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Survey Evidence on the Perceived Relationship between Inflation and Government Debt among Consumers and Financial Experts

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This memo provides a summary of some new survey findings concerning the perceptions among consumers and financial experts regarding the association between future changes in government debt and inflation.

Executive Summary

Survey evidence indicates that a majority of consumers perceive unexpected increases in government debt to be inflationary, irrespective of whether the higher-than-expected debt is due to a shortfall in tax revenues or due to higher than expected government spending. Consumers are expecting an increase in government debt over the next year, with those expecting a larger increase in government debt also tending to have generally higher year-ahead inflation expectations. In contrast to consumers, financial experts view the scenario in which higher-than-expected debt is due to a shortfall in tax revenues as not inflationary; instead the alternative scenario in which there is higher than expected government spending is perceived to be inflationary.

Survey Instruments

Our analysis is based on data collected from two different surveys. Data on consumers were collected through a series of web-based surveys administered to participants in RAND's American Life Panel (ALP) as part of the Household Inflation Expectation Project.[2] ALP participants were recruited from participants in the Reuters/University of Michigan Survey of Consumers, who were originally contacted through random-digit dialing. Those who expressed a willingness to participate in subsequent internet surveys and also gave consent to have their information shared with RAND were invited to the panel.

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[2] Starting in November 2007 a team composed of economists in the Federal Reserve System, academic economists and psychologists set out to study the feasibility of improving the measurement and analysis of consumer inflation expectations (both for the general price level and for wage earnings) through surveys. The project's main goals are (i) to assess the information content and validity of the Reuters/University of Michigan Survey measures; (ii) to improve the quality of existing measures and to better align the measurement of household inflation expectations with the central role that inflation expectations play in current monetary policy formulation and communication; (iii) to improve our understanding of how consumers form and update their inflation expectations; (iv) to empirically assess the links between inflation expectations and consumer choice behavior. For a description of the project and a discussion of some of its findings, see van der Klaauw et al. (2008) and Bruine de Bruin et al. (2009a, 2009b, 2009c, 2009d).

During the past few years, we have collected detailed information on consumers' inflation expectations. The research findings discussed here are based on a set of special questions included in several recent surveys conducted between September 23 and November 17 of 2009. In addition to a set of questions eliciting consumer perceptions of the relationship between future changes in government debt and inflation, we also asked individuals for their expectations of year-ahead inflation and year-ahead changes in US government debt.

Data on financial experts were collected from questions added to the experimental buy-side survey administered by the Desk, which is mainly based on the existing primary dealer survey. The sample size is currently very small (11) but the respondents either manage very large portfolios and/or are viewed as influential market participants.

Expectations and Perceptions among Consumers

I. EVIDENCE ON PERCEIVED RELATIONSHIP BETWEEN CHANGES IN GOVERNMENT DEBT AND INFLATION

To measure consumers' perceptions regarding the relationship between future inflation and government debt growth, we randomly assigned two pairs of questions to respondents. The specific question wordings for the first set, as well as the corresponding survey responses, are shown in Table 1.

Table 1

A. *Consider the following scenario: over the next 12 months, the government debt ends up growing substantially more than the administration has predicted BECAUSE tax revenues are lower than expected while the level of government spending remains on target. Under this scenario, how would this change your forecast for the rate of inflation over the next 12 months?*

B*. Now consider this alternative scenario: over the next 12 months, the government debt ends up growing substantially more than the administration has predicted BECAUSE the level of government spending is much higher than expected while tax revenues remain on target. Under this alternative scenario, how would this change your forecast for the rate of inflation over the next 12 months?*

Percentage responding:	Question **A**			Question **B**		
	All	BA	No BA	All	BA	No BA
I would expect much lower inflation	2	1	2	3	2	3
I would expect somewhat lower inflation	10	8	12	9	8	10
I don't believe that it would have an effect on inflation	18	14	22	23	22	25
I would expect somewhat higher inflation	60	66	55	48	50	46
I would expect much higher inflation	9	10	8	17	18	16
	100%	100%	100%	100%	100%	100%
Total responses	409	207	202	408	206	202

A similar set of questions were asked to the remainder of the respondents, but they involved scenarios in which government debt ends up growing substantially less than was predicted (because of higher-than-expected tax revenues or lower-than-expected government spending). The specific questions, and associated survey responses, are presented in Table 2.

