Micro, Small and Medium Enterprises (MSMEs) in Africa, have been variously reported to suffer lack of financial resources for growth and sustainability, especially because debt financing for financial institutions is generally expensive. That Equity financing through Venture capital (VC) is a non-bank source of funds considered to be an important alternative financing for small scale enterprising yearning to grow. Studies show that VC has the capacity to reduce problems of information asymmetry, adverse selection and moral hazard. VC though touted as the best alternative financial resource for MSMEs worldwide is still less appreciated by entrepreneurs in Africa in general and Kenya in particular. Empirical studies have shown that VCs portend more risk in financing MSMEs in earlier development stages, however, with proportionate breath; reasonable return is expected from early stage financing, into their mezzanine, growth and early maturity stages. Study reports therefore provide that there should be no cause for alarm on the side of the entrepreneur and the Venture Capitalist. This paper sought to investigate the level of awareness, appreciation and acknowledgement among the Kenyan investment community about the role Venture Capital financing play in boosting industrial development through MSMEs. The study employed a case study methodology that utilized a sample of 106 MSMES out of a target population of 229 MSMES registered in Nairobi Central Business District in Kenya. Data were collected by use of semi-structured questionnaire and personal interviews. Descriptive statistics including correlation analysis, ANOVA and measures of central tendencies using SPSS version 19 were employed to determine the variable associations, relationships and dispersion. The main findings were that all entrepreneurship development stakeholders were largely ignorant of the potentials for VCs to bridge the MSME financing gap. That venture capitalists were not willing to finance MSMEs in Kenya due to their volatility, inability to meet the requirements of venture capitalists and their inexperience in business financial management. That MSMEs in Kenya were found to be scarcely in partnerships, which denied them reasonable capital base requisite to attract VCs. Despite the fact that VC is one of the most relevant and important sources of finance for innovative entrepreneurship growth, this study found lack of enterprising culture to drive the promotion, competition, innovation, sector development and industrialization in Kenya.