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COMMODITY *SALAM* CONTRACTS MODELS AS *SHARIAH* COMPLIANCE FINANCIAL DERIVATIVES

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

There are several Islamic contracts which can be developed as *shariah* compliance derivatives, namely *salam, urbun and istijrar*. However, this study focuses on commodity *salam* contract since there are a lot of discussions concerning permissibility, criteria and conditions of *salam* contract in the literature. From the definition, the *salam* contract is closely resembling prepaid forward contract. However, there are some criteria and conditions that make it different from the conventional prepaid forward such as the predetermined *salam* price that has the discount element to compensate the buyer from credit default risk, the stochastic behavior of the underlying asset and the unique terminal boundary condition of *salam* contract. Although many studies and discussions had been done on *salam* contract, they are more on qualitative studies. Hence, this study aims to develop the mathematical models of commodity *salam* contracts in pricing the *salam* price. In developing the *shariah* compliance models of commodity *salam*, this study has identified the appropriate variables to represent the principals and price criteria of the *salam* contracts. Then, unique boundary conditions and profit equations of both *salam* contracts have been proposed. For the case of *salam* contract between two parties, this study has adopted the concept of Islamic time value of money to price the commodity *salam*. Four mathematical models of commodity *salam* contract between two parties in discrete and continuous time series have been successfully developed which are CS_2PSD Model, CS_2PCD Model, CS_2PPCD Model and CS_2PCC Model. Apart from that, three mathematical methods have been used to model the traded commodity *salam* contract as an actively traded *shariah* compliance derivative by utilizing the Brownian motion theory. The first one is by adopting the basic foundation of no arbitrage framework that is known as the cost of carry model (TCS$_1$ Model). The second method is based on the equivalent martingale measure theory (TCS$_2$ Model) while the last approach is by using the partial differential equation approach (TCS$_3$ Model). All of these three approaches are solved analytically based on the proposed terminal boundary condition of traded commodity *salam* to get the closed-form formula. Finally, the proposed commodity *salam* models are being verified and validated. Two approaches have been considered in verification analysis which are the mathematical approach and the implementation of actual data graphically. Lastly, the performance analysis has been conducted on both types of *salam* models for validation purposes. The overall verification and validation results suggest that commodity *salam* models between two parties and the traded commodity *salam* model with 6% discount rate are the best models as compared to comparison models. Both types of *salam* models also satisfy the basic property of derivative theory which are the no risk and no arbitrage consideration as well as the convergence property. Thus, with the development of the proposed commodity *salam* models, the main goal of this study has been achieved, which is to provide the new *shariah* compliance derivative products. Both types of proposed *salam* models not only can serve as the alternative to the existing conventional derivatives but these models are also useful as risk management tools. At the same time, the establishment of these models can fill the gap in Islamic derivative study and promote the growth of Islamic financial products.

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