June 22, 2011 (Wednesday) 55th EOQ Congress

CONCURRENT SESSIONS **Wednesday 8:30 – 12:30**
KEMPINSKI HOTEL CORVINUS **Erzsébet tér 7-8, Budapest V.**

REGINA BALLROOM II. **Wednesday 8:30 – 10:30**

19.1. QUALITY IN THE AUTOMOTIVE INDUSTRY

Session Chair: ***Balázs Németh****, Kvalikon Consulting, Hungary*

8.30 What Happened to Toyota?
Robert E. Cole, Doshisha Business School, Kyoto, Japan and University of California, USA

Cole, Robert E. (Japan/USA), Member of the International Academy for Quality (IAQ)

Prof. Cole is Emeritus Professor at the Haas School of Business and Dept. of Sociology at the University of California, Berkeley. He is a long term researcher on Japanese work organization with a particular focus on quality improvement, innovation and organizational change. He is a long term member of the International Academy of Quality (IAQ). He also has written extensively on quality improvement in the American and Japanese automobile industries. More recently, he has written on the prospect for high tech renewal in Japan and "Automotive Quality Reputation: Hard to Achieve, hard to Loose, Still Harder to Win Back: The Case of U.S. and Japanese Auto Quality," (California Management Review, Fall, 2009). His writings on Toyota's recent quality problems can be found on two Harvard Business Review blogs and a forthcoming article is in preparation.

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What Happened to Toyota?

On Feb. 25,2011, Toyota announced a global recall of another 2.2 million vehicles for pedal entrapment, seemingly bringing us full circle from its initial 3.8 millionrecallin October 2009 for the same problem. Both were designed to address unintended acceleration. Since November 2009 through February 2011, Automotive News, the U.S. auto industry trade journal, estimates that some 20.5 million Toyota vehicles have been recalled worldwide, of which North America accounts for 14.5 million.These recalls involved huge financial and reputational costs.

Let's start with how events unfolded. First, there was thejust mentioned 3.8 million vehicle recall for pedal entrapment from unsecured or stacked floor mats on Oct. 5, 2009. This was followed by a Jan. 21, 2010 recall for 2.3 vehicles for the "sticky gas pedal" problem. Both recalls were intended to address unintended acceleration. Soon after camean expanded recall of 1.1 million vehicles on Jan. 27th for the pedal entrapment problem. All told, there were initially a little over 7 million vehicles recalled for these two problems. On Feb. 8th, Toyota announced recalls of tens of thousands of 2010 Prius and Lexus hybrids to address braking problems, this one caused by a software error.

How serious were these problems? Operationally, we can say as of Feb. 8th 2010, they had a modest 3 problems in the United States. Moreover, arecently released NASA study, commissioned by the National Highway Safety Administration (NHTSA),found that driver error is the dominant cause of unintended acceleration. It is also now clearer that reported cases of unintended acceleration are exceedingly rare events. On average, according to NASA, the reporting of these events is about 1/100,000 vehicles a year or 1 in 1.4 billion miles driven. Thus, it is easy to conclude that this is much ado about almost nothing, triggered by an overwrought media and overzealous government bureaucrats, pressed byaggressive politicians.

Not so fast. Hardly a week went by between February and November 2010 without a Toyota recall for one problem or another, from both old and new models. Toyota, including its Lexus model, had 14 National Highway Transportation Safety Administration (NHTSA) ordered safety recalls from Feb. to Sept., in addition to 11 voluntary recalls during this same period. That's a total of 25 recalls over 30 weeks and these recalls were for a wide range of different defects. Moreover, just when things were settling down, in late January 2011, Toyota announced two global recalls covering 1.7 million vehicles in the United States and the aforementioned Februaryrecall of 2.2 million vehicles. This succession of recalls appears to have solidified in the mind of U.S. consumers that Toyota has real quality problems that go well beyond unintended acceleration.

