

Micro Uncertainty and Asset Prices

Bernard Herskovic, Thilo Kind, and Howard Kung

Discussant: Andrei S. Gonçalves

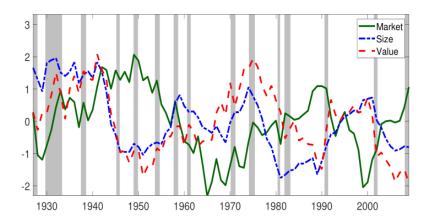
2021 LubraFin Conference

Outline

The Paper

My Comments

The Paper in a Nutshell

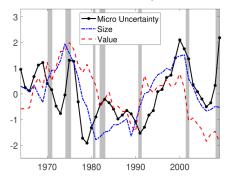


My Comments

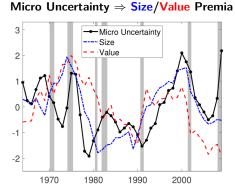
Final Remarks

The Paper in a Nutshell

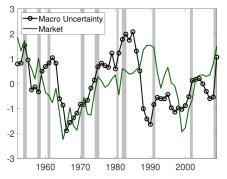
Micro Uncertainty ⇒ Size/Value Premia



The Paper in a Nutshell



Macro Uncertainty \Rightarrow Equity Premium



Outline

The Paper

My Comments

$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$

 $x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$

In the model, risk premia are (mostly) driven by x_t:

• Model mechanism implies: $Cor(\sigma_t, Value/Size Premia) < 0$

$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$
$$x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$$

• In the model, risk premia are (mostly) driven by x_t:

 $\mathbb{E}_t[r_{j,t+1}^{ex}] \approx \beta_{j,t}^{x} \cdot \lambda_x \cdot \sigma_t + \beta_{j,t}^{w} \cdot \lambda_w \cdot \sigma_w$

• Model mechanism implies: $Cor(\sigma_t, Value/Size Premia) < 0$

$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$
$$x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$$

• In the model, risk premia are (mostly) driven by x_t:

$$\mathbb{E}_t[r_{j,t+1}^{ex}] \approx \beta_{j,t}^{x} \cdot \lambda_x \cdot \sigma_t + \beta_{j,t}^{w} \cdot \lambda_w \cdot \sigma_w$$

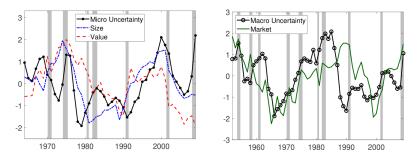
Model mechanism implies: Cor(σ_t, Value/Size Premia) < 0

$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$
$$x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$$

• In the model, risk premia are (mostly) driven by x_t:

$$\mathbb{E}_t[r_{j,t+1}^{ex}] \approx \beta_{j,t}^{x} \cdot \lambda_x \cdot \sigma_t + \beta_{j,t}^{w} \cdot \lambda_w \cdot \sigma_w$$

Model mechanism implies: Cor(σ_t, Value/Size Premia) < 0



$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$
$$x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$$

• In the model, risk premia are (mostly) driven by x_t:

$$\mathbb{E}_t[r_{j,t+1}^{ex}] \approx \beta_{j,t}^{x} \cdot \lambda_x \cdot \sigma_t + \beta_{j,t}^{w} \cdot \lambda_w \cdot \sigma_w$$

- Model mechanism implies: Cor(σ_t, Value/Size Premia) < 0
- Graphs Imply: $Cor(\sigma_t, Value/Size Premia) < 0$
- Identifying Condition: $\sigma_t = \sigma_t$ (holds in the model)
- However: $\sigma_t \neq \sigma_t$ (holds in the data)

$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$
$$x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$$

• In the model, risk premia are (mostly) driven by x_t:

$$\mathbb{E}_t[r_{j,t+1}^{ex}] \approx \beta_{j,t}^{x} \cdot \lambda_x \cdot \sigma_t + \beta_{j,t}^{w} \cdot \lambda_w \cdot \sigma_w$$

