main article is intended to highlight the danger and unsustainable nature in increasing the target performance of the organization without first allowing the organization to building the organizational capability and reputation needed to sustain that new higher target. The table below provides details on the specific differences between the two scenarios shown in the Figure 9. All other model parameters are as described in the main article.

Table S2. Scenario Details for Recreating Figure 7

	Target Increased After Firm is Allowed to Build Capability	Target Increased Without Capability Building
Target Step Down Time	Month 12	Month 12
Reduced Target	1.2	1.2
Target Step Back Up Time	Month 24	Month 24
Increased Target After Step Up	1.32	1.32
Original λ	0.5	0.5
New λ	0.7	0.5
λ step time change	Month 12	Month 12

As stated in the analysis in the section "When Less Is More: Building Capability Before Increasing Expectations" it is *both* the reduced target and the increases emphasis on meeting that target that helps build and maintain long run reputation. Afterward, the target can be increased, and the new higher emphasis on meeting that higher target further reinforces and maintains this higher performance level.

Our results in the main article (specifically in Figure 7(c) show that this targeted investment allows the organization to significantly increase its stock of Capability during the period that Target Performance is reduced, successfully equipping the organization to sustain the higher level of Performance demanded subsequently ((Figure 7(b)).

S5. Robustness and Further Exploration of the Parameter Space

The main article explores several analyses that utilize specific values of the model and, in part, compares the outcomes achieved under different values of the Managerial Response parameter γ and the Funder Emphasis on Meeting Performance Target parameter λ. The specific values where chosen in order to illustrate the key points of those analyses succinctly, but the section below provides a more robust exploration of the these parameters over their feasible ranges.

S5.1 Managerial Response parameter γ

Given the model as parameterized in the Analysis section of the main article, replicated below for convenience, the value of the Managerial Response parameter γ can vary between 0 (totally long-term focused) and 2 (totally short-term focused). In the main article, we focus on a value of γ=1.5 as this represents a non-profit manager who is generally focused on short-term performance outcomes but still acknowledges the value of investing in organizational capability (which is consistent with our observations from the field).

Table S3. Summary of Model Parameters

Parameter	Name	Description	Base Value
ρ	Capability investment productivity	Productivity of resources allocated to capability growth. Its value only scales the results.	0.05
τ	Average Capability Life	Time for capability to erode. Depending on the type of capability and firm, this can be from a few months to a few years.	12 months
β	Firm's typical overhead ratio	The constant return to scale capability building Cobb-Douglas coefficient. This ultimately is equal to the expected overhead ratio for the firm in its industry.	0.5
γ	Managerial Response	Value determines how short-term focused is the manager of the firm. Given the value of β, the value can vary between 0 (totally long-term focused) and 2 (totally short-term focused)	1.5
κ	Reputation adjustment time	Time for funders to update their view of the reputation of the firm. Depending on the firm and non-profit industry, this can vary from a few months to a year or more	6 months
λ	Funder Emphasis on Meeting Performance Target	The constant return to scale reputation building Cobb-Douglas coefficient. Value determines degree to which the funders emphasize meeting performance targets versus overhead targets in determining the firm's reputation. Varies between 0 (totally overhead focused) and 1 (totally performance focused).	0.5
h_0	Exogenous or baseline firm resources	Amount of resources available to a firm with Reputation of 1, per time period. The value chosen only scales the output. The base value was chosen here to ensure that meeting the Performance Target (P^T) corresponds to a Capability of 1 and a Reputation of 1	3.33 resources

Furthermore, we specifically investigate how varying this value of γ influences the tipping points between organizational success and failure in the analysis section titled "Tipping Points in the Non-Profit Operating Environment". However, to compactly illustrate the point, we only compare values of γ=1.5 and γ=1.2. Below, we show a more complete view of result of varying γ over its feasible range of $0 \leq \gamma \leq 2$ (given that β=0.5) while fixing λ at the value from the above table at λ=0.5.

