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Report

Boeing crisis illustrates risks of delegated regulatory authority

Connor Raso Wednesday, December 18, 2019

Editor's Note:

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The new Boeing 737 Max crashed twice over the last year, killing 346 people and prompting regulators across the world to ground the airplane and prompting recent reports that Boeing will temporarily halt production of the airplane. An ill-designed Boeing safety system contributed greatly to both accidents. The accidents prompted widespread outrage at both Boeing and the U.S. Federal Aviation Administration (FAA), which had certified the airplane as safe. The 737 Max remains grounded many months later as Boeing and the FAA work on the complex problem. Why did the FAA certify the 737 Max as safe to fly? This is a complicated issue but one key element of the story is that the FAA delegated much of the safety certification work to Boeing. This piece outlines why regulators delegate such important tasks, what we know about went wrong, and how such problems may arise in other areas of regulation, concluding that delegation to regulated entities can have important benefits but is more likely to be problematic in certain circumstances.

The FAA's Delegation to Boeing

The FAA is responsible for certifying the safety of commercial aircraft like the 737 Max. For reasons discussed more fully below, it delegated much of the testing and inspection work to Boeing. Congress authorized the delegation, provided that the FAA monitored Boeing. In 2018, before the 737 Max accidents, Congress actually expanded the FAA's authority to delegate. This general arrangement is used by air safety regulators in other countries and

is "well established and is common practice." Those in favor of such delegation generally argue that it leverages limited agency resources by drawing on the expertise and resources of private industry.

The independent task force commissioned by the FAA to investigate the 737 Max situation concluded that the FAA failed to adequately monitor Boeing. Boeing employees performed virtually all of the analysis of the 737 Max safety system that contributed to the accidents, which was in turn reviewed by two FAA employees who were relatively unfamiliar with the complex underlying safety systems. The task force concluded that the FAA would likely have scrutinized the aspects of the 737 Max that caused the accidents had it been more familiar with the technical details.

How Often Do Regulators Delegate to the Regulated?

Airplane safety is not the only area in which a federal regulator delegates authority to a regulated entity. In fact, delegation to regulated entities is more widespread than may be commonly appreciated. Consider three examples:

- The Occupational Safety and Health Administration has long had a Voluntary Protection Program allowing employers to take proactive safety measures in exchange for being exempted from routine OSHA inspections.
- The Environmental Protection Agency employed different programs over the years that delegate additional discretion to private sector entities to develop new methods to comply with environmental rules.
- The Department of Agriculture recently finalized a rule to delegate some parts of the hog inspection process to slaughterhouse employees rather than government workers.

The issues and debates over delegation of regulatory responsibilities to the regulated extend well beyond the Boeing 737 Max crisis. The Boeing 737 Max crisis provides an opportunity to illustrate the conditions, broadly consistent with some prior academic research, under which delegation to regulated entities may present particular risks.

When Is Delegation to Regulated Entities More Likely to Cause Problems?

The 737 Max illustrates that delegation by an agency to a regulated entity is more likely to cause problems when the regulated entity has incentives not to fully inform the regulator, when the agency struggles to monitor the exercise of the delegation due to technical complexity and limited resources, and when the regulated entity has political influence over the agency.

Incentives of regulated entity to inform regulator

A regulated entity like Boeing may sometimes have an incentive to withhold information from its regulator. Speaking generally, this may be more likely if the regulated entity can gain by imposing the costs permitted by looser regulation on other parties ("externalizing" such costs in economic terms). Some analysts have argued that this dynamic is unlikely in the aviation area and that instead aircraft manufacturers are very likely to bear the costs of skimping on safety because plane crashes (1) tend to happen in the near-term, and (2) are thoroughly investigated, allowing responsibility to be clearly attributed.

In the 737 Max case, such concerns did not appear to dissuade Boeing from cutting corners on safety. Boeing was reportedly under pressure to win FAA approval quickly to meet Wall Street expectations and to keep pace in the market with its chief rival Airbus. The flight control system that contributed significantly to the 737 Max crashes was reportedly added as a workaround to avoid a redesign that would trigger time-consuming FAA re-certification and expensive pilot retraining. Other reporting indicates that Boeing's choices are under additional scrutiny in light of evidence from a Department of Justice criminal probe to establish whether Boeing employees were aware of safety problems during the FAA certification process. The FAA's administrator recently wrote a letter to Boeing's CEO requesting an explanation for the delay in its disclosure of this information.

Technical complexity

Agencies monitoring of delegated authority is more difficult when the subject matter is complicated and requires significant expertise. This was true for the 737 Max, a complex modern aircraft. The systems were sufficiently new and complex that inspectors reportedly discovered additional issues even months after the 737 Max was grounded. The independent task force noted that automated aircraft systems have become more complex, particularly when such systems interact. The task force concluded that the complexity was a serious challenge for the FAA and that the agency had "limited experience and knowledge of key technical aspects" of the 737 Max. This problem could be mitigated to some extent with additional FAA funding.

Insufficient agency resources

The joint task force concluded that FAA lacked the staff to adequately monitor Boeing. This had been a concern well before the 737 Max crashes. A 2013 government report showed that non-FAA employees conducted over 90 percent of the airline certification tasks. This is not inherently a problem, but a subsequent report from the Department of Transportation concluded that the FAA lacked adequate staff to certify airliner safety. Furthermore, the FAA staff working on the 737 Max were relatively inexperienced and had inadequate knowledge of the important technical details. This was partly a product of the FAA's struggle to attract and retain engineering talent given the higher salaries available in the private sector from companies like Boeing. Again, Congress could partially mitigate this problem by increasing the FAA's resources.

Political and Career Influence on the Agency

Boeing reportedly pressured the FAA to approve quickly key aspects of the 737 Max. Boeing has significant political power in Congress, which helped it win additional delegated authority from the FAA in 2018. This political power may also have helped Boeing to communicate directly with the President and top FAA officials during the 737 Max crisis. But this is only part of the picture. Perhaps more importantly, FAA employees – particularly those at the top of the organization – sometimes may have career incentives to cooperate with Boeing. Ali Bahrami, the FAA head of aviation safety, went from the FAA,

to a trade group that advocated for Boeing, and then back to the FAA. Other FAA managers have done so as well, perhaps attracted by higher Boeing salaries. These dynamics may have influenced some FAA managers on the 737 Max as they sided with Boeing over their own staff engineers on several issues. In any case, FAA administrator Stephen Dickson recently acknowledged to FAA employees that "I know there's a lot of pressure to return [the 737 Max] to service quickly" and encouraged staff to resist such pressure to ensure safety.

Conclusions

Delegation from regulators to the regulated is pervasive and unlikely to go away because government agencies sometimes need to leverage private sector resources and expertise. In some cases, delegation likely makes sense. To protect public safety and maintain confidence in the regulatory system, the key is to identify the conditions under which delegation is likely to go awry. Unfortunately, the Boeing 737 Max crisis illustrates such conditions. What may be unique about the 737 Max case is that the consequences of regulatory error are tragic, immediate, and clear. In areas such as environmental regulation, mistakes may take decades to manifest and their impact may be harder to pin down. This makes it all the more crucial to give regulators the necessary resources along with the right incentives and oversight.

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