

Analytic Pricing of European Contingent Claims under the Real World Measure

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This paper derives analytic results for European style contingent claims for a stylised *minimal market model*. This model accurately reflects empirical features of modern developed markets such as leptokurtic log-returns and the 'leverage' effect. Under such a model, a change of probability measure is neither possible nor is it required, since we utilise the benchmark framework with its associated concept fair pricing. Here, the growth optimal portfolio (GOP) is used as numeraire, and hence all contingent claim prices are obtained as conditional expectations under the real world probability measure. Specifically, we calculate derivative prices for an option on a well-diversified stock index, an option on an exchange price that can in most cases be represent equity prices and in some circumstances model exchange rates, as well as options on zero coupon bonds.