What Do International Asset Returns Imply About Consumption Risk-Sharing
by Karen Lewis and Edith Liu

Discussion by Sebnem Kalemli-Ozcan
University of Houston and NBER

NBER-IFM Summer 2009
What does the paper do?

- Estimates welfare gains from risk sharing in a hybrid consumption/asset pricing framework.
- Risk sharing literature focus on consumption based models and data.
  - Find SMALL welfare gains.
  - Have counterfactual predictions for asset returns.
- On the other hand asset market data implies LARGE welfare gains.
- Because consumption growth is low and smooth, while asset returns are high and volatile.
What does the paper do?

- Estimates welfare gains from risk sharing in a hybrid consumption/asset pricing framework.
- Risk sharing literature focus on consumption based models and data.
  - Find SMALL welfare gains.
  - Have counterfactual predictions for asset returns.
- On the other hand asset market data implies LARGE welfare gains.
- Because consumption growth is low and smooth, while asset returns are high and volatile.
What does the paper do?

- Estimates welfare gains from risk sharing in a hybrid consumption/asset pricing framework.
- Risk sharing literature focus on consumption based models and data.
  - Find SMALL welfare gains.
  - Have counterfactual predictions for asset returns.
- On the other hand asset market data implies LARGE welfare gains.
- Because consumption growth is low and smooth, while asset returns are high and volatile.
What does the paper do?

- Estimates welfare gains from risk sharing in a hybrid consumption/asset pricing framework.
- Risk sharing literature focus on consumption based models and data.
  - Find SMALL welfare gains.
  - Have counterfactual predictions for asset returns.
- On the other hand asset market data implies LARGE welfare gains.
  - Because consumption growth is low and smooth, while asset returns are high and volatile.
What does the paper do?

- Estimates welfare gains from risk sharing in a hybrid consumption/asset pricing framework.
- Risk sharing literature focus on consumption based models and data.
  - Find SMALL welfare gains.
  - Have counterfactual predictions for asset returns.
- On the other hand asset market data implies LARGE welfare gains.
- Because consumption growth is low and smooth, while asset returns are high and volatile.
Follow Bansal-Yaron (2004) who try to explain asset returns by introducing a persistent component to consumption growth (also stochastic volatility): “Long run risk.”

Use international risk sharing framework to calculate welfare gains of going from autarky to integration, ADDING this “Long run risk” to the model (Epstein-Zin preferences).

Match asset return moments to consumption process parameters using SMM (for 7 countries) and use these “disciplined” parameters to examine welfare gains.
Follow Bansal-Yaron (2004) who try to explain asset returns by introducing a persistent component to consumption growth (also stochastic volatility): “Long run risk.”

Use international risk sharing framework to calculate welfare gains of going from autarky to integration, ADDING this “Long run risk” to the model (Epstein-Zin preferences).

Match asset return moments to consumption process parameters using SMM (for 7 countries) and use these “disciplined” parameters to examine welfare gains.
Contribution

- Follow Bansal-Yaron (2004) who try to explain asset returns by introducing a persistent component to consumption growth (also stochastic volatility): “Long run risk.”
- Use international risk sharing framework to calculate welfare gains of going from autarky to integration, ADDING this “Long run risk” to the model (Epstein-Zin preferences).
- Match asset return moments to consumption process parameters using SMM (for 7 countries) and use these “disciplined” parameters to examine welfare gains.
Overall Impression

- This is a clever and an ambitious paper.
- The paper is 61 pages and still “preliminary and incomplete”; there is a to-do-list!
  - Another model based on habit formation
  - Incomplete markets
- To discipline the consumption model’s parameters via asset returns is the right approach since international capital markets are the main mechanism where risks can be shared globally; asset prices should reflect views towards risk.
Overall Impression

- This is a clever and an ambitious paper.
- The paper is 61 pages and still “preliminary and incomplete”; there is a to-do-list!
  - Another model based on habit formation
  - Incomplete markets
- To discipline the consumption model’s parameters via asset returns is the right approach since international capital markets are the main mechanism where risks can be shared globally; asset prices should reflect views towards risk.
This is a clever and an ambitious paper.

The paper is 61 pages and still “preliminary and incomplete”; there is a to-do-list!

- Another model based on habit formation
- Incomplete markets

To discipline the consumption model’s parameters via asset returns is the right approach since international capital markets are the main mechanism where risks can be shared globally; asset prices should reflect views towards risk.
This is a clever and an ambitious paper.