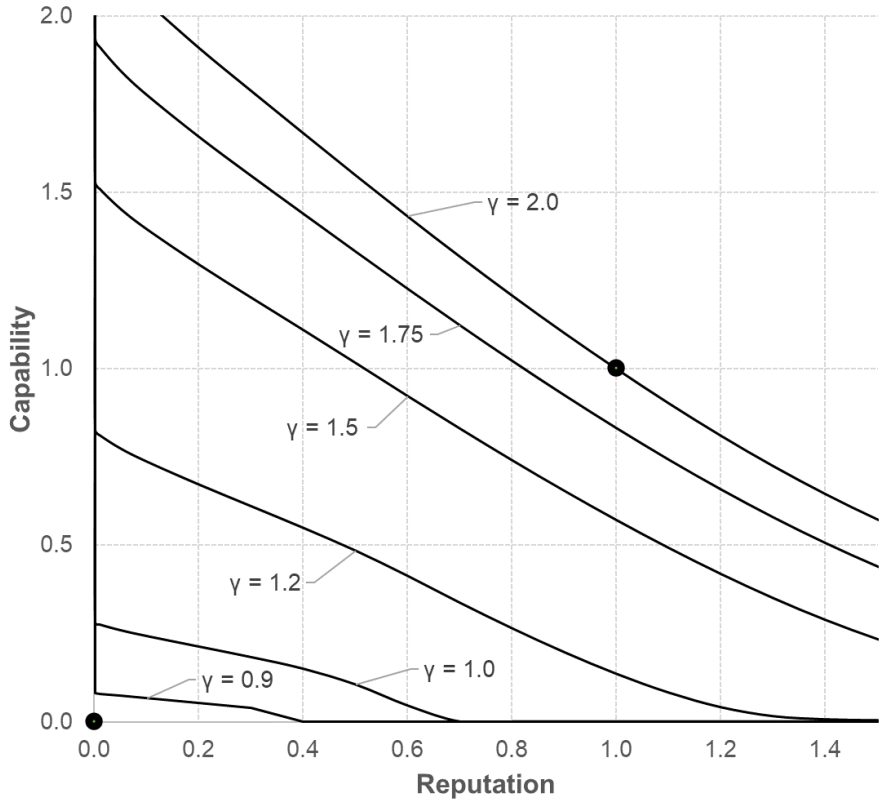


Figure S6: Ridges Separating Stable Points for Various γ at λ=0.5

The lines in Figure S6 represent the ridge separating the two stable equilibrium in the space. Given the parameterization of the model, specifically with λ fixed at λ=0.5, the two stable points (represented as dark dots in Figure S6) are fixed at (R,C) = (0,0) and (1,1).

While not directly visualized in Figure S6, low values of γ near γ=0 create a ridge that nearly follows the axes of the graph. Furthermore, consider the expression derived above for the allocation decision made by the manager:

$$u = Min\left(1, (1-\beta)R^{\gamma(\beta-1)}\left(\frac{\beta h \rho \tau}{C}\right)^{\gamma-1}\right)$$

Under the above rule, when $\gamma = 0$ then $R > 0$ for the above expression to remain tractable. However, when γ=0 this means that the non-profit firm is not willing to spend *any* investment whatsoever on performance, and rather invests all resources in capability. Given any feasible value of Funder Emphasis on Meeting Performance Target λ, this will result in zero resource generation in the model. This does support prior observations in the literature that some degree of capability investment prior to focusing on performance is needed in a non-profit setting, and that investment may need to come from an exogenous source. In our article, we attempt to present a more nuanced and realistic picture of non-profit management by showing that it is possible to generate performance and maintain organizational capability, but only when considering the trade-offs that separate the equilibriums of success and failure.

S5.2 Funder Emphasis on Meeting Performance Target λ

Similar to the above exploration of γ, the main article does consider changes in the value of λ but chooses two illustrative values for the sake of concise communication. Given the same parameterization shown in Table S3, we here more fully explore the results of varying the parameter λ over its feasible range of $0 \leq \lambda \leq 1$ as seen in Figure S7.

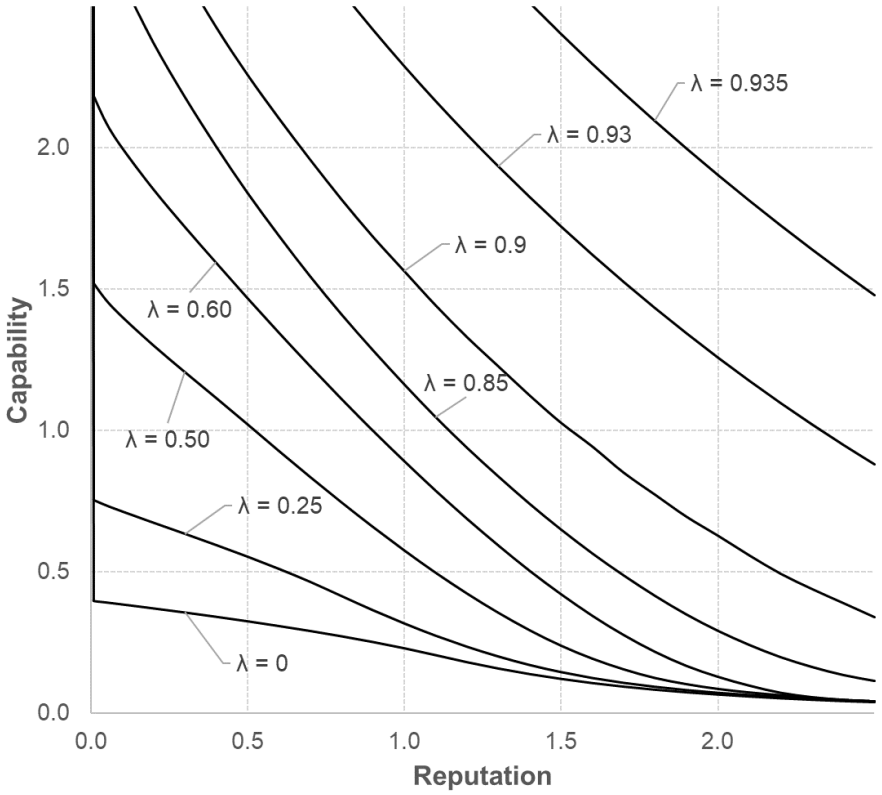


Figure S7: Ridges Separating Stable Points for Various λ at γ=1.5

As before, lines in Figure S7 represent the ridge separating the two stable equilibrium in the space. However, as discussed in in the main article in the Analysis section titled "The Paradox of Donors Prioritizing Performance over Overhead", value of λ can be used to stretch the performance landscape, moving both the ridges that separate the points of stability and the position of those points themselves. The lower stable point, at (R,C) = (0,0) remains present under all parameterizations, but the upper stable point is able to be moved beyond the original value for higher values of λ. This is illustrated in Figure S8, which again is based on the model parameterization seen in Table S3.

