AMERICAN BANKER

BankThink

Banking could use more leaders with STEM skills

By
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July 09 2018

When new banking laws are passed, the text is written in legal language at the framework level. But to actually take effect, much of that language needs to be interpreted by regulators, then interpreted by financial executives and their bank operating staff, and then translated into technology-driven actions.

That latter work is done by those who possess science, technology, engineering and math, or STEM, skills, including software engineers, data scientists and a cadre of other professionals who wrestle with turning legal terms and regulations into actionable financial services activities through computer code and algorithms.

It's important that those at the front end of this information — legislators, regulators and financial executives — become conversant in these skills, lest the back-end stumbles over meaning and intent and, in some cases, declares it impossible to be implemented.

In his recent testimony before Congress, Mark Zuckerberg, the chief executive of Facebook, responded to many questions by referring to the company's use of artificial intelligence. He then repeatedly segued into getting his team together with committee staff to explain further.

Yet legislators were not prepared to question Zuckerberg on how AI will work, for example, to remove false stories from its social network. The same has been true in other hearings as well, including examinations of JPMorgan's "London Whale" trading loss years ago or in discussions about high-frequency trading or the risks around Goldman Sachs' mortgage-backed securities. In each case, legislators made broad statements, asked superficial questions and left the detailed questions to staff in follow-up discussions.

The Congressional Research Service recently reported on the professional backgrounds of the current 541 members of Congress. The predominant professions of these legislators were lifelong political/public service (238); law (218); business (208); and education (99). Among them there are just 47 legislators who, by their earlier backgrounds, indicate a learned proficiency in STEM skills, including one physicist, one chemist and 11 accountants.

The problem is that few people understand what is going on under the cover of the digital factory that has increasingly replaced bank's operating environments. This digital transformation, well underway since the advent of the relatively simple to understand ATM and credit card, gave way to the less understandable internet and nanosecond trading networks.

Now this digital banking environment promises to become even more of a technology mystery with the advent of mathematically intense AI programs and the invention of the Blockchain — that's on top of the already existing black boxes of derivatives, risk-modeling and algorithmic trading.

While legislators don't need to have a deep understanding of math or computer coding, they certainly need to have the capacity to ask probing questions. Ideally, they should be able to enact legislative frameworks that have an awareness of the digital construction material needed.

But it's not just policymakers that need to adopt these skills — they're increasingly valuable for financial executives as well. CEOs should be able to question and challenge how their direct reports are overseeing the implementation of regulation through the use of algorithms and code.

Yet in a recent survey, PwC found that just over half of financial services CEOs, 53%, believed themselves to have strong digital skills. This has changed little from when the question was first asked in PwC's initial CEO survey two decades

ago. Back then, the internet was just emerging in the mainstream of banking activities and possessing digital skills was not as impactful as it is today.

By developing more STEM skills up front, executives could push their direct reports for more detailed answers, rather than convening task forces to do so on their behalf. CEOs would engage more deeply at the board and executive levels, raising tougher questions about risk management and data analysis before problems arise.

Perhaps the current muddle of calculating risk-weighted assets using the mathematically intense laws of physics and statistics could have been better foreseen (and prevented) by executives and legislators with STEM skills such as physics and psychology. These professions would have clarified the challenges of relying too closely on the immutable laws of the physical world to model what is a financial system driven more by human behavior and demographics.

Having endured the failure of these mathematically intense risk theories, banking regulators are now moving back to using more understandable leverage ratios and capital-to-asset ratios. This seems to be a recognition of a long-overdue challenge that was missing at the earliest stages of the creation of the legislative framework, acquiesced to by banking executives that gave credibility to the false narrative of a risk management regime that failed to manage risk.

But more egregious problems have arisen in the reporting of over-the-counter derivatives trades, as mandated under the Dodd-Frank Act and international rules. The intent was to aggregate this data so that systemic risk could be monitored. Today there are literally billions of trade reports that have been sent by banks, swaps execution facilities and derivatives dealers to a global network of 25 newly created trade repositories. However, since no standards for the data elements were prescribed, there is no way that this data can be aggregated for risk analysis. Regulators, like lawmakers and bank leaders, still have more work to do.

Policymakers and financial executives have a responsibility to acquire STEM skills that allow them to understand how banking works in the digital age — and the industry should begin to hold them to a higher standard.

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