

Abstract of the thesis titled: “Three Essays on Portfolio Analysis”

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Classical portfolio theory of Markowitz (1952) fails to generate implementable portfolio weights due to its simplistic approach toward handling risk and assumption that expected future returns follow historical patterns. Further asymmetric conditional correlations make it difficult for mean variance framework to capture true risk associated with parameter uncertainty [Chua David B. et al. (2009)]. Black-Litterman portfolio model, a mixed estimation Bayesian model [Black & Litterman (1991, 1992)], addresses some of the parameter uncertainty issues and by virtue of using an informed prior can generate more stable and implementable portfolio weights.

Black-Litterman Model (BLM) uses views to condition the prior into posterior and thus can blend exogenous non-sample information into predictive portfolio weights. Nevertheless, the model has two parameters namely, scalar (τ) and view uncertainty (Ω) that are exogenous to the model and introduce certain ambiguities in implementation of BLM [Litterman (2003), Idzorek (2004), Harold (2003)]. This paper uses a novel survey based method to get a view distribution to get rid of the ambiguity surrounding Ω . Further, we use a definition of τ that is inverse to the length of the estimation period [Blamont & Firoozye (2003)]. We ascertain the impact of τ on BLM portfolio performance using different estimation periods. We also find that the view optimism level and view accuracy both have significant positive effects on BLM portfolio performance.

Black-Litterman Model can use views that are generated endogenously from the data itself [Zhou (2009)]. We aim next in this thesis to create a framework through which asset mispricing can be exploited and modelled into a portfolio through endogenous view conditioning of BLM. The method is novel in its application of endogenous conditioning of BLM for Indian stock markets.

We implement short-term contrarian and momentum strategies through this methodology and find the resultant portfolios to outperform the broad based Indian market index CNX500. The superior performance can be attributed to combination of alpha (stock selection) and market timing for short term contrarian case and to market timing only for the case of momentum trading strategy. Net of transaction costs the portfolios outperform the market index as well as benchmark long-short zero cost (Rupee neutral) conventional contrarian and momentum portfolios drawn out of same set of stocks. A block-wise bootstrapping method and static sub-sampling tests are used for robustness and here too BLM portfolios show better risk adjusted return and lower VaR estimates.

We use daily data to show how powerful BLM can be in dealing with surveys and trading strategies.