



**SOLUTION OF THE BLACK-SCHOLES EQUATION VIA
HEAT EQUATION FOR PRICING EUROPEAN OPTION**

UNDERGRADUATE THESIS

**Submitted as one of the requirements to obtain
Sarjana Aktuaria**

By

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**FACULTY OF BUSINESS
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CIKARANG
APRIL, 2023**

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ABSTRACT

The objective of the study is to obtain the Black-Scholes solution by transforming the Black-Scholes equation using heat equation and the usage of the solution to obtain the option price. The Black-Scholes equation will be transformed into the heat equation, and then use the heat fundamental equation to find the Black-Scholes solution. The Black-Scholes solution that were obtained will be used to find the theoretical price of the Black-Scholes European call and put option. This thesis uses the Research and Development method, that is a research approach that calls for the use of numbers throughout the research process, from data collection to data interpretation and result presentation.

Keywords: *Black-Scholes Equation, Heat Equation, European Option, Black-Scholes Solution*

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