



# MODULE 5 UNIT 1

## Video 1 Transcript

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NIR VULKAN: Welcome everyone to module five. So, you've survived module four, and now where the last two modules are – some of you will be relieved to know – a little bit less technical, although the more technical of you are still working on the programming assignment from last week, and I hope that you are enjoying that.

What we're going to do in this module is, sort of, we're out of the workshop of module four and we're kind of switching roles, and we are now looking at the firms who evaluate models. What will they look for? So, maybe you are trying to sell your model to an existing fund. So, you have your model; you're now going to talk to either investors or people who are going to deploy the model. They're going to do their due diligence, and they're going to ask you all kinds of questions. They're going to challenge you because, you know, they don't know what's in the black box, and maybe they don't really know you.

So, what kind of questions you can expect? I propose four general rules to think of. One is around performance, and where I say is "if it's too good to be true, it's probably not true". And I'll elaborate that in a minute. The second rule is around explaining the model. What does the model do? And how well you are able to explain it? The third is around the goodness of the fit of the model, which, typically, is how... you know, how overfitted it may be and how meaningful was the statistical verification out-of-sample. And the fourth is around actually the testing period. Have you developed a model that was largely tested in good years? Whatever good means, I'll be clear about that. And so, they might challenge you on that.

So, let me just clearly, let me just elaborate a little bit about these four things. So first of all, you know, if it's too good to be true, it's not true. So, that's kind of obvious, but, you know, obvious, but people forget. I once did this road trip with this very large hedge fund, and they took me to China and India, and it was very nice, and looked at all kinds of funds and all kinds of academics, mostly academics because I'm an academic who came up with models, and I was, you know, it was just astonishing how many people came to us with performance. It was just ridiculous looking at 15 years, they said the system over the last 15 years, you know, and it's a daily system at a Sharpe of four or five, it just does not exist. Yes, it does not exist. It's like five times better the best fund there is or something like that. So, you think that's probably just not right. And it makes you look, you know, foolish.

So, there are systems with very high Sharpe ratio, don't get me wrong. They tend to be on short-term or, you know, more high frequency. But within that sector, yes? Within those kinds of whatever the system does, if it's completely ridiculous, you're going to have a difficult time explaining it. Maybe you did discover something amazing that nobody ever discovered, and it's not just a little bit better, but ten times better, but it's unlikely. So, that's something to bear in mind. Remember what the audience is, and, you know, be informed about what people normally do in that.

The second was around explaining that. And this I've learned the hard way, because when I was younger, I would be like one of those people who says, "It's the maths. Yeah, it's the maths. I can't explain to you the maths. You don't know the maths". That's not true. You need to be able to explain. And remember what we did in module one, remember things from behaviours. So, for example, if it's a momentum model, we understand momentum, so you can say, "Well, it takes advantage of momentum, it's shorter momentum, middle

momentum”, whatever. You know, people understand what you’re doing, or it’s sort of a mean-reverting model with this kind of timescale. And you can say, “It’s slightly different. I have an edge. I have discovered something based on volatility in this kind of time frame. Not many people have looked at it”, but you know, you are explaining the model, you’re giving them a way of thinking about and understanding that because in their head, they have to understand how that fit in the different world of other options they have and where does this sit. So, make it easier for them and make it easy for yourself. So, the wrong answer is “Oh, you wouldn’t understand. There’s a lot of maths here”. Yeah, don’t, that’s the wrong answer.

Okay, so that’s the second. Then we talked about fitting and overfitting. And so, you know, we talked a lot in module three about this stuff, and you know by now what in- and out-of-sample is. But of course, they don’t know that you’ve done this properly, and there’s always the risk that you – maybe are not lying –, but maybe you’re “lying” to yourself because we all do a little bit, yes? So, maybe you, kind of, you love the model so much, it held out-of-sample, you didn’t ask too many questions, so they feel like they should be asking lots of questions. And for example, they’ll be looking at how meaningful the out-of-sample is. And that’s something certainly I’ve been asked, and I’ve asked others to do.

So, you have a model and let’s say you have, I don’t know, three years of an out-of-sample. So, you’re 12 years and three years out-of-sample. That’s absolutely fine. But maybe your model only trades once or twice a year. And it trades in five different markets. So that means your out-of-sample is only 15 trades or 16 trades. Do you understand? So, they could say, “Okay, the out-of-sample, the performance was good, but it’s just by luck because there’s not that many trades”. In other words, the out-of-sample isn’t wrong, but it’s not meaningful. We’d like to see more trades around that. So, this is the kind of questions they would ask, and you should be really, really familiar with that and have good answers for that.

And then the final point we talked about are around—what do people sometimes call? Stress testing a model. So, how would the model do in difficult years? And there’s various techniques to deal with that. Some of them we will see in this module, but this is definitely something that they would ask, and you should be thinking about as well. And so, we will give you a number of techniques to deal with that and to check the robustness of the model based on different time frame. Or you can just say, “We did well during COVID”. That was the ultimate stress test. If your model have done well in 2020 or in the beginning of 2021, I think you’re also a winner there. So, that could be an answer. I hope that you enjoy module five, and for those of you who are still doing the programming stuff, good luck with that.