The paper is 61 pages and still "preliminary and incomplete"; there is a to-do-list!
- Another model based on habit formation
- Incomplete markets

To discipline the consumption model’s parameters via asset returns is the right approach since international capital markets are the main mechanism where risks can be shared globally; asset prices should reflect views towards risk.
Which Model?

- I am little confused about the “right” model.
- The basic exercise is to add the new shock (long run risk) to make the model fit, but can we evaluate this empirically against the alternatives?
- This is important since the authors say that they will also work with Campbell and Cochrane (1999) model based on habit formation next?
- So how do we know which model is the right one if they both fit the data? Any model that matches the equity premium puzzle is ok?
Which Model?

- I am little confused about the “right” model.
- The basic exercise is to add the new shock (long run risk) to make the model fit, but can we evaluate this empirically against the alternatives?
- This is important since the authors say that they will also work with Campbell and Cochrane (1999) model based on habit formation next?
- So how do we know which model is the right one if they both fit the data? Any model that matches the equity premium puzzle is ok?
I am little confused about the “right” model.

The basic exercise is to add the new shock (long run risk) to make the model fit, but can we evaluate this empirically against the alternatives?

This is important since the authors say that they will also work with Campbell and Cochrane (1999) model based on habit formation next?

So how do we know which model is the right one if they both fit the data? Any model that matches the equity premium puzzle is ok?
I am little confused about the “right” model.

The basic exercise is to add the new shock (long run risk) to make the model fit, but can we evaluate this empirically against the alternatives?

This is important since the authors say that they will also work with Campbell and Cochrane (1999) model based on habit formation next?

So how do we know which model is the right one if they both fit the data? Any model that matches the equity premium puzzle is ok?
Which Mechanism?

- We know from Obstfeld (1994b) that persistence in consumption growth process alters Lucas (1987) small welfare numbers.

- What is the exact mechanism here? If asset returns are important how do we know the risk sharing comes from dividend income? Maybe it comes from capital gains?

  - Bracke and Schmitz (2009): find evidence that this is the main mechanism in the 1990s in EU, also show net capital gains are countercyclical but net investment income is not.
Which Mechanism?

- We know from Obstfeld (1994b) that persistence in consumption growth process alters Lucas (1987) small welfare numbers.

- What is the exact mechanism here? If asset returns are important how do we know the risk sharing comes from dividend income? Maybe it comes from capital gains?

  Bracke and Schmitz (2009): find evidence that this is the main mechanism in the 1990s in EU, also show net capital gains are countercyclical but net investment income is not.
Which Mechanism?

- We know from Obstfeld (1994b) that persistence in consumption growth process alters Lucas (1987) small welfare numbers.

- What is the exact mechanism here? If asset returns are important how do we know the risk sharing comes from dividend income? Maybe it comes from capital gains?

  - Bracke and Schmitz (2009): find evidence that this is the main mechanism in the 1990s in EU, also show net capital gains are countercyclical but net investment income is not.
Autarky and Integration

Given the full commitment, it is hard to see why there is lower utility under complete markets?

* Why does not the first welfare theorem apply here?
* The explanation in the paper is (p17): To see the possibility of autarky to dominate consider timing of markets within the initial period?
* Why is timing important? Under AD contract starts before world and no change after that.
Autarky and Integration

Given the full commitment, it is hard to see why there is lower utility under complete markets?

★ Why does not the first welfare theorem apply here?

★ The explanation in the paper is (p17): To see the possibility of autarky to dominate consider timing of markets within the initial period?

★ Why is timing important? Under AD contract starts before world and no change after that.
Autarky and Integration

Given the full commitment, it is hard to see why there is lower utility under complete markets?

★ Why does not the first welfare theorem apply here?

★ The explanation in the paper is (p17): To see the possibility of autarky to dominate consider timing of markets within the initial period?

