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Strategy and tactics in public debt management☆

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Abstract

We examine the public debt management problem with respect to the maturity mix of new issues in a mean-variance framework. After identifying the main determinants of the long-run target (strategy), we focus on which interest rate conditions allow for a temporary deviation (tactics). The study is partly motivated by the apparent window of opportunity to issue more heavily at longer maturities given the recent historically low yields. We show that the room for long tactical positions on the long-term bond is actually narrower than predicted by rules of thumb based on Sharpe-like ratios. Once the model is augmented to embed real world features such as no price-taking and transaction costs, the scope for tactical position shrinks further. We discuss the model results and its implications in terms of the principal–agent dilemma (government vs. debt manager); the paper also explores the financial stability implications arising from public debt issuance choices. All in all, our findings provide a rationale for the degree of caution often shown by many public debt managers in fulfilling their mandate.
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G1; H6; D4

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1. Introduction

At the most basic level, public debt managers must choose which securities to issue with a view to collecting enough funds to honour the debt that will fall due and to address new government

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financing needs. There is ample consensus that this process should be geared towards a cost of serving the outstanding stock of debt that is as low as possible over the medium term while taking on only tolerable risks (IMF and World Bank, 2014). In this paper we examine a stylised version of the manager's choice, where the alternatives are a shorter bill vs. a longer bond and the stock of debt is assumed to be constant over time. A key element of the proposed approach is that the manager solves a cost minimization function so as to set a long-run target for the relative weight of the bond (the 'strategy' referred to in the paper's title) while retaining the flexibility to adopt in the current period a different mix between the two securities (the 'tactics') to take advantage of today's interest rate levels.

A good example of why a debt manager could find it advantageous to take a tactical position is offered by the market conditions prevailing in 2012, early 2013 and again since mid-2014 through March 2015 (the end of our sample). Say, at end-July 2012, the zero yield on the 10-year US bond stood at 1.60%, 2.0 standard deviations below its long-run average which we work out to be 4.5% using a January 1995–March 2015 sample. By comparison, at 0.19% the yield of the 1-year US Treasury bill was 'only' 1.2 standard deviations below its average. Arguably, these statistics are not set in stone, depending on estimation techniques and data samples, but few analysts would disagree that at the time the US rates stood well below long-run means. Hence, a temporary reduction in the supply of bills to make room for more bonds could have been a smart move to lock in a low cost of debt for a prolonged period. Roughly similar results are observed in data for Germany, another top-rated country (Chart A1).[1]

The allocation between two (or more) financial instruments, each with its own level and variability of returns, is widely studied in finance. Nevertheless, to the best of our knowledge few papers discuss the optimal portfolio in public debt management. In fact, this subject looks interesting for several reasons. First, the placement of government securities is a key driver in financial markets, not least due to the sheer size of public debt in many countries. Second, the optimal portfolio problem exhibits some peculiar traits where public debt is concerned. Indeed, the uncertainty faced by the agent is not much about the interest rate of the security currently being issued—the secondary market provides a good benchmark—but rather about the interest rate which will prevail when the current security will fall due and a new one will need to be issued.[2] We suggest a specific interpretation of the transaction costs borne by the Treasury if it were to enact swift and large changes in the supply mix of its securities. Finally, across government securities, short-term bills provide their holders with distinct quasi-monetary services; as a consequence changes in the maturity mix pursued by the public debt manager are deemed to be non-neutral for the economic system as a whole (Angeletos, Collard, Dellas, & Diba, 2013; Farhi & Tirole, 2011).

This paper sets out to fill what we regard as a gap between two strands in the literature on public debt management, along the lines of the recent contribution by Debortoli, Nunes, and Yared (2014). At one end of the spectrum, there are established papers of a scholarly nature (e.g., Barro, 1979) which lay down key concepts in this field but tend to be insufficiently detailed to meet the real needs of the debt manager.[3] At the other end, there is a small but increasing number of works

[1] Throughout the paper key charts and tables are displayed in the main text, while additional tables and charts are presented in the annex; the latter are coded with a final 'A' (e.g., Chart A1).

[2] Due to a market segmentation argument, the choice of which security will be issued in the future is dependent on today's choice.

[3] A discussion of the literature on the theory of public debt management is in Faraglia, Marcet, and Scott (2010).

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