Discussion of “Fiscal Imbalances and Asset Returns: Cross Sector Fluctuations under the Aggregate Budget Constraint” by Gao, Plazzi, Valkanov, and Xu

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Present Value

- present-value relation in Campbell and Shiller (1988)
- stock
- government
- external
- This paper—jointly

Present Value

For each sector, the valuation ratio summarizes future returns, cash-flow growth, and the future valuation ratio:

- Private: da (dp), equity returns and dividend growth.

$$da_t = (1 - \rho^A) r^A_{t+1} - (1 - \rho^A) \Delta d_{t+1} + \rho^A da_{t+1}$$

- Public: nsb, Treasury returns and surplus growth.

$$nsb_t = (1 - \rho^B) r^B_{t+1} - (1 - \rho^B) \Delta ns_{t+1} + \rho^B nsb_{t+1}$$

- External: nma, foreign returns and net-import growth.

$$nma_t = (1 - \rho^X) r^X_{t+1} - (1 - \rho^X) \Delta nm_{t+1} + \rho^X nma_{t+1}.$$

Present Value

Let all equations use the same predictors

$$x_t = (dp_t,\ nsb_t,\ nma_t,\ \text{controls}).$$

The three sector PV identities imply

$$\boxed{C = \mathrm{diag}(1-\rho^E, 1-\rho^B, 1-\rho^X)(b_r - b_{cf}) + \mathrm{diag}(\rho^E, \rho^B, \rho^X)\phi}$$

where b_r, b_{cf} and ϕ predict returns, cash-flow growth, and next-period valuation ratios.

The aggregate budget constraint further imposes

$$\boxed{b_{cw} = w'\phi}$$

where w contains the wealth shares of the private, public, and external sectors.

Government surplus-to-debt ratio predict equity returns

	Private		Public		Foreign	
	r^E	Δd	r^D	Δns	r^X	Δnm
dp	**1.015**	0.266	0.017	-0.972	-0.903	2.246
	(2.709)	(0.824)	(0.153)	(-0.978)	(-0.970)	(1.623)
nsb	**-0.204**	-0.058	**0.034**	**-1.121**	0.062	-0.246
	$\boxed{(-2.989)}$	(-0.995)	(1.995)	(-2.878)	(0.296)	(-0.837)
nma	-0.002	0.040	-0.005	0.057	**0.391**	-0.083
	(-0.079)	(1.506)	(-0.463)	(0.868)	(4.070)	(-0.799)

Cochrane (2005)

$$dp_t = r_{t+1} - \Delta d_{t+1} + \rho \, dp_{t+1}.$$

$$r_{t+1} = b_r dp_t + \varepsilon^r_{t+1},$$

$$\Delta d_{t+1} = b_d dp_t + \varepsilon^d_{t+1},$$

$$dp_{t+1} = \phi dp_t + \varepsilon^{dp}_{t+1}.$$

The identity imposes

$$\boxed{1 = b_r - b_d + \rho\phi.}$$

Lettau and Ludvigson (2005)

$$r^E_{t+1} = a_r + b_{r,dp} dp_t + b_{r,x} x_t + \varepsilon^r_{t+1},$$
$$\Delta d_{t+1} = a_d + b_{d,dp} dp_t + b_{d,x} x_t + \varepsilon^d_{t+1},$$
$$dp_{t+1} = a_p + \phi_{dp} dp_t + \phi_x x_t + \varepsilon^p_{t+1}.$$

$$\boxed{0 = (b_{r,x} - b_{d,x}) + \rho^E \phi_x.}$$

Conditional on current dp, if x predicts equity returns, it must also predict dividend growth and/or future dp.

”changing forecasts of dividend growth are an important feature of the post-war U.S. stock market, despite the failure of the dividend-price ratio to uncover such variation.”

Comment: Efficiency gains from imposing BC and ABC

	Private		Public		Foreign	
	r^E	Δd	r^D	Δns	r^X	Δnm
dp	**0.822**	0.312	0.037	-0.119	0.228	1.027
	(1.883)	(0.963)	(0.234)	(-0.094)	(0.181)	(0.571)
nsb	**-0.209**	-0.122	**0.040**	**-1.111**	-0.407	-0.169
	(-2.396)	(-1.619)	(2.478)	(-2.679)	(-1.432)	(-0.532)
nma	-0.009	0.030	0.000	0.062	**0.355**	-0.098
	(-0.233)	(0.996)	(-0.005)	(0.716)	(2.927)	(-0.745)

	Private		Public		Foreign	
	r^E	Δd	r^D	Δns	r^X	Δnm
dp	**0.973**	0.229	0.010	-0.798	-0.393	**2.567**
	(2.483)	(0.649)	(0.086)	(-0.745)	(-0.403)	(1.760)
nsb	**-0.224**	-0.059	**0.036**	**-1.229**	0.084	-0.222
	(-3.241)	(-0.969)	(2.095)	(-3.145)	(0.397)	(-0.710)
nma	0.009	**0.053**	-0.002	0.070	**0.420**	-0.055
	(0.312)	(1.739)	(-0.191)	(0.992)	(4.068)	(-0.483)

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Cochrane (2008): Dog That Did Not Bark

$$dp_t = r_{t+1} - \Delta d_{t+1} + \rho\, dp_{t+1}.$$

$$r_{t+1} = b_r dp_t + \varepsilon^r_{t+1},$$

$$\Delta d_{t+1} = b_d dp_t + \varepsilon^d_{t+1},$$

$$dp_{t+1} = \phi dp_t + \varepsilon^{dp}_{t+1}.$$

The identity imposes

$$\boxed{1 = b_r - b_d + \rho\phi.}$$

- Under the null of no return predictability, $b_r = 0, b_d = \rho\phi - 1 < 0.$,
- But dividend growth is essentially not predictable: the "dog" that should bark does not bark.
- The PV restriction turns the absence of cash-flow predictability into evidence for return predictability.