★ Why is timing important? Under AD contract starts before world and no change after that.
Autarky and Integration

- Given the full commitment, it is hard to see why there is lower utility under complete markets?
  - Why does not the first welfare theorem apply here?
  - The explanation in the paper is (p17): To see the possibility of autarky to dominate consider timing of markets within the initial period?
  - Why is timing important? Under AD contract starts before world and no change after that.
Simulated Method of Moments

- They match moments for:
  - Std.dev. of consumption and dividend growth, first order auto-correlation of consumption growth, mean equity premium, mean risk free rate, std.dev. of market return, std.dev. of risk free rate

- Using these moments they back out the parameters for:
  - var. of transitory consumption ($\sigma^j$), var. of transitory consumption/long run risk variance ($\varphi^j_e$), /dividend variance ($\varphi^j_d$), autocorrelation of long run risk ($\rho^j$), sensitivity of dividends to long run risk ($\psi^j$)
Simulated Method of Moments

- They match moments for:
  - Std.dev. of consumption and dividend growth, first order auto-correlation of consumption growth, mean equity premium, mean risk free rate, std.dev. of market return, std.dev. of risk free rate

- Using these moments they back out the parameters for:
  - var. of transitory consumption ($\sigma^j$), var. of transitory consumption/long run risk variance ($\varphi^j_e$), dividend variance ($\varphi^j_d$), autocorrelation of long run risk ($\rho^j$), sensitivity of dividends to long run risk ($\psi^j$)
Parameters

- Preference parameters are from BY (for risk aversion $\gamma = 10$ and for IES $\phi = 1.5$): “estimates obtained by BY,” how, no discussion? There is considerable debate on the appropriate values of these parameters.
- Well known that high risk aversion is needed.
- IES greater than 1 is critical for capturing the observed negative correlation between consumption volatility and price/dividend ratios.
- Hall (1988) pursues a regression approach to recover estimates of IES, where they are small.
Preference parameters are from BY (for risk aversion $\gamma = 10$ and for IES $\phi = 1.5$): “estimates obtained by BY,” how, no discussion? There is considerable debate on the appropriate values of these parameters.

Well known that high risk aversion is needed.

IES greater than 1 is critical for capturing the observed negative correlation between consumption volatility and price/dividend ratios.

Hall (1988) pursues a regression approach to recover estimates of IES, where they are small.
Parameters

- Preference parameters are from BY (for risk aversion $\gamma=10$ and for IES $\phi=1.5$): “estimates obtained by BY,” how, no discussion? There is considerable debate on the appropriate values of these parameters.
- Well known that high risk aversion is needed.
- IES greater than 1 is critical for capturing the observed negative correlation between consumption volatility and price/dividend ratios.
- Hall (1988) pursues a regression approach to recover estimates of IES, where they are small.
Parameters

- Preference parameters are from BY (for risk aversion $\gamma = 10$ and for IES $\phi = 1.5$): "estimates obtained by BY," how, no discussion? There is considerable debate on the appropriate values of these parameters.
- Well known that high risk aversion is needed.
- IES greater than 1 is critical for capturing the observed negative correlation between consumption volatility and price/dividend ratios.
- Hall (1988) pursues a regression approach to recover estimates of IES, where they are small.
U.S. and the Other Countries

- They first run the exercise on the U.S to show the necessity of “long run risk” instead of iid (TABLE 1). But does this prove that the exercise is doable for other 6 countries?

- The fit fails for first order auto-correlation (no match) and std.dev of risk free rate (low in data); they argue adding stochastic volatility will improve these, but this is only true for the latter. Former probably fails due to short time series. TABLE 6-7.
They first run the exercise on the U.S to show the necessity of “long run risk” instead of iid (TABLE 1). But does this prove that the exercise is doable for other 6 countries?

The fit fails for first order auto-correlation (no match) and std.dev of risk free rate (low in data); they argue adding stochastic volatility will improve these, but this is only true for the latter. Former probably fails due to short time series. TABLE 6-7.
Data Issues

- Should we worry about noise?
  - Consumption data are very noisy, there seem to be huge taste shocks (consumption variance often larger than GDP variance)
  - So everybody’s estimates are noisy
- How about noisy asset prices?
Data Issues

- Should we worry about noise?
- Consumption data are very noisy, there seem to be huge taste shocks (consumption variance often larger than GDP variance)
- So everybody’s estimates are noisy
- How about noisy asset prices?
Data Issues

- Should we worry about noise?
- Consumption data are very noisy, there seem to be huge taste shocks (consumption variance often larger than GDP variance)
- So everybody’s estimates are noisy
- How about noisy asset prices?
Data Issues

- Should we worry about noise?
- Consumption data are very noisy, there seem to be huge taste shocks (consumption variance often larger than GDP variance)
- So everybody’s estimates are noisy
- How about noisy asset prices?
Data Issues

- Should we worry about noise?
- Consumption data are very noisy, there seem to be huge taste shocks (consumption variance often larger than GDP variance)
- So everybody’s estimates are noisy
- How about noisy asset prices?
Noisy Consumption Growth by Country: OECD
BY use data for U.S. is from NIPA, which is more reliable, and for a longer time span (1929–)

