



## SIREN benchmark definition and statement

The following provides a basic statement and definition of SIREN:

- SIREN is a fair benchmark designed for settling spot FX transactions at a point in time and to provide an alternative to the 4pm Fix. It is published every 30 minutes during the trading week for all the NCFX benchmark spot pairs.
- The SIREN benchmark is devised by Raidne Limited (Raidne) and produced by New Change FX (NCFX) using independent mid-rate data provided NCFX.
- The SIREN benchmark is harder to manipulate, has a long observation window and can be calculated in real time.
- It seeks to address the excessive market impact that inevitably arises when executing large transactions over a short 5-minute fixing window, where there is more demand for liquidity than the market can absorb.
- SIREN uses a longer fixing window than current benchmarks which makes it less vulnerable to market impact and also harder to manipulate. Case studies demonstrate that using SIREN leads to cost savings to the client of at least half a basis point for longer fixing windows.
- SIREN uses the concept of optimal execution (first described by Almgren and Chriss in their seminal paper in 2000) to reflect the risks when executing larger trades. The methodology seeks to minimise price risk and market impact.
- The model derives an optimal trading trajectory given a fixed time horizon and is driven by the ratio of the market risk over the market impact, or Omega. The Omega liquidity measure of 3 is established from observing a large set of trade data over a long period of time (see the attached white paper "SIREN: A fair benchmark for FX" by Dr Jamie Walton of Raidne).
- The optimal trajectory provides the weights for the SIREN calculation, which is then applied every second to the observed mid-price over the benchmark window. The weight increases as it approaches the fix.
- The SIREN benchmark uses a 20-minute window which allows for most of the benefits associated with optimal execution and reduced exposure to market impact.
- SIREN uses mid-rate spot benchmarks provided by NCFX (the NCFX-MI family of benchmarks) which allows it to be calculated in real time using live mid-rate spot FX data. NCFX is regulated by the FCA and is the only provider of independent live spot FX benchmarks.