The Impact of Government Interventions on the Government Securities Market in Sri Lanka -Can Policymakers make the Market Better?

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Introduction

Efficient Market Hypothesis (EMH) depicts markets as efficient. A new paradigm of thinking emerged in EMH literature after Andrew. W. Lo (Lo* August 15, 2004; Lo* March 8, 2005)) introduced the perspective of 'efficiency' in markets to be time-varying and follow an evolutionary path. This simply means that markets react to changing environment, tend to change and while doing so, make systemic mistakes, learn and then adapt. On the other hands, governments could consciously influence market environment through specific policies and regulation. The questions then arise as to: *What would be the impact of government's determined changes (interventions) on a market's natural adaptation and then on changing level of efficiency? Can the governments thus influence or generate efficiency?* Answers to these questions seem non-concrete, though sometimes it is documented that government interventions bear a positive relationship with reduced investor biasness (Daniel, Hirshleifer et al. 2002). This study is designed to model association between government influence and market efficiency through principles nested in AMH. The uniqueness of the study comes in design, concepts and in context with the unique datasets hitherto inaccessible.

Purpose and Objectives of the Study

Purpose of this study is to better understand the impact of government interventions on financial market performance. This is done through measuring the degree of changing market efficiency overtime in the Government securities Market in Sri Lanka and then by relating the outcome to trends observed in government policy and regulation.

Objectives of the Study

1. To model government policy and regulation as intervening variables to market efficiency.

2. To regress government policy and regulation with market efficiency in a multivariate co-integrated test framework, using linear regression.

3. To test the regression model and then seek evidence of structural breaks and then to separate out regimes.

4. To find evidence to relate structural changes to trends in government regulatory function.

5. To better understand the government's role in relation to market performance and evolution.

Data and Methodology

Data

Behaviour of treasury securities' yields in the Government securities Market in Sri Lanka is assessed through a new methodology. The Market is divided into two distinctive classes or groups, namely Primary Dealers (PDs) and Non-Primary Dealers (NPDs). Transaction data (yields) from both groups for the period from 03/01/2005 to 31/12/2010 make two unique, new time series datasets, each of which consists of 10 maturity series (based on term-structure relationship). These two datasets are analysed independent of one another, by regressing against government interventions as explanatory variables.

Methodology

Interventions (explanatory variables) are regressed with each dependent dataset to assess relationships among chosen variables and to check whether changes in the time series data coincide with changes due to government interventions. Structural changes in the regression models are assessed by an empirical fluctuation process, using moving sums of regression residuals (MOSUM). This methodology borrows heavily from Zeileis, Leisch et al (2002), (Zeileis, Kleiber et al. (2003), Veichtlbauer, Zeileis et al.(2006) and Zeileis (2006). All computations are performed using R-system for statistical computing (R Development Core Team 2011) . A special software programme was developed in R language for analytical purposes.

Interpretation of Results

The two datasets make it possible to compare and contrast the impact of government intervention on each group of market participants. Strong graphical analysis in R enables visualizing structural breaks in each model separately. Breaks identified are matched with factor dynamics with the objective of assessing whether changes in yield dynamics coincide with changes in vector of regressors. Basic norm is to identify whether there are breaks in the series that cannot be explained by any factor alone. Thus, it is reasonably assessed whether breaks in the data series (yields) are brought about by government interventions and if so, whether government actions have higher influence on PDs over NPDs. Breaks points (m) common to all the series (after evaluating using Information Criteria) cut longitudinal full sample period into (m+1) non-overlapping 'regimes'. Each regime is then assessed for weak-form efficiency using a random walk model (RWM) to map changing market efficiency over time.

Practical Implications and Further Research

The findings of the study are a necessary piece of information for policy makers of government securities markets, as well as for market participants. The government (regulator) could be reasonably assured whether its interventions re the market would have a significant impact on adaptation. Further, regulators could visualize whether evolution of regulation radiates from *ex-ante rules* regimes to *ex-post policies* regimes. At the same time increased efficiency means asset prices are matched with true fundamental values of those assets, a necessary condition for healthy competition among market participants. This methodology could be replicated for another emerging government securities market. Testing market efficiency in the semi-strong form (event study) is yet to be tested for this market. The results of this study provide a test-bed for that.

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