Construction of a forward rate model for the Moroccan interbank market

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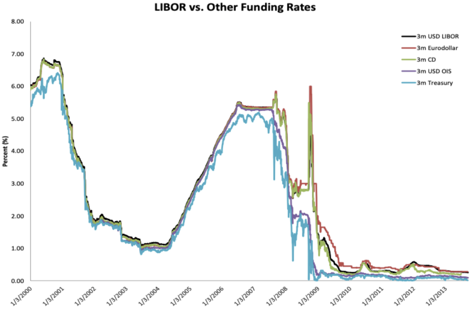
June, 2021

Motivation

- A topical research theme for Central Bank of Morocco (BAM).
- This research is global in scope.
- Strategic issues for the financial stability of markets.
- Research question: "In the context of the transition from global benchmarks, how can we develop a calculation methodology for these new future maturity risk-free rates that is feasible in the Moroccan context?".

Context of the problem

- The LIBOR rate is considered the "world's most important number" in finance [7].
- Conglomerate of different banks artificially manipulated the rate between 2005 - 2010 [19].



Methodology

- Construction of this forward curve based on data provided by BAM [1].
- Benchmark analysis of work carried out to date by various central banks.
- Consideration of Moroccan market characteristics to select the best approach.
- Application of the compound rate methodology.

Results

- The yield curve fluctuates in a narrow band ranging from 1.420% for a one-week maturity to 1.736% for a projected one-year maturity.
- Like the results of the American team [9], the rate obtained is also not very volatile in the first 6 months modeled.

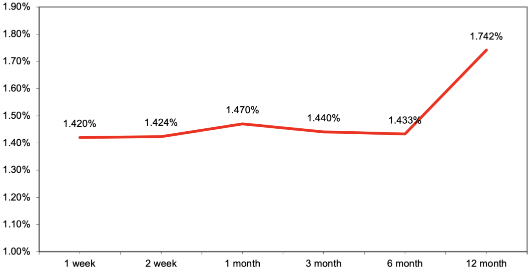


Figure: Computation by the author.

Implication

- Weak financial literature covering this issue, based mainly on the research work of American teams [9].
- We obtain results that are largely in line with the position of scientific research in this respect.
- The extent of MONIA's daily volatility can vary over time and depends on a number of factors, despite which the use of an average overnight rate makes it possible to smooth out almost all these types of volatility.

Limits

- Construction of the forward yield curve using alternative reference rates has not seen the light of day at no central bank until now.
- Paradigm shift in methodology: from a declarative-based rate to an effective-based rate.
- Moroccan market limited in terms of maturity.
- Limiting assumption: the rate is difficult to model for maturities of more than one year. The 12-month rate explodes despite its risk-free nature.
- Impact of Covid-19 on results.
- Research work at a germinal stage.

Conclusion

- The results can be taken as approximation values for forward maturities.
- However, it's worth mentioning that the compounding approach does have its hurdles to overcome.
- This method is the most popular with market operators, as it is easy to understand in terms of theoretical underpinnings, transparent and has a rather stable behavior over time.
- Option to publish the first LIBOR rates in parallel with the new risk-free rates, to smooth the transition and enable agents to prepare themselves better.

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