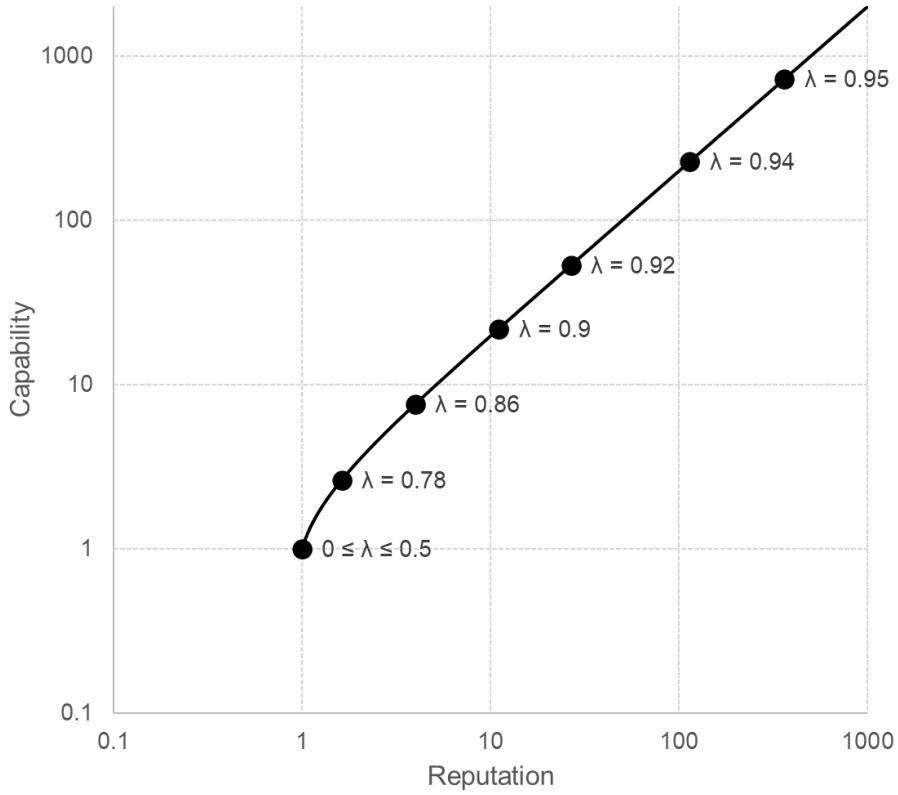


Figure S8: Ridges Separating Stable Points for Various λ at γ=1.5

Combining all the above observations on the effect of γ and λ on both the ridges that separate stable points and the placement of those stable points allows for the outcome seen in the analysis section "When Less Is More: Building Capability Before Increasing Expectations". There the nonprofit is able to achieve and maintain higher than initial performance by first building organizational capability and then being rewarded for achieving a higher performance target that is only maintainable under that higher organizational capability.

S6. Additional Model Analyses

The analyses below illustrate the importance of maintaining investment in organizational Capability and the pressures faced by managers to forego that investment. While the conclusions below are reflected

in our empirical research, and represent an observed mode of behavior often exhibited by nonprofit managers, the conclusions are similar to other work done in capability models in the investment industry (e.g. Rahmandad et al., 2018 in the references of the main article) and thus was not included in the main Article.

S6.1 Noisy Performance Realizations

In the original model presented in the main article, both the funder and the management of the nonprofit can see the performance of the firm. As we describe in the paper, the ability to actually interpret what performance is in a nonprofit setting is not always clear. Thus, it is possible to expand the model by modifying the definition of realized performance to include a concept of noisy realization of this measurement:

$$P = (1 + \epsilon)\left[C^{\beta} e_P^{(1-\beta)}\right]$$

The exact nature of ϵ in the above expression can be industry and firm specific, but for this analysis, we consider it to be a randomly drawn normal variable, with mean $\mu = 0$.

Now, we consider the long-run survivability of the firm given various values of the standard deviation in the normally drawn error in realization of performance. Figure S9 below shows the outcomes for the stock of Capability for 500 runs of the model under the same parameters shown in Table S3, except now with the addition of this random feature in performance realization. The colored bars represent intervals under which 50%, 75%, 95%, or 100% of the 500 runs fall at a given point in the simulation.