Table 2

A. *Consider the following scenario: over the next 12 months, the government debt ends up growing substantially less than the administration has predicted BECAUSE tax revenues are higher than expected while the level of government spending remains on target. Under this scenario, how would this change your forecast for the rate of inflation over the next 12 months?*

B. *Now consider this alternative scenario: over the next 12 months, the government debt ends up growing substantially less than the administration has predicted BECAUSE the level of government spending is much lower than expected while tax revenues remain on target. Under this alternative scenario, how would this change your forecast for the rate of inflation over the next 12 months?*

Percentage responding:	Question **A**			Question **B**		
	All	BA	No BA	All	BA	No BA
I would expect much lower inflation	5	3	6	8	8	8
I would expect somewhat lower inflation	38	42	34	42	48	35
I don't believe that it would have an effect on inflation	35	34	37	31	25	38
I would expect somewhat higher inflation	21	20	23	16	15	16
I would expect much higher inflation	1	1	1	3	4	3
	100 %	100 %	100%	100 %	100 %	100 %
Total responses	396	203	193	396	203	193

In a follow-up survey, we expanded the scenarios described in Table 1 by adding specific reasons for the increase in government debt (tax revenues lower than expected *due to a weak economy* or *due to a new tax reform*; government spending higher than expected *due to increased outlays on unemployment benefits* or *due to a new health care reform*). Generally the response patterns reported in Table 1 are robust to these additions. We find that the health care reform scenario is perceived as somewhat more inflationary both relative to a more recessionary scenario (*increased outlays on unemployment benefits*) and relative to the alternative acyclical scenario (*a new tax reform*).

There are several conclusions that can be drawn from these survey responses:

1. The majority of respondents associate higher-than-expected government debt with higher inflation, irrespective of whether the higher-than-expected debt is due to a shortfall in tax revenues or due to higher than expected government spending (Table 1).

2. Similarly, close to half of the respondents associate lower-than-expected government debt with lower inflation, irrespective of whether the lower debt is due to higher-than-expected tax revenues or due to lower-than-expected government spending (Table 2).

3. While one may have anticipated relatively more upward revisions to expected inflation in the scenario outlined in question B than that outlined in question A of Table 1 (since the former is likely associated with a relatively stronger economy), we find little difference between the two scenarios in the overall proportion of respondents expecting higher inflation. However, among those expecting an increase in inflation, a higher fraction of respondents expect "*much higher inflation*" when the debt increase is due to government spending.

4. Similarly, while one may have anticipated more downward revisions to expected inflation in the scenario depicted in question B compared to that in question A of Table 2 (since the latter reflects a stronger than expected rebound in the economy), we again find only weak evidence for a higher overall proportion of respondents expecting lower inflation.

5. Overall the results indicate that consumers perceive unexpected increases/decreases in government debt to have a positive/negative causal effect on inflation, with little difference in responses between those with and without college degrees. In results not shown here, we also did not find significant differences in responses between individuals with household incomes above versus below $75,000, and between individuals who scored high versus low on a numeracy and financial literacy test we administered.

Did survey participants understand the questions we asked? While the response rates to these questions were close to 100% and respondents rated the questions as moderately hard to answer and reasonably clear[3], we cannot rule out the possibility that individuals did not fully understand the questions or had little knowledge about the subject.

II. CONSUMER EXPECTATIONS OF CHANGES IN GOVERNMENT DEBT

In our surveys of consumers we also elicited consumers' expectations regarding changes in government debt over the next year. More specifically, we asked them the following two questions:

(i) Twelve months from now, do you expect the level of US government debt to be higher, lower or the same as it is now?

[3] After responding to the questions discussed in section I, individuals were asked to answer the question "*Next, please think about the two questions you just answered, about your expectations for inflation under two different scenarios for government debt. How hard was it to come up with an answer to these two question"*, with answer options varying from 1 (very easy) to 7 (very hard). In addition they were asked "*How clear were the two questions about your expectations for inflation under two different scenarios for government debt in terms of what they were asking for?"* with answer options varying from 1 (very unclear) to 7 (very clear). The mean rating given to the both questions was 4.6. In comparison, consumers rated the question asking for their inflation forecast (which uses the Michigan Survey format) as 3.6 in terms of difficulty and 5.5 in terms of clarity.

(ii) [If higher/lower] In percentage terms, by how much do you expect the level of government debt to be [higher/lower] twelve months from now?