Here they have to use PWT, which is less reliable (Deaton and Heston (2009), Johnson et al. (2009)) and for a shorter time span (1950–)

★ Appendix says they use NIPA for U.S.?
★ For U.S.: $\varphi_d$ = is 4.5 in BY and 1.4 here (or 1.7?)
BY use data for U.S is from NIPA, which is more reliable, and for a longer time span (1929–)

Here they have to use PWT, which is less reliable (Deaton and Heston (2009), Johnson et al. (2009)) and for a shorter time span (1950–)

★ Appendix says they use NIPA for U.S.?
★ For U.S.: $\varphi_d = \text{is 4.5 in BY and 1.4 here (or 1.7?)$}
Data Issues continued..

- BY use data for U.S is from NIPA, which is more reliable, and for a longer time span (1929–)
- Here they have to use PWT, which is less reliable (Deaton and Heston (2009), Johnson et al. (2009)) and for a shorter time span (1950–)
  - Appendix says they use NIPA for U.S.?
  - For U.S. \( \varphi_d = 4.5 \) in BY and 1.4 here (or 1.7?)
BY use data for U.S is from NIPA, which is more reliable, and for a longer time span (1929–)

Here they have to use PWT, which is less reliable (Deaton and Heston (2009), Johnson et al. (2009)) and for a shorter time span (1950–)

☆ Appendix says they use NIPA for U.S.?

☆ For U.S.: $\varphi_d = 4.5$ in BY and 1.4 here (or 1.7?)
Aggregation

- They aggregate monthly data for returns using deflators from PWT to get real risk free rates and dividend growth rates? Real equity returns adjusted by Campbell CPI?
- Is the monthly data seasonally adjusted? Otherwise lots of noise.
- Mean dividend growth is negative for some countries; an issue for the incomplete markets version of the model.
They aggregate monthly data for returns using deflators from PWT to get real risk free rates and dividend growth rates? Real equity returns adjusted by Campbell CPI?

Is the monthly data seasonally adjusted? Otherwise lots of noise.

Mean dividend growth is negative for some countries; an issue for the incomplete markets version of the model.
Aggregation

- They aggregate monthly data for returns using deflators from PWT to get real risk free rates and dividend growth rates? Real equity returns adjusted by Campbell CPI?
- Is the monthly data seasonally adjusted? Otherwise lots of noise.
- Mean dividend growth is negative for some countries; an issue for the incomplete markets version of the model.
Main Results

- Welfare gains are based on comparing consumption wealth ratio under autarky and integration, different weightings.

- Unfortunately, Table 9 shows only “equal weight” option where this cannot be feasible. Extremely big numbers, up to 7000% welfare gain!

- Is this solely because long run risk is assumed to be uncorrelated? (seems so given the two extremes in Table 9). Can we test this instead of assuming?

- Correlation of endowments from var-cov matrix of consumption growth; and assume this only for the transitory component, why?
Main Results

- Welfare gains are based on comparing consumption wealth ratio under autarky and integration, different weightings.

- Unfortunately table 9 shows only “equal weight” option where this cannot be feasible. Extremely big numbers, up to 7000% welfare gain!

- Is this solely because long run risk is assumed to be uncorrelated? (seems so given the two extremes in table 9). Can we test this instead of assuming?

- Correlation of endowments from var-cov matrix of consumption growth; and assume this only for the transitory component, why?
Main Results

- Welfare gains are based on comparing consumption wealth ratio under autarky and integration, different weightings.
- Unfortunately, table 9 shows only “equal weight” option where this cannot be feasible. Extremely big numbers, up to 7000% welfare gain!
- Is this solely because long run risk is assumed to be uncorrelated? (seems so given the two extremes in table 9). Can we test this instead of assuming?
- Correlation of endowments from var-cov matrix of consumption growth; and assume this only for the transitory component, why?
<table>
<thead>
<tr>
<th>Country</th>
<th>Cons., 1970–00</th>
<th>Cons., 1990–00</th>
<th>Lewis and Liu (Cons., 1950–00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.31</td>
<td>0.31</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>0.39</td>
<td>0.16</td>
<td>0.102</td>
</tr>
<tr>
<td>Belgium</td>
<td>0.63</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>0.60</td>
<td>0.82</td>
<td>0.536</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.45</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>0.47</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>0.73</td>
<td>0.49</td>
<td>0.532</td>
</tr>
<tr>
<td>Germany</td>
<td>0.59</td>
<td>0.37</td>
<td>0.171</td>
</tr>
<tr>
<td>Greece</td>
<td>0.61</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>Iceland</td>
<td>0.14</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>0.43</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>0.49</td>
<td>0.54</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>0.76</td>
<td>0.15</td>
<td>0.316</td>
</tr>
<tr>
<td>Korea, Rep.</td>
<td>0.19</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>0.30</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.57</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>0.24</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>0.16</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>0.25</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>0.59</td>
<td>0.48</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>0.46</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.62</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.47</td>
<td>0.79</td>
<td>0.620</td>
</tr>
<tr>
<td>United States</td>
<td>0.79</td>
<td>0.79</td>
<td>0.790</td>
</tr>
</tbody>
</table>
Welfare Gains from the literature

