Discussion of "A New Structure for U.S. Federal Debt," by John H. Cochrane

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John Cochrane's proposal for simplifying the debt management of the United States Treasury is original and radical. In its essence, the plan calls for the issuance of only two securities: floating-rate perpetual debt and fixed-rate perpetual debt. This is not merely a proposal for two general "classes" of debt securities. The proposal means literally that Treasury would issue, and keep re-issuing over and over, the same two securities, forever! The only issuance decision to be made by Treasury's Debt Management Office would be how much more of each of these same two securities to issue or retire, day by day. Cochrane extends the basic two-security issuance menu by adding their inflation-indexed versions, and considers other possible extensions that I will discuss.

I applaud Cochrane's audacity, clear vision, and goal of simplifying debt management, among other objectives that I do not have space to discuss here. However, his plan is not cost-effective. As I will explain, this extreme restriction on the maturity distribution of outstanding treasuries would impose a significant cost on the many market participants who have narrow preferences for the maturities of the treasuries that they choose to own or short. The aversion to owning perpetuals rather than specific-maturity issues would also be reflected in a higher cost to taxpayers for funding the U.S. government. These maturity preferences, sometimes called clientele effects, have been described in prior work, for example Greenwood, Hanson, and Stein (2010) and Krishnamurthy and Vissing-Jorgensen (2012). Most of the relevant literature focuses on preferences only between short-maturity and long-maturity debt, which in principle would be met by Cochrane's stark two-security menu, but the same clientele and liquidity effects described in the prior literature apply to distinctions among many different maturities.

I don't expect much support by market participants for Cochrane's proposal. Both the sell-side and the buy-side of treasury markets would be apoplectic at the prospect of losing access to large supplies of specific-maturity issues in amounts that are sensitive to their demands for hedging and speculation, especially in light of limits on the liquidity of secondary markets for treasuries and treasury repos.

Currently, the Treasury Department is somewhat attentive to the demands of the market for treasury securities of different maturities in different respective total amounts. To this end, Treasury seeks advice from primary dealers and bodies such

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as the Treasury Borrowing Advisory Committee. As I will explain, Treasury also infers directly from price signals and daily reports of treasury delivery failures which particular securities are in especially high demand. Treasury responds by issuing more of those and less of others. Is the U.S. Treasury wasting its time (or even, as Cochrane argues, causing social harm) by catering to the maturity-based demands of treasury investors? No, it is not.

In an ideal frictionless-market world, as first shown by Wallace (1981), the maturity structure of government debt is irrelevant.[1] All that matters to the real economy is the stream of net cash flows to be spent by the government. The economic effect of any issuance strategy for government liabilities could be costlessly converted by the private sector in this ideal world to the effect of any other issuance strategy that leaves the government with the same net stream of cash flows, through frictionless trading of a full menu of financial contracts.

The Cochrane proposal would at least allow a perpetual fixed-rate note to be "stripped" into a portfolio of coupon-only claims and a forward claim to a perpetual. For example, a perpetual note could be converted to a stream of daily coupon payments for the next 10 years and a claim to a perpetual note that starts paying in 10 years. Ideally, one could synthesize any desired hypothetical fixed-rate treasury by packaging the coupon strips accordingly. But the key problem here is not the ability to synthesize a desired position, but rather the available total free float of specific types of notes.

As I explained in Duffie (1996), market participants value individual treasury securities both for the cash flows that they promise and also for liquidity services of various types. In particular, certain benchmark on-the-run treasuries are often in especially high demand for hedging and speculative purposes. Specific-maturity treasury bills are also valuable for the defeasance of municipal bonds[2] and other maturity-specific cash-management and collateral applications.

Episodically, the demand for certain securities such as the last-issued ("on-the-run") 10-year treasury note is so high that in order to obtain these notes one must be willing to lend cash at interest rates below *minus* 2 percent to get owners of the notes to give them up on short-term repos. Even so, there are often not enough of these notes in circulation in recent years to meet trading demands, given the limited velocity of their intra-day circulation.[3] This often results in cascading failures of sellers to deliver the notes they have promised to buyers.[4] Recently, Treasury has

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[1] Other relevant pieces of this literature include Angeletos (2002), Chamley and Polemarchakis (1984), and Stiglitz (1988).
[2] See Ang, Green, and Xing (2013).
[3] Vayanos and Weill (2008) provide a search-based model of over-the-counter markets in which even two securities with identical cash flows can be distinguished in price and demand by relative liquidity.
[4] See for example McCormick (2014).

gone so far as to issue the same specific 10-year note in three successive auctions, creating a massive “triple issue,” in order to meet the very high demand for these notes, which can be perceived from its special repo-market terms and high rates of delivery failure. There are often similar problems with 2-year and 5-year notes.