Survey responses to both questions are presented in Tables 3 and 4.

Table 3
Twelve months from now, do you expect the level of US government debt to be higher, lower or the same as it is now?

Percentage responding:	All	BA	No BA
Higher	87	88	87
Lower	3	2	3
Same	10	10	10
	100%	100%	100%
Total responses	1,207	620	587

Table 4
In percentage terms, by how much do you expect the level of government debt to be [higher/lower] twelve months from now?[4]

Quartiles of distribution of expected percentage change in government debt	All	BA	No BA
25th percentile	5	5	5
median	10	10	12
75th percentile	20	20	25
Total responses	1,198	615	583

The survey responses in Tables 3 and 4 indicate that:

1. A large majority of respondents expect a continued increase in US government debt over the next 12 months (Table 3), with the median expected change being a 10% increase (Table 4).

2. The median expected growth in government debt is slightly lower among college graduates than non-college graduates (Table 4).

III. RELATIONSHIP BETWEEN INDIVIDUAL INFLATION EXPECTATIONS AND EXPECTED CHANGES IN GOVERNMENT DEBT

Participants in our surveys were also asked for their year-ahead inflation expectations. To elicit these expectations we used the same questions as those included in the Reuters/Michigan

[4] A response of zero was recorded for those who expected the government debt to be the same a year from now.

Survey of Consumers.[5] As shown in Table 5, the median year-ahead inflation forecast in our sample, fielded during the Sept 23-Nov 17 period, was 3.2%, and the interquartile range, representing a measure of dispersion or disagreement among individual respondents, was 3.7%. When we relate individual inflation expectations to their expectations of future changes in government debt, we find a statistically and economically significant positive correlation. Thus individuals with above average expectations for growth in government debt also report above average inflation expectations. A significant association remains after controlling for a set of individual characteristics, including gender, income, age and educational attainment. While the positive correlation may not represent a causal relationship, it is consistent with our findings of a perceived link between the two discussed above in section I.

Table 5 *Relationship between individual expectation of inflation and percentage changes in government debt*	
Median inflation expectation	3.2
InterQuartile Range (IQR)	3.7
Correlation between expected inflation and expected change in government debt	0.27

<u>Expectations and Perceptions among Investors</u>

Using slightly modified wording, asking about marketable government debt rather than total government debt, we added a set of similar questions to the buy-side survey. The questions and responses are shown in Tables 6 and 7.

Table 6 *Twelve months from now, do you expect the level of marketable federal government debt to be higher, lower or the same as it is now?*	
Higher	9
Lower	2
Same	0
Total responses	**11**

[5] The Michigan question asks about changes in “prices in general” during the next 12 months. Some of the reported inflation expectations used in our analysis were based on a slightly different question wording, asking directly for expectations of the “rate of inflation”. While we have found important differences in responses to both questions in some of our previous surveys, the response distributions were similar during the survey period considered here (see Bruine de Bruin et al., 2009c).

Table 7

***A**. Consider the following scenario: Over the next 12 months, the marketable federal government debt ends up growing substantially more than the administration has predicted because tax revenues are lower than expected while the level of government spending remains on target. Under this scenario, how would this change your forecast for the rate of inflation over the next 12 months?*

***B**. Now consider this alternative scenario: Over the next 12 months, the marketable federal government debt ends up growing substantially more than the administration has predicted because the level of government spending is much higher than expected while tax revenues remain on target. Under this alternative scenario, how would this change your forecast for the rate of inflation over the next 12 months?*

Number responding:	Question **A**	Question **B**
I would expect much lower inflation	1	0
I would expect somewhat lower inflation	5	0
I don't believe that it would have an effect on inflation	4	1
I would expect somewhat higher inflation	1	10
I would expect much higher inflation	0	0
Total responses	11	11

The survey responses in Tables 6 and 7 indicate that:

1. While 9 out of 11 investors expect an increase in marketable debt over the next 12 months, 2 expect a decline (Table 6).

2. 10 out of 11 investors perceive unexpected increases in government debt to be inflationary when it is due to higher-than-expected government spending, while 6 out of 11 perceive it to lower inflation when the higher debt is due to a shortfall in tax revenues (Table 7).[6]

[6] The two respondents who expected lower marketable government debt over the next 12 months gave the modal response to the scenario questions.

References

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