The theory of TCA relativity

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For transaction, or trading cost analysis (TCA) to accurately and effectively assess trading costs, there are two important perspectives which must be considered. The first is the empirical perspective of the observer, or user of the analysis and the second is the perspective that trading cost analysis facilitates.

In a 1632 treatise, Galileo established what would become the classic, although as proven by Einstein in 1905, incomplete version of relativity. Galileo asked his readers to envision themselves standing on a dock observing a ship moving at a steady rate. If a sailor in the crow’s nest dropped a rock, where would the rock land? Would the rock land at the bottom of the mast? Or would the rock land some slight distance back from the mast, corresponding to the distance the ship had moved in the time it took the rock to fall? The answer the reader would give depends on where they were standing, or on their perspective of the falling rock. From the perspective of the sailor in the crow’s nest the rock falls straight down and lands at the bottom of the mast. However, from the perspective of the observer on the dock the rock would appear to fall at an angle. The falling rock constitutes the same event but assessed from different perspectives. Only one perspective can be correct. The intuitive answer is that the rock fell some distance back, but the correct answer is that the rock fell straight down and landed at the base of the mast. The perspective from which an assessment is made will influence that assessment. This example illustrates the importance of the perspective of the observer and can be applied to trading cost analysis.

Clarity and comprehension
An effective trading cost analysis process requires a clear interpretation of analysis results, and the user’s perspective affects the clarity of their interpretation. Is the user a trader in the crow’s nest or a compliance officer standing on the dock? Trading cost analysis must accurately and clearly address both perspectives. For example, a user that assesses trading cost analysis from a micro perspective will likely observe a wholly different result from the user that takes a top-down, or macro perspective. This is best
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illustrated by the micro perspective of a trader examining a trade relative to the macro perspective of the CIO, who may be assessing all trading. While the micro perspective of the trader is certainly a component of any trading cost analysis process, it is a component and perspective which, if encompassing the entire trading cost analysis process, may prove to be an incomplete assessment. To derive a complete and accurate assessment of the entire trading process a macro trading cost assessment must always be employed.

Each trading cost analysis user brings their own unique experiences and objectives to the analysis which influences their perspective and how they interpret their analysis results. Is the user the aforementioned trader, the compliance officer, or possibly a CIO or a Board member? Each of these individual users will need to derive different information from the same analysis. While each user has the same ultimate objective, to mine the analysis and to satisfy their individual objectives, each user’s pathway to this objective may be quite different. Trading cost analysis should be sufficiently designed and structured to provide clear interpretations via multiple user pathways leading to the user’s desired outcome.

Effective and easy interpretation of trading cost analysis results has been a challenge for users since the origins of the industry. Trading cost analysis can be inherently difficult to decipher due to the depth and breadth of analysis required to derive relevant results, regardless of the user’s perspective. This is even more prevalent today as the number of users of TCA has increased throughout the industry as well as within individual firms. Add to this the fact that the demands of increasing regulatory scrutiny means that each of these individuals may have increased responsibilities and may have less time to interpret their trading cost analysis results and the need for intuitive trading cost analysis is clear. Previously, trading cost analysis responsibility was often delegated to one person. Today, the responsibility for monitoring trading costs is usually spread among several people from different departments within a single firm.

Avoiding complexity
The word perspective comes from the Latin perspicere: to see through. Is the trading cost analysis well developed enough to allow the user to “see through” to the meaning behind the numbers, or does the analysis fail to achieve or even inhibit this possibility? Is the analysis clear and easy to understand? Does the analysis contain all the information the user needs to make their accurate individual assessment? Does the analysis have too much information, clouding the analysis and making it difficult to interpret? Is the analysis organised in such a way to make navigating the analysis easy? These are all important considerations when determining how to analyse trading costs. It is not especially difficult to take something complicated and make it more complicated. It requires some skill however to take something complicated and clarify it. When analysing large amounts of data it is of utmost importance that the analytical tools employed enhance the user’s
experience, not inhibit it, and comply with each individual user’s objectives.

In addition to considering the user’s perspective of TCA, and whether the analysis itself is sufficiently structured, it is important to consider how evaluating trading within the correct context facilitates perspective within the analysis and in turn enhances the user’s interpretation of the results. Simply put, context helps to clarify the analysis. Establishing the correct context within which to evaluate trading is essential to enable the user to derive the meaning behind the numbers and have confidence that the analysis results are accurate. A trade does not occur in a vacuum. There are a multitude of factors which influence the effectiveness and quality of a trade and make up the context within which the trade occurred. The better that trading cost analysis can capture and represent this context the better and more accurate the analysis results. A trade analysed in isolation may be determined to be high in cost, but in reality it is necessary to wrap that assessment within several layers of context to gain full insight into the factors which contributed to the execution quality of the trade. These factors may be internal or external and a meaningful analysis will capture and incorporate as many of these factors as the data will support.

Beware the benchmark

Much of the focus and discussion regarding trading cost analysis over the years has been about the benchmark. While the benchmark is an important part of any analysis, the responsibility assigned to that benchmark is often excessive. The benchmark can only do so much. In many cases what the user is really looking for is additional context that the benchmark simply cannot supply. The most important considerations of a benchmark are the applicability of the benchmark to the user’s trading style and the transparency afforded the benchmark through evaluating trading, and the benchmark, through inclusion of the aforementioned context. An applicable, transparent benchmark employed within an analysis constructed within the correct context will deliver the accurate and meaningful results that today’s TCA users demand.

The reader may be wondering about Einstein’s contribution to the Theory of Relativity. While Einstein’s contribution is a bit more than we can apply to TCA, it is interesting none the less. Einstein had a question about Galileo’s theory, and it bothered him for ten years. “What if the object falling from the mast wasn’t a rock, but a beam of light,” Einstein asked. It had been long established that the speed of light is constant, unlike the speed of the falling rock. Since the beam of light descending from the crow’s nest is constant, and the person on the dock viewing the ship perceives that the base of the mast moved out from under the mast during the decent, then the distance that the beam of light has travelled has to have lengthened. Since the distance that the beam of light travels has changed (lengthened,) then so has the time. Einstein greatest scientific contribution proved that time itself was not a constant, but a variable that depends upon how the observer and whatever is being observed are moving in relation to each other.