- Model mechanism implies: Cor(σ_t, Value/Size Premia) < 0
- Graphs Imply: $Cor(\sigma_t, Value/Size Premia) < 0$
- Identifying Condition: $\sigma_t = \sigma_t$ (holds in the model)
- However: $\sigma_t \neq \sigma_t$ (holds in the data)

$$\Delta c_{t+1} = \mu + x_t + \sigma_c \cdot \sigma_t \cdot \epsilon_{c,t+1}$$
$$x_{t+1} = \rho_x \cdot x_t + \sigma_x \cdot \sigma_t \cdot \epsilon_{x,t+1}$$

• In the model, risk premia are (mostly) driven by x_t:

$$\mathbb{E}_t[r_{j,t+1}^{ex}] \approx \beta_{j,t}^{x} \cdot \lambda_x \cdot \sigma_t + \beta_{j,t}^{w} \cdot \lambda_w \cdot \sigma_w$$

- Model mechanism implies: Cor(σ_t, Value/Size Premia) < 0
- Graphs Imply: $Cor(\sigma_t, Value/Size Premia) < 0$
- Identifying Condition: $\sigma_t = \sigma_t$ (holds in the model)
- However: $\sigma_t \neq \sigma_t$ (holds in the data)

• Breugem, Colonnello, Marfè, and Zucchi (2020):

$$\mathbb{E}_{t+1}[g] = \theta_0 + \theta_1 \cdot \mathbb{E}_t[g] + u_{t+1}$$

where $\mathbb{E}_t[g]$ is the SPF mean GDP growth forecast

• Breugem, Colonnello, Marfè, and Zucchi (2020):

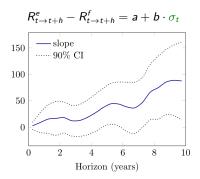
$$\mathbb{E}_{t+1}[g] = \theta_0 + \theta_1 \cdot \mathbb{E}_t[g] + u_{t+1}$$

where $\mathbb{E}_t[g]$ is the SPF mean GDP growth forecast

- 1) Growth Volatility vs $\mathbb{E}[\text{Growth}]$ Volatility
- Breugem, Colonnello, Marfè, and Zucchi (2020):

$$\mathbb{E}_{t+1}[g] = \theta_0 + \theta_1 \cdot \mathbb{E}_t[g] + u_{t+1}$$

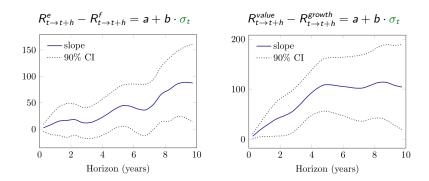
where $\mathbb{E}_t[g]$ is the SPF mean GDP growth forecast



• Breugem, Colonnello, Marfè, and Zucchi (2020):

 $\mathbb{E}_{t+1}[g] = \theta_0 + \theta_1 \cdot \mathbb{E}_t[g] + u_{t+1}$

where $\mathbb{E}_t[g]$ is the SPF mean GDP growth forecast



2) Stock Return: Macro vs Micro Uncertainty

- Garcia, Mantilla-García, and Martellini (2014): cross-sectional return dispersion is an efficient estimate for average IVOL
- Herskovic et al (2016) implies $Cor(Macro \sigma, Micro \sigma) > 60\%$

 Can you explore (model vs data) the correlation between Macro and Micro uncertainty constructed from stock returns

2) Stock Return: Macro vs Micro Uncertainty

- Garcia, Mantilla-García, and Martellini (2014): cross-sectional return dispersion is an efficient estimate for average IVOL
- Herskovic et al (2016) implies $Cor(Macro \sigma, Micro \sigma) > 60\%$



 Can you explore (model vs data) the correlation between Macro and Micro uncertainty constructed from stock returns