Cochrane recognizes this concern, and considers two potential compromises to his basic perpetuals-only design. Under one variation, Treasury would monitor the market for liquidity pressure on stripped coupon securities at selected maturities, and would augment the supply of those strips with special new auctions. I predict, however, that if Treasury were to pursue this route even half as far as its benefits seem to extend, we would end up with a rather heterogeneous maturity profile of outstanding treasury obligations, running against the spirit of Cochrane’s proposal. I would also have some concerns over the lack of liquidity of the many different individual strips, due to thin trading. Over time, a strip whose original maturity had once been in the “sweet spot” would become illiquid. This seems like the sort of problem that Cochrane was actually trying to avoid. In a brief appendix, I discuss another potential intermediate-maturity compromise considered by Cochrane, based on perpetual bonds whose coupon rates decay over time.

A positive aspect of Cochrane’s proposal in its purest two-security form is that each of the two perpetuals would be extremely liquid. The entire amount of fixed-rate nominal treasury debt in existence would trade in the form of a single security, so there would be a super abundance of its supply. For example, even if Treasury decided to issue 90% floating-rate debt and only 10% fixed-rate perpetuals, the market value of the single fixed-rate perpetual note would exceed one trillion dollars at current debt levels, well over ten times the amount of any single treasury note now in existence. However an abundant supply of perpetual notes does not mean that the preferences of investors for specific finite-maturity notes are being well served.

What would happen if the Cochrane proposal were adopted? Stripping would be used to create various synthetic treasury positions whose maturity properties serve specific applications for hedging, speculation, cash management, and collateral. Not all individual strips would be in equally high demand — far from it — but the total supply of traded treasury fixed-coupon cash flows would be perfectly flat across all maturities. As a result, some strips would trade at notable yield distortions, relative to those suggested by efficient-market term premia. That is, there would be significant liquidity premia, probably much larger those visible in today’s highest-demand treasury bills and notes, whose supplies are at least somewhat responsive to market demand. The private sector would try to close the gap by creating substitute securities, probably with some degree of success. The opportunity cost to market participants of lost access to a greater amount of maturity-specific treasuries relative to others would nevertheless be significant.

There is no compelling reason for the government to deny the market the relative quantities of specific-maturity treasuries that investors demand. The government is able to vary the maturity structure of its debt at a low cost, relative to the benefits of maturity variation to investors. By doing so, the government can lower its interest expense accordingly. While much of the resulting interest-expense savings represent a transfer from treasury investors to taxpayers, these savings reflect real liquidity benefits to the market.

The best part of Cochrane's proposal for Treasury debt management is the suggestion to create a large outstanding supply of floating-rate notes. Treasury has not come close to satiating the market's extremely high demand for safe liquid money-like instruments.[5] In the spirit of my earlier discussion, Treasury could better serve the market by serving more of this demand.

Appendix: Perpetual Bonds with Decaying Coupon Rates

Cochrane's other potential compromise to meet the demand for intermediate-maturity securities would have Treasury issue perpetual notes whose coupon rates decline geometrically with maturity. For example, if the yield curve is flat at some rate y, a perpetual note whose coupons decline at a proportional rate of g per year would have a duration of 1/(r+g). Duration, or valued-weighted average maturity, is a standard measure of the sensitivity of the market value of a bond to changes in yields. For example, a perpetual whose coupons decay at 4% per year would have a duration of 10 years when its yield is 6%. A downside, however, is that if recessionary monetary conditions were to push the yield of this note down to 1%, its duration would then zoom out to 1/(0.01+0.04) = 20 years. The duration of a conventional a ten-year treasury note would increase only modestly in this scenario, from about 7.7 years when issued at a 6% yield to about 8.1 years when its yield drops to 1%. From a risk-management viewpoint, bond investors generally tend to prefer low duration sensitivity. Treasury would find itself under pressure to issue various bonds with different geometric coupon decay rates, to serve various different maturity-specific clienteles, and then to add a further variety of bonds over time in order to compensate for changes in the yield curve. While Treasury could probably maintain adequate liquidity for a relatively rich menu of bonds with different coupon decay rates, this approach seems to defeat much of the simplicity of Cochrane's original scheme. This approach would also raise quite a fuss in the investment community because of the operational costs of dealing with bonds whose coupon income is declining over time.

[5] See, for example, McCormick (2015).

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