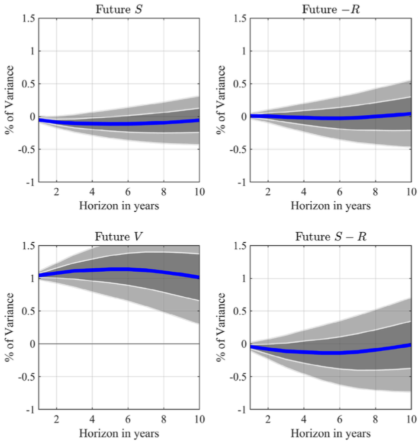
Jiang, Lustig, Van Nieuwerburgh, and Xiaolan (2024): The Dogs that Did not Bark

A high debt-to-output ratio today must be reflected in

$$\boxed{\text{higher future surpluses} \;+\; \text{lower future Treasury returns} \;+\; \text{high future debt/output.}}$$

- Future surpluses do not rise much.
- Treasury returns do not fall much.
- Most variation remains in future debt/output.
- The PV restriction identifies that the usual cash-flow and discount-rate channels "do not bark."

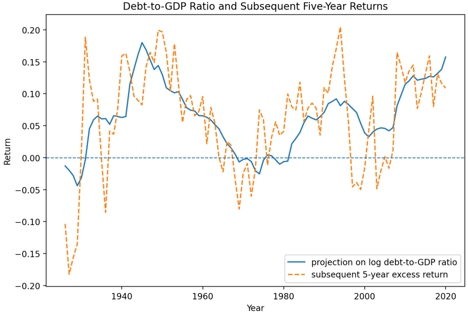
Jiang, Lustig, Van Nieuwerburgh, and Xiaolan (2024): The Dogs that Did not Bark



Comment: BC and ABC

- The econometrics are strong
- How many dogs? Which should barks? Why?
- For the insignificant coefficients, should we conclude that there are no effects?
  - stocks do not “bark” at the bonds
  - dividends do not “bark”
  - external sector do not “bark”
- What can we learn from ABC in addition?

Comment: Debt/GDP or Surplus



Liu (2023)

Comment: Debt/GDP or Surplus

Unlike, PD, PE, CAPE (Shiller), PC, P/GDP (Buffet)

$$Surplus/Debt = Surplus/GDP \times GDP/Debt.$$

	1929-2025			1952-2025		
	D/GDP	Surplus	Joint	D/GDP	Surplus	Joint
$Debt/GDP$	0.155		0.164	0.124		0.120
	(3.16)		(2.96)	(2.97)		(2.43)
$Surplus/GDP$		-0.926	0.232		-1.010	-0.109
		(-1.79)	(0.40)		(-1.60)	(-0.15)
R^2	13.35%	2.52%	13.47%	9.78%	3.13%	9.81%
N	96	96	96	73	73	73

- Long run: high debt/GDP may suggest high tax/low spending
- Short run: high debt/surplus and GDP/surplus may suggest low tax/high spending

Comment: Predictive Coefficients

For $Z \in \{NS, C, D\}$, fiscal news has an expected component X and a risky component ε_{t+1}, with ${}_t(\varepsilon_{t+1}) = V$.

Expected cash-flow response:

$$C_Z = A_Z X + \frac{1}{2} U_Z^2 V$$

Covariance component of the risk premium:

$$\pi_Z = \gamma U_c U_Z V, \qquad Z \in \{NS, D\}.$$

The public valuation ratio responds as

$$\boxed{\widetilde{nsb}_t - nsb_t = (1 - \rho^K)\left(-C_{ns} + R^f + \pi_{ns}\right).}$$

Thus, nsb reflects three components: expected surplus growth, the risk-free rate, and the fiscal risk premium.

Comment: Predictive Coefficients

”We therefore use the covariance term to map fiscal risk into equity excess returns. ”

$$b(nsb_t, r^E_{t+1}) - b(nsb_t, r^f_{t+1}) = \frac{\pi_d}{(1-\rho^K)\pi_{ns}} = \frac{U_d}{(1-\rho^K)U_{ns}}.$$

Using

$$U_d = -(1+c^\tau)\frac{T}{D} + \alpha c^g \frac{G}{D}, \qquad U_{ns} = \frac{1-\alpha\beta}{1-\beta},$$

we obtain

$$b(nsb_t, r^E_{t+1}) - b(nsb_t, r^f_{t+1}) = \frac{1-\beta}{(1-\rho^K)(1-\alpha\beta)}\left[-(1+c^\tau)\frac{T}{D} + \alpha c^g \frac{G}{D}\right].$$

Comment: Predictive Coefficients

- How to deal with C_{ns}?
- return or excess return?
- What is time varying in the model?
- C = D?
- C multiplier = D multiplier?