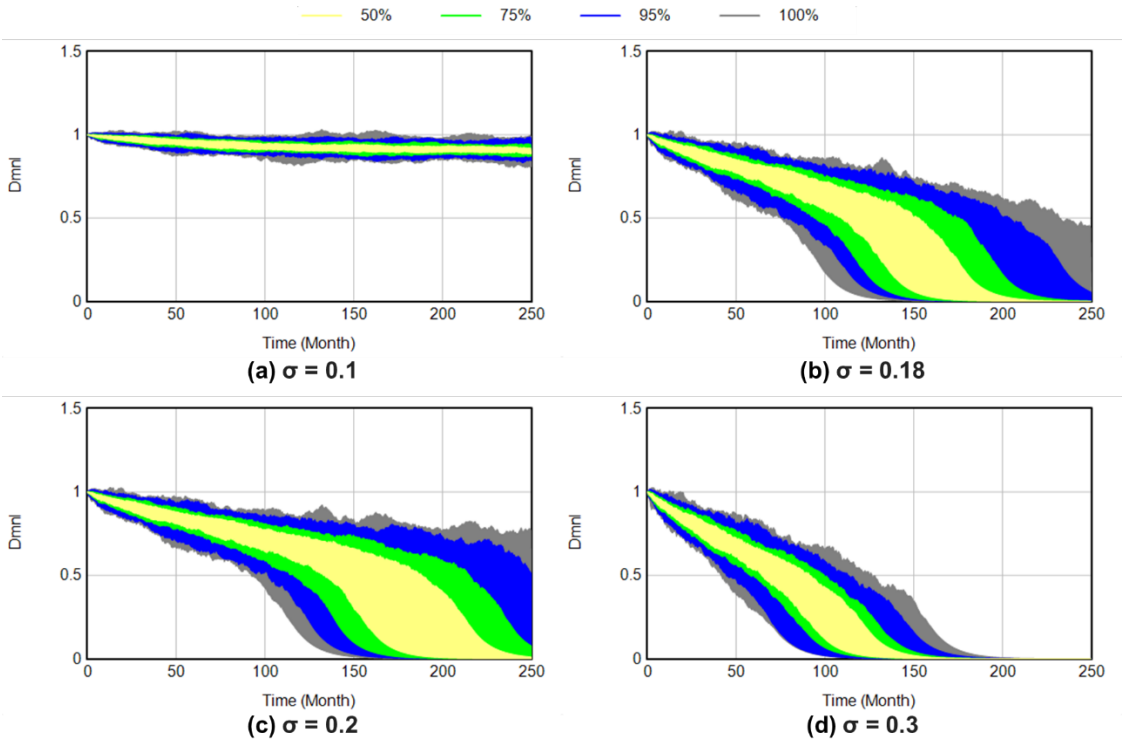


Figure S9: Envelopes of Capability with Random Shocks to Performance Realizations, γ=1.5, λ=0.5

Note that for sufficiently large standard deviations, effectively all firms in the simulations fail. This is further illustrated in the figure below, which shows the fraction of the 500 simulated firms that have failed at a given point in the simulation over various values of the standard deviation.

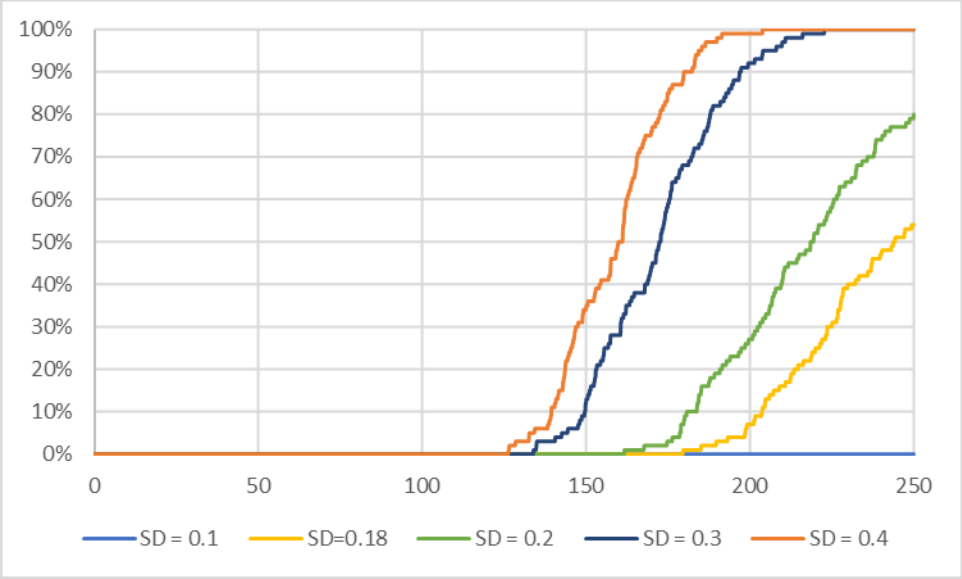


Figure S10: Failure Rates of Firms with Random Shocks to Performance Realizations, γ=1.5, λ=0.5

Now, we consider the effect of changing the managerial decision lever of γ from 1.5 to 1.2. As seen in the main article, this has the effect of shifting the ridge that separates stability and failure downwards, increasing the overall range of values of organizational capability and reputation that are robust to shocks. This is seen in the main article, but also summarized in the figure below:

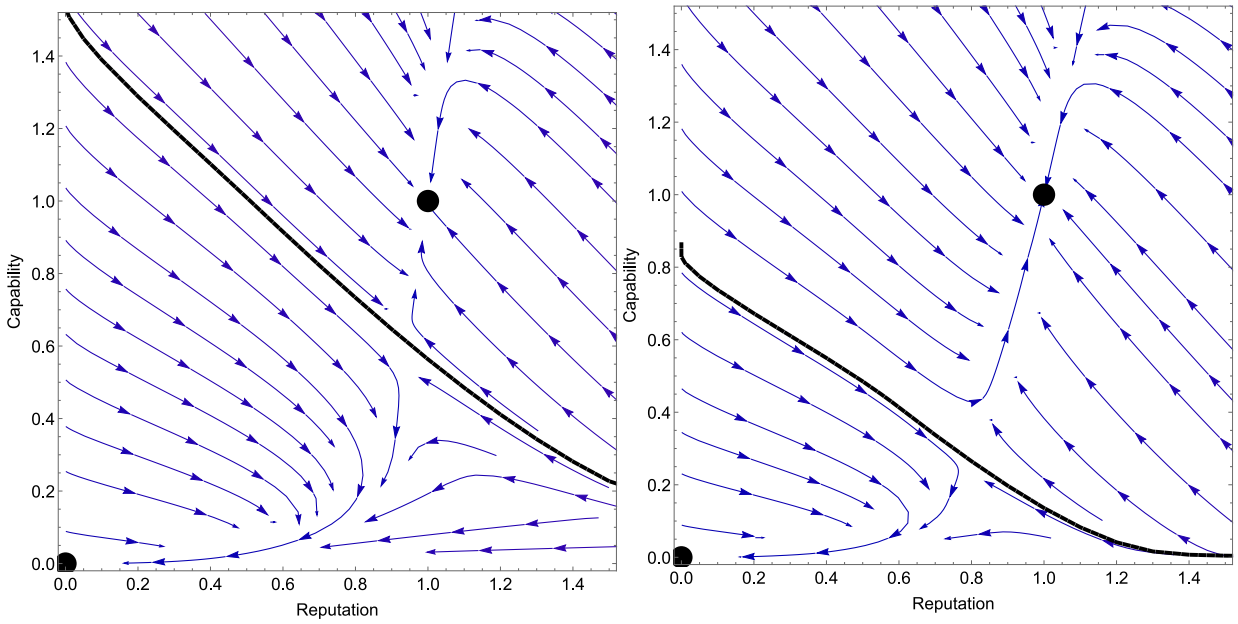


Figure S11: Comparison of Ridge Separating Stable Points

As we would expect, this increased range of values of capability and reputation that results in the firm returning to a long-run stable equilibrium allows for a greater stability when exposed to random shocks in performance realizations, as seen in Figure S12 compared to Figure S9:

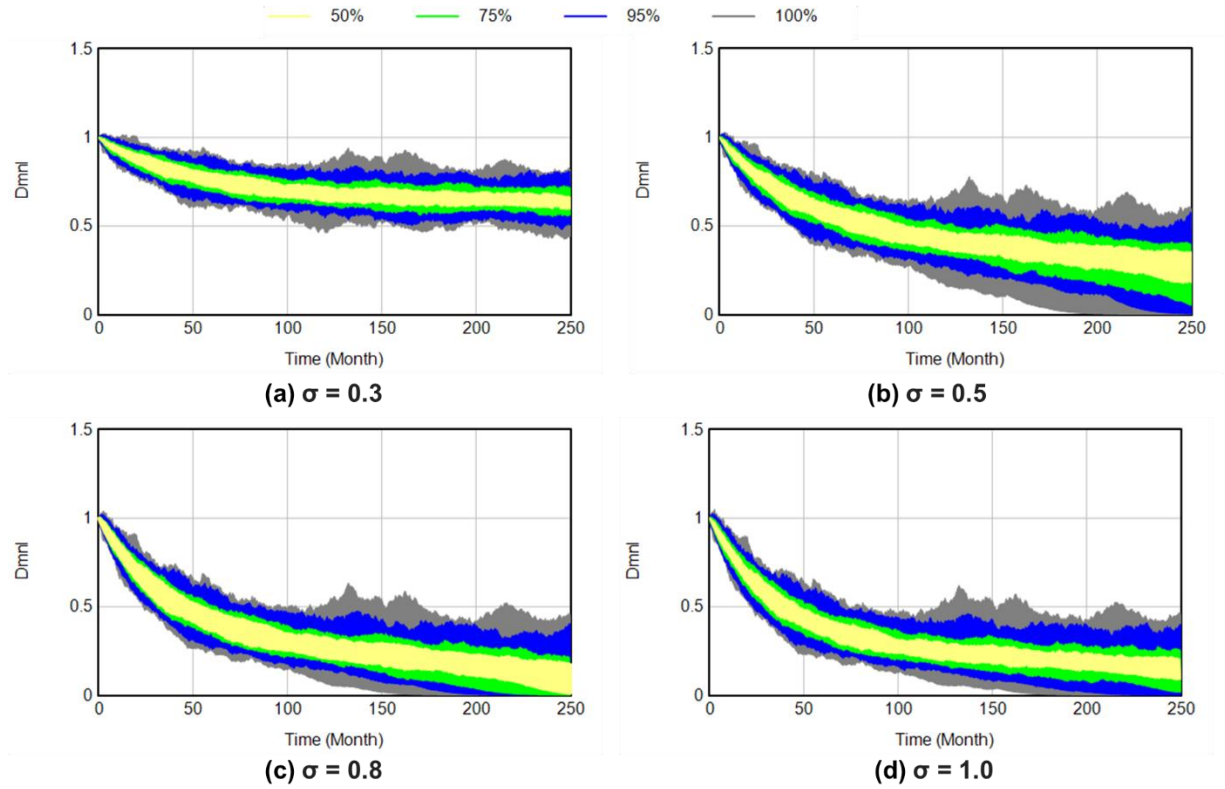


Figure S12: Envelopes of Capability with Random Shocks to Performance Realizations, γ=1.2, λ=0.5

Note that here even for large standard deviations, effectively all firms in the simulations survive. This is further illustrated in the figure below, which shows the fraction of the 500 simulated firms that have failed at a given point in the simulation over various values of the standard deviation.

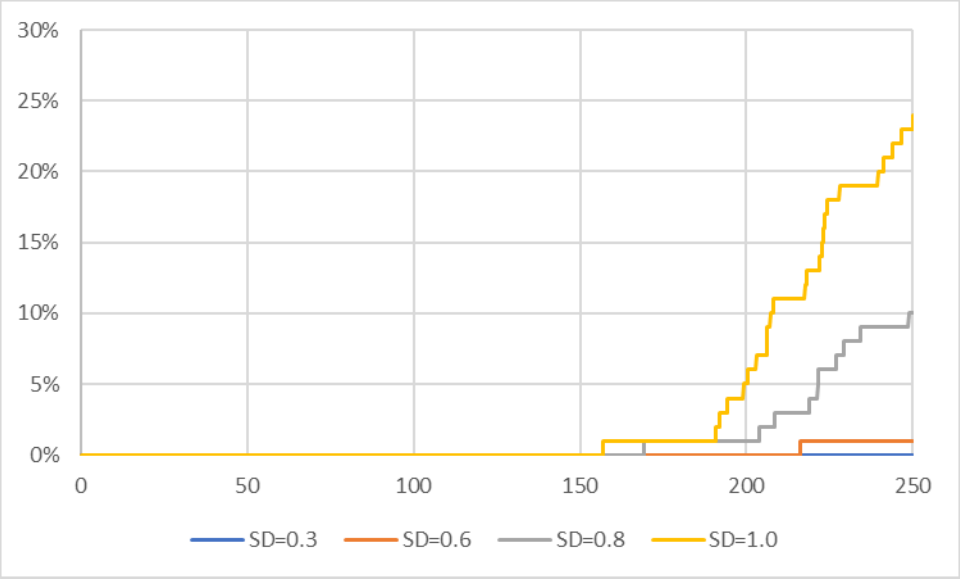


Figure S13: Failure Rates of Firms with Random Shocks to Performance Realizations, γ=1.2, λ=0.5