What is the evidence that they do? Consumer Reports is a well respected non-profit organization which evaluates consumer products The head of automotive testing at Consumer Reports, David Champion, states "the quality of Toyota vehicles has measurably declined in recent years." As early as 2007, he reports problems with transmissions, brakes, squeak and rattles, deterioration in fit and finish, and in the quality of some materials in various models. In 2008, in a telling decision, Consumer Reports decided to no longer give automatic "recommended" ratings on new Toyota models. These are pretty damning

judgments coming from an organization which has strongly recommended Toyota vehicles for some for some 30 years.

This and other evidence makes clear that apart from negative customer perceptions stoked by the media,Toyota does have objective quality problems. President Akio Toyoda, himself, acknowledges that a misguided strategic focus at the company warped the "order of Toyota's traditional priorities." By this, he meant that quality had lost its position as Toyota's number one priority. A President is unlikely to make such a statement if he or she considered the problem to be a minor one, simply inflated by the media. Nor does a company that does not believe it has a real quality problem, revamp at enormous cost, its development processes as Toyota is now doing. Their countermeasures include slowing down the development process by four weeks, creating a new quality group in Japan of some 1,000 engineers and greatly expandingrapid quality response teams around the globe.

Notwithstanding, all the evidence suggests that while Toyota's quality has declined, it has not collapsed. They still score in the top ranks of quality performers. Their recent stumbles, however, have coincided with key competitors, improving their quality performance. As a result, key competitors like Chevy, Ford and Hyundai have all but eliminated reliabilitydifferences with Toyota.

Toyota does bear deep responsibility for its current problems. This is especially the case because they had ample warnings of their emergent quality problems, not only from Consumer Reports data, but other sources as well. How did Toyota respond to these and other warnings? In facing big challenges, Japanese firms often magnify the crisis to create a sense of urgency for all employees to play a part in developing and executing strong countermeasures. Yet, there was no sign in Toyota of a large scale organizational response prior to 2010. .

In 1998, Toyota's leaders set as their target 15% of the global market and a strong push toward that objectiveled them to downplay the risks of rapid growth. In a pattern not uncommon in large organizations, politically powerful executives overrode early warnings of lower ranking executives. The point of having early warnings is to act on them. A basic principle of risk management is to identify risks early and eliminate them while they still are minor problems. Toyota gets a D for its failure to act on this principle.

If Toyota indeed bears a heavy responsibility for itscurrent predicament, does that mean the media have no responsibility? Surely not! Toyota's problems received enormous media coverage, especially in January and February 2010.

The media attention grew out of the legitimate contrast between Toyota's extraordinary quality reputation, the perceived threat to public safety, and the explosive growth in the number of cars being recalled. The media love a crisis. Toyota had its crisis and the media had its target. Those on top of the status and power hierarchy, who have failed to live up to their public reputations, offer an especially inviting target. This is the case, whether it is powerful business firms found to be corrupt (Enron), golf icons found to be behaving badly (Tiger Woods), or mighty automakers which have built their reputation on quality, found to be experiencing quality failures (Toyota). These are, by nature, eminently newsworthy. Unintended acceleration appeared to threaten the safety of millions of individuals in every

part of the country and there was no satisfactory explanation for its causes or fixes. The Toyota recalls constituted a truly national public safety story that had all the ingredients of a media sensation.

And yes it was a "feeding frenzy" that fueled massive public concern. And yes many of these reports were inflammatory, often leading with accident victims stories. And yes, the media reports ignored the low probability of unintended acceleration. Generally, the media are terrible at handling probability. Negative events drive the news, not careful analyses of their likelihood.

The high speed fiery crash in Santee California, by a CA. state trooper, Mark Saylor and family members in August 2009, fueled public concern. Saylor's brother-in-law made a cell phone call in which as they headed into the crash site: "we are in a Lexus… and our accelerator is stuck…. We're in trouble-we can't-there's no brakes… Hold on guys, pray pray, oh shoot oh! Oh!." AYou Tube video, with the text of the cellphone conversation overlaid on a picture of the crash site, went modestly viral with over a quarter of a million views. The death of the Saylor family became the human face of the Toyota recalls. The real time cell phone conversation had incredible power to move and frighten drivers. What could be scarier than losing control of your car at high speed? While stacked floor mats were thought to be the cause of the accident at the time, there was a lot of uncertainty. We now know that a dealer installed the wrong floor mats in his loaner Lexus and failed to attach them properly, thereby creating the conditions for the crash.