- van Wincoop (1994) and Kalemli-Ozcan et al. (2001): using similar methodologies compare the expected utility of consuming the country’s own per capita endowment with that of consuming the country-specific portion of the world endowment under full risk sharing: potential welfare gains going from autarky to full.

- van Wincoop (1994) also calculates gains based on going from accomplished integration to full.

- For EU-15 gains are on avg. 1%; for new members on avg. 6%, where Latvia and Lithuania having gains up to 40%.
Welfare Gains from the literature

- van Wincoop (1994) and Kalemli-Ozcan et al. (2001): using similar methodologies compare the expected utility of consuming the country’s own per capita endowment with that of consuming the country-specific portion of the world endowment under full risk sharing: potential welfare gains going from autarky to full

- van Wincoop (1994) also calculates gains based on going from accomplished integration to full

- For EU-15 gains are on avg. 1%; for new members on avg. 6%, where Latvia and Lithuania having gains up to 40%.
Welfare Gains from the literature

- van Wincoop (1994) and Kalemli-Ozcan et al. (2001): using similar methodologies compare the expected utility of consuming the country’s own per capita endowment with that of consuming the country-specific portion of the world endowment under full risk sharing: potential welfare gains going from autarky to full
- van Wincoop (1994) also calculates gains based on going from accomplished integration to full
- For EU-15 gains are on avg. 1%; for new members on avg. 6%, where Latvia and Lithuania having gains up to 40%.
Some Quibbles

- Some details on the SMM would be very helpful since these things can make a big difference: weighting matrix? lagged moments?

- Timing issue is confusing: $\varpi$ (number of shares) was time invariant under autarky; it varies by time later.

- But given that countries can fully commit they initially sell off rights to own output and hence have claims on world output so $\varpi_t$ is time invariant.

- They assume complete markets so equity is redundant. But in the model they treat equity as a payment on dividend not on consumption.
Some Quibbles

- Some details on the SMM would be very helpful since these things can make a big difference: weighting matrix? lagged moments?
- Timing issue is confusing: \( \varpi \) (number of shares) was time invariant under autarky; it varies by time later.
- But given that countries can fully commit they initially sell off rights to own output and hence have claims on world output so \( \varpi_t \) is time invariant.
- They assume complete markets so equity is redundant. But in the model they treat equity as a payment on dividend not on consumption.
Some Quibbles

- Some details on the SMM would be very helpful since these things can make a big difference: weighting matrix? lagged moments?
- Timing issue is confusing: $\varpi$ (number of shares) was time invariant under autarky; it varies by time later.
- But given that countries can fully commit they initially sell off rights to own output and hence have claims on world output so $\varpi_t$ is time invariant
- They assume complete markets so equity is redundant. But in the model they treat equity as a payment on dividend not on consumption
Some Quibbles

- Some details on the SMM would be very helpful since these things can make a big difference: weighting matrix? lagged moments?
- Timing issue is confusing: \( \varpi \) (number of shares) was time invariant under autarky; it varies by time later.
- But given that countries can fully commit they initially sell off rights to own output and hence have claims on world output so \( \varpi_t \) is time invariant
- They assume complete markets so equity is redundant. But in the model they treat equity as a payment on dividend not on consumption
Minor Issues

- Some mess up in the notation:
- No $\beta$ in the model, all tables have it, I assume this is $\delta$ discount rate
- No $\phi_d$ or $\phi_e$ in the model as oppose to tables, I assume this is $\varphi$
To sum up...

- This is a serious and an ambitious piece
- It would help the reader if the writing and the model is simplified and shortened
- Intuition should also be clarified and the extensions must be streamlined instead of presenting different models that can fit to the same data