This observation is consistent with prior literature discussing the importance of focusing on organizational capability building in nonprofits in order to ensure long run stability. However, as illustrated in our main article, this is not as simple as it may seem. The analysis presented here serves to illustrate that those prior conclusions are still broadly valid and supported by this work.

S6.2 Capability can be Spent to Increase Performance, but only in the Short Run

We can now use the model developed above to explore a phenomena described multiple times in our empirical research. Specifically, that repeated and habitual burning down of organizational capability can *reduce* the long-term success of the non-profit firm. To illustrate, consider the same parameterization described in the Analysis section of the main article, whose parameters are repeated in Table S3 above, but now for a firm that has been in operation successfully for some time, with an initial stock of Capability and Reputation equal to 1 (as opposed to the startup problem described in the main article where the firm started at or near zero).

This firm, as parametrized in Table S3, starts at steady state (or, the upper equilibrium point shown in the phase plot in the analysis in the accompanying article), receiving 3.33 units of resources

each period and with a performance effort fraction of 0.5 (splitting those incoming resources equally between immediate performance and capability building). Now suppose the management of the firm is approaching the final operating quarter of their fiscal year and decides to break with the existing resource allocation rules and instead focus exclusively on performance. This will allow the firm to 'end the year strong' and hopefully also increase the reputation of the firm in the eyes of their funders by increasing absolute performance in their environment while minimizing overhead costs. When timed with a new grant proposal or other fundraising efforts, such a decision may appear not only rational but desirable. And, when looking at the outcomes in Figure S14 below, this single pulse of effort away from capability building towards seems to have achieved the positive effect predicted by the mental model of the manager. In the short term, the reputation of the firm is increased in the eyes the funders, and perhaps more saliently the performance of the firm increased by nearly 40% immediately after the decision is made.

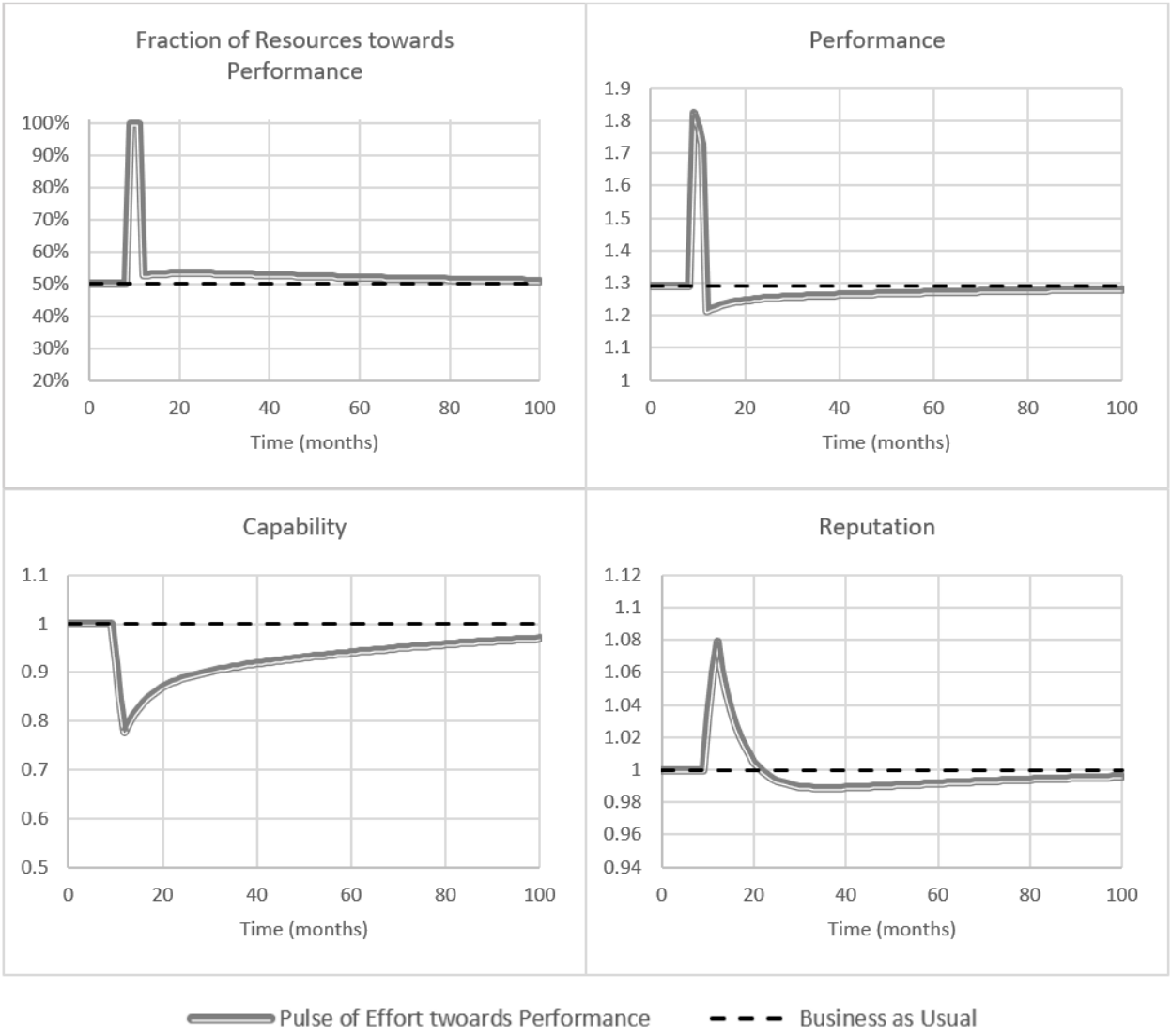


Figure S14: System Response to a Single Pulse of Fraction of Resources towards Performance