2) Stock Return: Macro vs Micro Uncertainty

- Garcia, Mantilla-García, and Martellini (2014): cross-sectional return dispersion is an efficient estimate for average IVOL
- Herskovic et al (2016) implies $Cor(Macro \sigma, Micro \sigma) > 60\%$



 Can you explore (model vs data) the correlation between Macro and Micro uncertainty constructed from stock returns?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:

 How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:

 How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:
 - $\circ \log(Z_t/Z_{t-1}) = \mu + \phi \cdot x_t$
 - $\circ~$ But (with fixed capital) $\textit{log}(Z_t/Z_{t-1})\approx\textit{log}(Y_t/Y_{t-1})$
 - I would expect $log(Z_t/Z_{t-1})$ linked to Δc_t , not x_t
- How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:

 $\circ \ \log(Z_t/Z_{t-1}) = \mu + \phi \cdot x_t$

• But (with fixed capital) $log(Z_t/Z_{t-1}) \approx log(Y_t/Y_{t-1})$

• I would expect $log(Z_t/Z_{t-1})$ linked to Δc_t , not x_t

 How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:
 - $log(Z_t/Z_{t-1}) = \mu + \phi \cdot x_t$
 - But (with fixed capital) $log(Z_t/Z_{t-1}) \approx log(Y_t/Y_{t-1})$
 - I would expect $log(Z_t/Z_{t-1})$ linked to Δc_t , not x_t
- How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:
 - $log(Z_t/Z_{t-1}) = \mu + \phi \cdot x_t$
 - But (with fixed capital) $log(Z_t/Z_{t-1}) \approx log(Y_t/Y_{t-1})$
 - I would expect $log(Z_t/Z_{t-1})$ linked to Δc_t , not x_t
- How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

- In the recent LRR literature, w_t shocks explain the equity premium, not x_t shocks (e.g., Bansal et al (2014, JF))
- Aggregate productivity in the model:
 - $log(Z_t/Z_{t-1}) = \mu + \phi \cdot x_t$
 - $\,\circ\,$ But (with fixed capital) $\textit{log}(Z_t/Z_{t-1})\approx\textit{log}(Y_t/Y_{t-1})$
 - I would expect $log(Z_t/Z_{t-1})$ linked to Δc_t , not x_t
- How correlated are log(Y_t/Y_{t-1}) and Δc_t in the model vs the data (important since it is partial equilibrium)?

Outline

The Paper

My Comments

- Very interesting (and polished) paper jointly explaining time-variation in the equity, value, and size premia
- No doubt it will do well
- It would be useful to:



- Very interesting (and polished) paper jointly explaining time-variation in the equity, value, and size premia
- No doubt it will do well
- It would be useful to:



- Very interesting (and polished) paper jointly explaining time-variation in the equity, value, and size premia
- No doubt it will do well
- It would be useful to:
 - $\circ~$ Differentiate between volatility in g vs $\mathbb{E}[g]$
 - Explore the connection between Macro and Micro uncertainty measured from stock returns (contrast model and data)
- Good luck!

- Very interesting (and polished) paper jointly explaining time-variation in the equity, value, and size premia
- No doubt it will do well
- It would be useful to:
 - $\,\circ\,$ Differentiate between volatility in g vs $\mathbb{E}[g]$
 - Explore the connection between Macro and Micro uncertainty measured from stock returns (contrast model and data)
- Good luck!

- Very interesting (and polished) paper jointly explaining time-variation in the equity, value, and size premia
- No doubt it will do well
- It would be useful to:
 - Differentiate between volatility in g vs $\mathbb{E}[g]$
 - Explore the connection between Macro and Micro uncertainty measured from stock returns (contrast model and data)



- Very interesting (and polished) paper jointly explaining time-variation in the equity, value, and size premia
- No doubt it will do well
- It would be useful to:
 - Differentiate between volatility in g vs $\mathbb{E}[g]$
 - Explore the connection between Macro and Micro uncertainty measured from stock returns (contrast model and data)
- Good luck!