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# INDUSTRIALIZATION OF DERIVATIVE DESIGN: INTEGRATED RISK MANAGEMENT WITH THE FINANCIAL INFORMATION SYSTEM WARRANT-PRO-2

Hans-Jörg von Mettenheim, Michael H. Breitner<sup>1</sup>

## **Abstract**

*Risk management is essential in a modern financial services industry. Derivative instruments like options have a particular status. Appropriate derivatives allow financial service providers to redistribute risks towards others. The process of creating customer tailored derivatives is not well-investigated today. With the financial information system (FIS) WARRANT-PRO-2 derivative prices are computed for given payments. The deviation, for example, from a predefinable Delta of an option can be minimized. Automatic creation of optimally synthesized options is very promising for buyer and seller. An example is presented to show the easy process of creating a customer tailored option.*

## **1. Introduction and Motivation**

Risk management is essential in a modern financial services industry. Financial markets enable institutions and households to select an acceptable level of risk in their transactions. Appropriate financial information systems (FIS) allow for the redistribution of risks towards others who are willing and able to assume them. FIS are a key element for financial management decisions.

Derivative instruments - derivatives, for short - have a particular status in the financial services industry, like options. Options allow agents to hedge against one-sided risks. Options give the right, but not the obligation, to buy (call option) or sell (put option) a certain underlying at a prespecified strike price at expiration (European style option) or at any time up to expiration (American style option). Common underlyings are, e.g., a certain amount of foreign currency, a certain number of bonds or shares or also a certain weight or volume of commodities, see [11, 18, 23, 26] for an introduction. Today, derivatives on various underlyings are traded worldwide around-the-clock. FIS and networks that link offices and markets permit immediate exchange of true market information (securities exchanges and “over the counter” (OTC) traders). Options lack flexibility under several aspects, however. Especially customized payout and risk profiles are difficult to realize and have to be tediously created manually. Calculation and optimization is often manual, subject to errors and time-consuming.

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