Given the above, and reflected in our empirical case studies, managers may be tempted to focus on performance (or scale of operations) at the detriment of capability building *each time* the fiscal season draws to a close, repeating the above patterns of performance and reputation spikes. However, during this time, the stock of organizational capability is expended to maintain this spike in performance level, as seen in the dip in capability in Figure S14. Once this drive to perform is removed, then the stock of capability is allowed to grown back. However, when subjected to *repeated pulses* of sustained effort away from capability building, the risk of moving the organization over the ridgeline separating the stable

points seen in the phase plot in the accompanying article becomes real. Consider the same firm now repeating this push for performance annually, as seen in Figure S15.

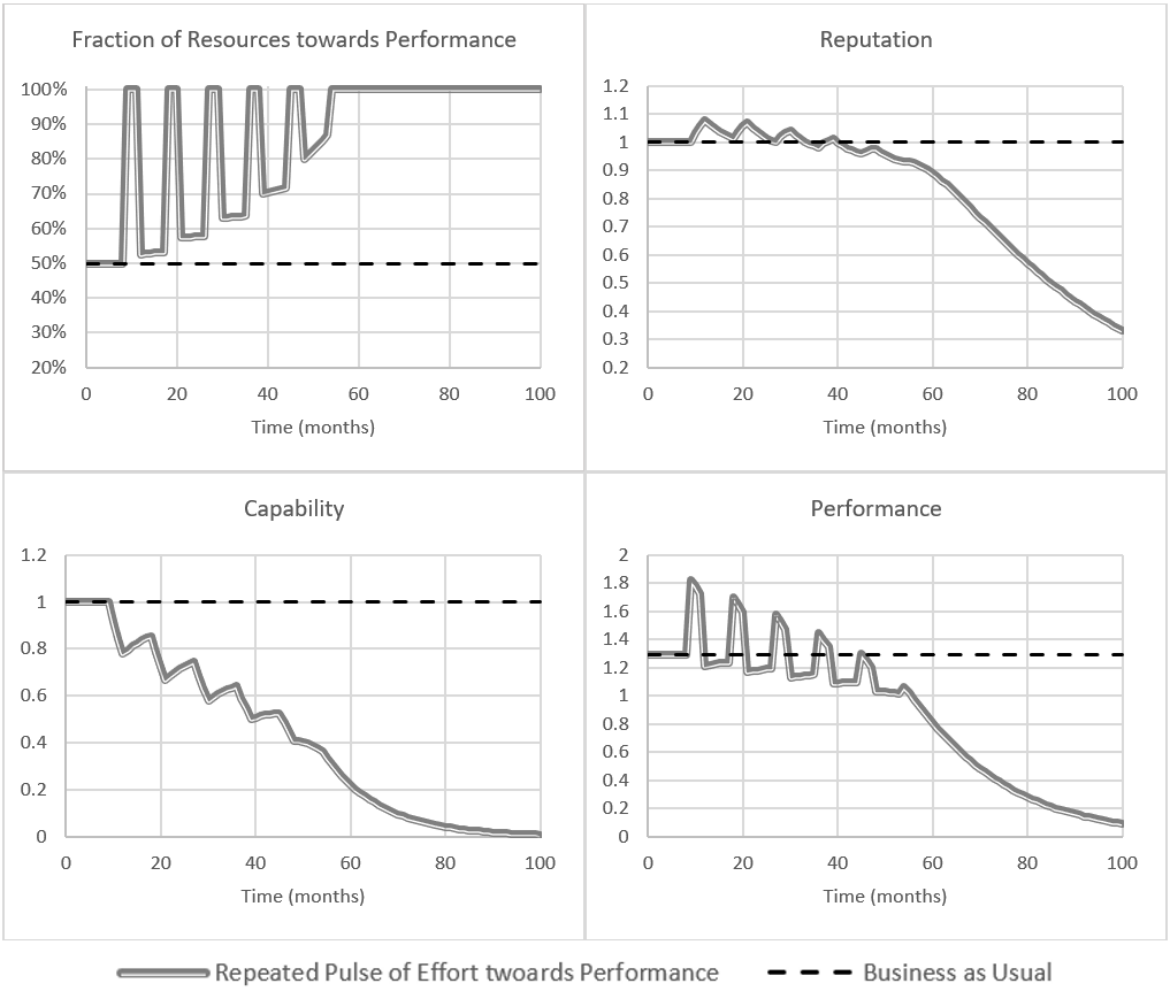


Figure S15: System Response to a Regular Pulse of Fraction of Resources towards Performance

Here, we see that organizational capability is never given a chance to recover, but rather continues to erode away as the firm focuses on performance (or scale of operation) over capability building. This eventually causes the firm to move over the ridge separating the stable points in the system and even total concentration on performance is unable to save the firm from collapse.

