

## Discussion of Alfred Wong and Jiayue Zhang's paper

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### Paper summary

This is a good paper. By using empirical evidence and estimated model results, the paper solves, in a simple way, the mystery of the violation of covered interest parity (CIP) in international finance. It suggests that the long-standing covered interest parity puzzle does not take into account country risk (in the paper, this is part of the counterparty risk premium) and liquidity risk, both of which have become prominent in the period since the global financial crisis. By calculating the risk-adjusted covered interest parity, the paper shows that the cross-currency basis swap (CCBS) market functions well: deviations from this version of CIP are small, indicating that there is little scope for arbitrage.

By estimating seven pairs of CCBS, the paper finds that the counterparty risk premium accounts for a consistently smaller share in the total risk premium in the USD Libor market (around 16–19%) while the counterparty risk premium takes up a much larger share in the total risk premium in the EUR Libor market (around 75%).

This paper contributes to the current literature in two important ways. First, it recognises the behaviour of swap dealers in correctly pricing the risks after the global financial crisis (to be exact, the swap dealers priced risks before the GFC but the risks were quite small in comparison, so that it may have looked as if they were not pricing risks) and proves that the CCBS market functions well. Second, it offers new insights on the current debate on the relative importance of country risks (measured by the default possibilities of the foreign loans) and liquidity risks in domestic money markets for both USD and EUR that are different from the “shortage of dollar supply” and “increased global demand for dollar liquidity” stories that are often mentioned.

### Questions and comments on the paper

1. How should we understand or interpret the counterparty risk premium in the USD Libor market being relatively very small compared with that in the EUR Libor market, given that the global financial crisis was initially ignited within the United States? When asking this question in conjunction with the global shortage of US dollars, is it because of the relatively low risk of the country premium that leads to excess demand for the dollar, or is it because of the excess demand for the dollar that leads to a lower premium?
2. A related question is: the CCBS with a USD leg stays almost constant after the onset of the global financial crisis while the CCBS with a EUR leg diverges among different pairs of currencies. Based on the hypothesis of the paper, the CCBS is a measurement of the counterparty risk premium, ie the country risk premium on defaulting on each other's loans. Is this an indicator of the strong persistence of the country risk in the post-crisis period? If so, there seems to be no evidence that unconventional policy actions helped to stabilise the economy and reducing the country risks, especially for the US Libor market.

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3. Conditional on accepting the authors' theory, as stated in footnote 16, Libor can be decomposed into three components: a risk-free rate, the counterparty risk premium, and the liquidity premium. Assuming that the risk-free rate is unchanged after the crisis, the relative shares of the counterparty risk premium and the liquidity premium in the total risk premium are interdependent. If the liquidity premium is overestimated, then the counterparty risk premium could be underestimated, while the liquidity premium is dependent on the market condition of the liquidity supply. Therefore, if there is an undersupply of market liquidity, the liquidity premium could appear larger than it actually is (as footnote 7 says). This issue could potentially apply to the US Libor market. Then the market liquidity premium of the dollar could be larger because of the supply shortage, and that could lead to an overestimate of the share of the liquidity premium, and an underestimate of the counterparty risk premium. I think the paper needs to be more careful in addressing this potential issue.
4. In proving the equivalence between FX swaps and CCBS, the paper says the equivalence holds under certain assumptions. If I understand it correctly, these implicit assumptions include:
  - a. "there is a basis for any currency pair in the CCBS market so that one can arbitrage by entering as many CCBS contracts at the same time if the sum of the bases does not equal zero, as shown by equation (3)". But is it really realistic to assume that one can arbitrage by entering many CCBS contracts at the same time? Consider, in particular in relation to the dollar shortage story, that there is a limited availability of CCBS contracts with a US leg due to the shortage of the dollar currency. Swap dealers may then have to accept a lower basis to attract the contract, which may lead to lower estimates of the country risk premium.
  - b. "Cash flows from a CCBS can be synthetically converted into those of an FX swap with the same maturity at zero cost, using a series of FX swaps and forward rate agreements". Is it a realistic assumption that the cost of converting CCBS into FX swap is zero? What if there is a transaction cost for making the conversion?
  - c. I assume that "the foreign currency cash flow at maturity should be equal to that of the FX swap in an efficient market" is the same assumption of the zero cost as stated in b. Is this correct? If so, the same concern applies.
5. This comment is on the robustness check. In footnote 22, the authors state that the results using three or four standard deviations to the data for estimation are available upon request. I suggest that these be included in the appendix, as a proper robustness check of the results.
6. My final question is more fundamental, and relates to the behaviour of the swap dealers. According to the paper, the swap dealers have actually been well able to price the risks associated with country risk and liquidity risk into their CCBS bases since the crisis. Given the unobserved nature of these risks, what is the rationale behind this seemingly well informed pricing mechanism or pricing equation that the swap dealers have in mind in their daily operations? If the swap dealers are indeed well informed about the risks, why were there no rising risk premia before the crisis, at the very time when the country default risks were rapidly accumulating?