

# Lessons from Volkswagen testing software for IRB banks

The VW manipulation of its emissions testing results provides lessons for banks, insurers and their supervisors. Testlab results bear no similarity to real life survival or failure is a simple one. Bad governance structures can lead to bad decisions (as highlighted by John Plender in the FT and supported by a wide range of examples such as the DSB Bank failure in the Netherlands). Another lesson is that the testlab/models that are the basis for calculating capital requirements are prone to pressure and manipulation.

There appear to have been two stages that shifted the results in response to high-level orders to pass environmental tests and improve sales. The first is the - as I understand - industry standard in the EU that emissions are only tested in laboratory conditions on vehicles that are specially selected and prepared for this testing by stripping off all inconvenient aspects (rear view mirrors, wipers, and anything that weighs anything in the car that is not needed to make it run, such as the standard airconditioning or audio equipment). For some this is the minor league of evasion or fraud as it 'only' changes the hardware, and anyone actually looking would notice. Even for this type of lab-adaptation there is little relation between the car in the lab and on the road, but some people would say it remains in the nudge and wink category of how smart it is to evade the vague requirements and the light touch oversight, and the general contours of the car tested remain the same. The second stage is now provoking more outrage, as the manipulation is not in the visible hardware, but in lines of code in the software. Any instrument that supposedly cleans up the emissions but was a drag on ease of handling on the road was automatically switched off by the design of the software, except when the exact conditions of the laboratory test were found.

Though it is unlikely that executives removed the hardware from the testlab-models or wrote the software that changed the car from fake circumstances to real life riding and back, it is likely that they created the incentives to do so by demanding relative growth as compared to competitors, in the cars case by simultaneously demanding low emissions during tests so that the cars could legally be sold, and high performance so that customers would actually want to buy them, and did not bother to sufficiently check whether the product sold fit the

description on issues that customers did not bother to verify or sue on, and regulators did not bother to/were not able to check.

The calculation of capital requirements is open to similar pressures. It is abstract, only important if thousands of products fail to perform at the same time, only important in the long term, and customers do not like it while the bank or insurer is alive because it heightens their costs if the bank or insurer would take it seriously. The old standardised approach for capital requirements calculation was abandoned for complex institutions because the choices made in investments were optimized by these institutions to take the highest risk/reward road within each wide basket of types of assets, such as corporate bonds. This maximized returns while minimizing costly capital requirements. The newly invented 'internal' models that have been introduced for banks in the 2004 Basel II accord (in the EU implemented via the 2006 version of the CRD) and will be introduced for insurers in 2016 under Solvency II allow more leeway to reward the bank or insurer if they choose a less risky product to invest in, but does expect them to take better regard of the more risky products too. Some banks are indeed relatively conservative or are being forced to be relative conservative by their supervisors, and estimate the riskiness of the assets they hold higher than the models used by their competitors estimate the same or the same type of assets. Some banks, however, are removing the airconditioning and audio systems by abandoning newly capital-costly areas such as trade finance or investment banking, while plunging collectively into low capital-costly areas, or professing high confidence in their clients or risk management systems. The result is that banks' internal models show wildly different results, which is an indicator that some may be too lightly capitalised for the risks they run in their entire business. An additional result is that worthy areas of services are no longer provided by banks, but are either not provided, or are now provided by less regulated service providers. It is likely that more conservatively calculating banks are under pressure to become more 'capital efficient' in order to retain profitability and competitiveness.

The temptation to adapt the outcomes of test-results is easy to understand. Lower capital requirements (emissions) lead to the potential for acquiring more assets (making more sales) that generate higher profits and higher status for the CEO. And a slight tweak in one area that makes the boss happy does not really impact a lot on the overall capital; except of course if this happens in all areas the bank or

insurer is active in. These tweaks stimulate the financial company, their shareholders and the economy as long as the bank or insurer makes no losses yet. And the internal models used by complex banks do not show with a big blinking warning whether there is internal pressure to always lean in the same direction. Fundamental attitudes towards the need for buffers or the need for speed and profits are neither measured nor checked easily, especially if the number of experts is vastly larger on the bank's side than on the supervisors' side. But if the general attitude at a financial company is that it is acceptable to have slight manipulations, or just slightly reducing the riskiness of the asset just by removing the dragging mirrors from the test-lab model, this risks the continued survival of the firm once it comes out. Removing trade finance already does not make the bank safer. It just makes it less well capitalised, and diminishes the value of the bank to society similar to cars with high Nox emissions in real life. Especially harmful would be if it turns out that the models used by banks are deliberately built to optimise testlab results that bear no relation to known market and firm behaviour when risks materialise. Bankers/Insurers would, however, not be unique in such manipulation. The regulated bits of internal models and the standardised models are riddled with such deliberate misdesign by lawmakers, e.g. to underestimate the riskiness of SME-loans, or to hugely underestimate the riskiness of sovereign bonds. In the end, if banks add to this, and do not compensate for design-faults in the laws that rule the design of models to calculate capital by adding voluntary layers of safety themselves, it remains deceit towards clients, investors, and society as a whole.

Though supervisors are aware of the discrepancies, they have been kicking the can down the road for a while, and there are no signs yet of an official line. The amount of capital needed for the most derelict banks - and the financial stability consequences of exposing them - may pressure them into regulatory forbearance. Though this is both understandable and damnable at the same time, such regulatory forbearance does not impact on the own responsibility of bank and insurance boards on whose watch such collective leaning or manipulation takes place by underlings who aim to please their bosses by improved headline numbers.

Safety should not be tampered with, and will not be tampered with in the long run, as the sheltered executives of VW already found out.

Also see:

- Plender, John, Poor governance at VW should have been a warning to investors, FT 30 September 2015
- Noonan, Laura, ECB doubles the time needed to review banks' risk models, FT 16 August 2015
- EBA reports of 22 July 2015 on [eba.europa.eu](http://eba.europa.eu)
- BCBS, Regulatory Consistency Assessment Programme (RCAP) Analysis of Risk-Weighted Assets for Market Risk, January 2013 (rev February 2013)
- BCBS, Regulatory Consistency Assessment Programme (RCAP) Analysis of Risk-Weighted Assets for Credit Risk in the Banking Book, July 2013
- UK FSA, A Regulatory Response to the Global Banking Crisis; Discussion Paper 09/2, March 2009, page 71-73

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- EU Banking Supervision, chapter 6.3
- Are EU Banks Safe?, chapter 4.5