Perhaps more interesting is that that the *cumulative* performance of the firm over this period is largely helped by this decision as well as seen in Figure S16. For the single pulse of focused performance effort, it is only well after the initial decision is made (nearly 42 months in this parametrization) that the total

cumulative performance experiences any negative effects from this earlier tradeoff, and then only a slight one relative to the baseline decision rule. When repeating the decision to focus on performance annually, the apparent benefit is even stronger in the short term, giving markedly greater cumulative performance *for years*. However, all the while the capability of the firm is deteriorating faster than it is being rebuilt and eventually the firm moves over the ridgeline of the system and risks collapse. Figure S17 shows the path of the firm along the landscape shown in the accompanying article for both scenarios. Note how the single pulse of effort towards performance does not move the firm over the tipping ridgeline while the repeated pulsing eventually does move the firm over this ridge.

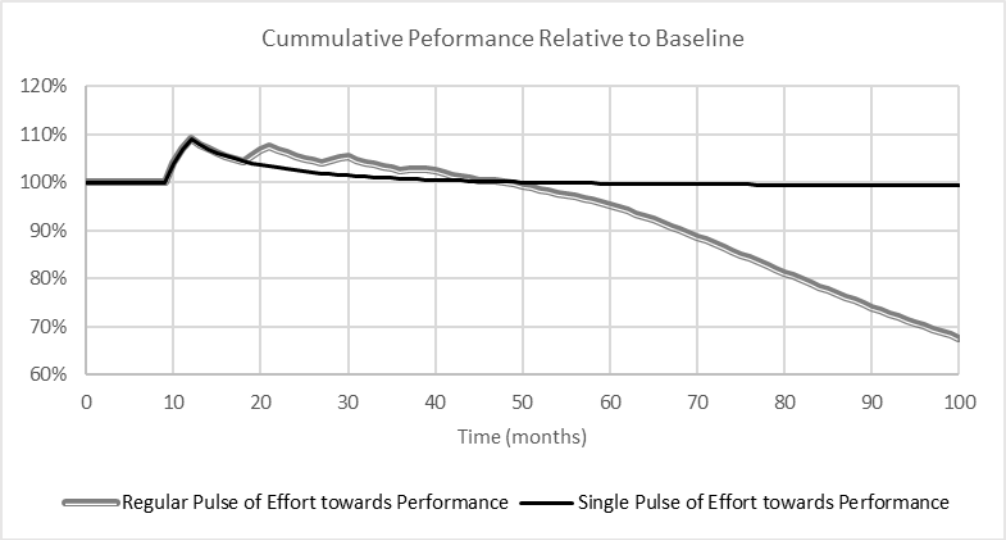


Figure S16: Cumulative Performance of Pulsing the of Fraction of Resources towards Performance relative to Baseline

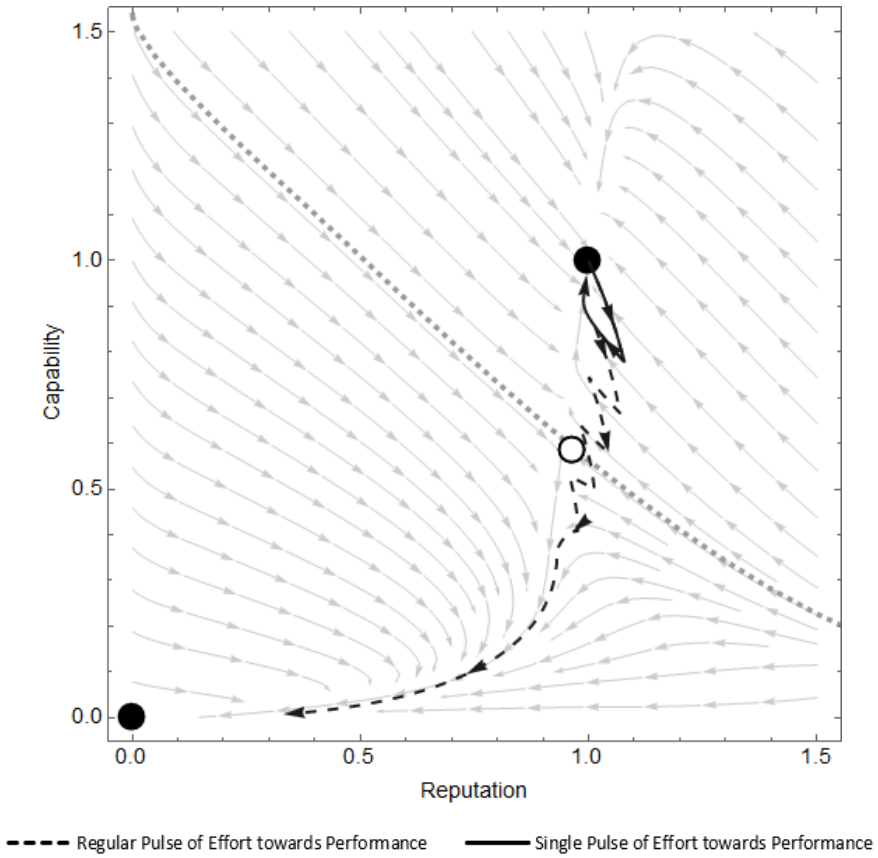


Figure S17: Paths with Pulsing of Fraction of Effort towards Performance

The above shows that increasing performance outcomes in the short run and yielding higher reputation and funding outcomes in parallel may be maintainable for an extended period. However, it is only by reinvesting in capability or at least allowing capability to recover, that organizations can maintain stability in the long term. Therefore, while immediate performance focused efforts can seem beneficial, such actions can ultimately be harmful when made an ongoing practice that inhibits organizational reinvestment.