Reference	Location (country, market)	Sample (product, time span, data frequency)	Methodology	Main results
Commodity option pricing efficiency before Black, Scholes, and Merton	England, London Stock Exchange	Commodities (copper and tin) traded prices of short-dated options (tree-month) on metal futures traded on the LME between 1921 and 1931	The **first test** computes theoretical prices for each commodity option with a known strike price and time to expiry, using the BSM model with realized volatility over the life of the option as the key input, along with the futures price and the risk-free rate. The **second test** examines the degree of co-movement of the implied volatility of each options trade with both historical and realized volatility.	Traders of tin and copper options in the 1920s transacted with Keynes via his broker at prices fairly close to their BSM theoretical values. The second main finding is that, for our sample of option trades, any changes in their theoretical values, characterized by implied volatility, were associated with changes in observable parameters (historical volatility) and expectations (proxied by realized volatility).
Derivative Pricing 60 Years before Black– Scholes: Evidence from the Johannesburg Stock Exchange	South-Africa, Johannesburg Stock Exchange	A. Warrant 15 warrants (American style) with year(s) duration. Collected warrant data from 1909 to 1922. It was price quotes from the *Rand Daily Mail.* B. Call Options Nine 30-Day call option quotes in 1907 and 1908 by the African Share Agency.	A. Warrant Pricing Using a derivate of Black&Schole's formula B. Call Option Pricing Black -Scholes model Two plausible measures of volatility, a perfect foresight measure and a 90-day backward-looking measure	In general, warrant prices were surprisingly accurate in the pre- Black–Scholes era. Between 1908 and 1911, a broker offered to write call options on many mining stocks. They find that these were priced less accurately than were the JSE-traded warrants.
The pricing of options and corporate liabilities	Chicage, Chicago Stock Exchange	No data, it is a mathematic demonstration to price options, warrants, Common stock.	Empirical test of the valuation formula on a large body of call-option data	Black&Schole's formula