To add to Toyota's woes, the cumulative Toyota recalls are getting far more publicity in the United States than those of other automakers. Each time it has a recall, the media coverage typically discusses its previous quality problems and recalls. The relentless repeating of these themes, after each Toyota recall, has further increased the public's doubts about Toyota's quality. There is no doubt that the media fueled public concerns about Toyota's quality problems and helped confirm in the minds of many that Toyota has serious quality problems, With quality, consumer perception is all that matters and it means that Toyota has a huge challenge going forward, especially in the U.S. market.

Finally, what about the charge that overzealous regulators lie behind Toyota's problems? This is the tack taken by some who charge that NHTSA, the government regulatory agency, succumbed to domestic political pressures to be tough on Toyota.These critiques have gained further currency with the publication of the January 2011 findings of NASA that they found no evidence that Toyota's electronic throttle control systems were at fault for unintended acceleration and that the dominant cause was driver error. Moreover, NHTSA confirmed only two deadly crashes, the Saylor crash and one more, as a result of pedal entrapment and none for the sticky gas pedal problem. This being the case, the critics argue, there was no justification for the recalls.

Hindsight, indeed, provides incredible clarity of thought. In the period from October 2009 throughFebruary 2010, there was utter confusion. James Lenz III, President of Toyota Motor Sales, U.S.A., testified in congressional hearings in late February, that its engineers had not found its electronic systems to be a factor in unintended acceleration and Toyota's were safe to drive. At the same time, he stated that Toyota's recall might "not totally" solve the problem of sudden unintended acceleration in some of its vehicles. This hardly inspired confidence. Toyota first claimed that pedal entrapment was the cause of unintended acceleration,thenchanged the source to include the sticky gas

pedal. Its evolving position further led the public to doubt their judgment. Clearly, they were still in a problem solving phase and couldn't entirely clarify matters. During the period from October 2009 through March 2010, many Toyota owners were at a loss of what to do or think.

All this was occurring at a time when every day seemed to bring another report of a driver with a terrifying runaway experience. This publicity spurred a flood of further complaints of unintended acceleration. NHTSA received some 9,700 customer complaints regarding unintended acceleration for vehicle model years: 2000to 2010. Toyota accounted for some 3,100 of them well above what would be expected by their market share. Of the Toyota total, 2,200 (71%) of them came after the first recall for pedal entrapment in October 2009. According to NHTSA, after the initial Oct. 2009 recall, the publicity that ensued "was the major contributor to the timing and volume of complaints." In late 2009 and early 2010, this spike in customer complaints obscured for the public what was only later to be fully realized, that unintended acceleration was a low probability event. But at the time, it is easy to see how NHTSA officials concluded that waiting for more data would be an irresponsible decision, possibly endangering more lives.In the end, given the confusion and uncertainty that prevailed, the recalls can be seen as a prudent decision.

What is being learnedfrom this experience? Toyota is learning that the costs of losing their focus on quality are very high indeed and to their credit, they are implementing serious countermeasures. It is not clear the media have learned anything.Leading with unsubstantiated victim stories, and ignoring that driver error was a known important factor in unintended acceleration, was simply irresponsible.

It is harder to fault NHTSA given all the uncertainty at the time. They certainly should have had the courage to raise the issue of driver error as a possible explanation much earlier than they did. On the policy level some version of the airplane black box data needs to be available to NHTSA officials on a consistent basis. This would allow comparisons across automakers and the matching of crashes on a database to identify common causes.A universal black box which recorded events sufficiently prior to the crashwould enable safety experts to move from a passive safety approach based on crash data to an active safety approach focused on prevention. To protect individual privacy, this could be done on an anonymous basis. Finally, why isit so hard to get across the message to the public that people freeze up in crisis situations and cannot be expected to rememberwhat they did at such times? There is a study worth doing!

Previous experiences show that quality reputations can continue to suffer long after the original problems have been fixed. This seems likely in Toyota's case, not only in the U.S. but also in some of the emerging markets, like China, where Toyota's quality problems were well publicized, and where it does not have a base of loyal Toyota customers.