

Do Islamic Banks Promote Risk Sharing?

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Motivation

Islamic Banking: Fast growing segment in the financial sector

“Doubled in size since 2006 and already accounting for \$900 billion or more than 1% of the global banking market” (Financial Times, May 12, 2011), “the global potential of the Islamic banking market is conservatively estimated at \$4,000 billion, according to Moody’s Investor Service” (Financial Times, July 8, 2008).

Islamic Banking: Substantial growth potential

- Islamic world about 7.6 percent of world GDP
- Representation particularly in markets with high growth potential
 - But also in Western markets
 - e.g. Islamic Bank of Britain, Lloyds TSB Islamic Financial Services,...
 - Also, increasing importance across African markets

Imperative claims of insulation from the financial crisis

The financial crisis may have spurred its growth and potential market share even further, as observers claim the “principles based on religious law insulate the industry from the worst of the financial crisis” (Washington Post, October 31, 2008).

Islamic Banking

Fixed interest (*riba*) on loans forbidden

- Aim is to prevent concentration and hoarding of wealth, to promote an equitable distribution of wealth.

Prohibition on *gharar* (speculation)

Financing of 'negative' sectors - casinos, tobacco, alcohol - is forbidden.

Profit-loss sharing (PLS) on investment is allowed

- Customer and bank share risks of investment, and share profits
- Similar to equity financing, but with fixed termination date.

No money for money, only for real sector transactions

Beck, Demirguc-Kunt and Merrouche (2013)

Sample of 22 countries with both conventional and Islamic banks, between 1995 and 2009

- Control for unobserved time-variant country characteristics

Limited evidence for consistent differences between conventional and Islamic banks

- Less cost-efficient, larger equity buffers

BUT: Large variation across countries in differences between conventional and Islamic banks across countries

Islamic banks fare better during “local crises”, though fewer differences during global crisis

Higher capitalization can explain better stock market performance during global crisis

This paper

In this paper, we construct a risk sharing estimate for each country and then test whether Islamic banks promote risk sharing

- How does consumption co-vary with income? Lower correlation implies higher risk sharing

Our initial results indicate that the Ratio of total Islamic Bank Assets in a country is positively correlated with risk sharing.

Finance and risk sharing

Among the many functions of a well developed financial system is the insurance/diversification function

- Liquidity risk management
- Savings products (rainy day, life-cycle savings patterns) for households
- Credit products (against shocks) for households and enterprises
- Insurance products (accident, life etc.)

Evidence of higher consumption smoothing in countries with more developed financial systems

Are Islamic banks better in providing appropriate risk sharing services than conventional banks?

Risk sharing: conventional vs. Islamic finance

Islamic finance based on idea of risk-loss sharing between borrower and lender – more smoothing over business cycle?

Stronger relationships between borrowers and lenders allows for more stable funding over the cycle and implies fewer agency frictions between bank and borrower

More stable banks as less non-intermediation business

BUT: higher asset concentration among Islamic banks? Higher risk stemming from equity-like claims on borrowers?

Open question? Let the data speak!

Methodology

- Risk sharing enables agents to diversify against the shocks to their income.
- Hence, a higher level of risk sharing should result in a lower correlation between income and a smoother consumption stream.
- In estimating the risk sharing coefficient, λ , we follow the basic approach in Campbell and Mankiw (1989, 1990) and Japelli and Pagano (1989) and estimate λ from the following equation.

$$\Delta c_t = \alpha + \lambda \Delta y_t + \varepsilon_t,$$

where Δc_t (Δy_t) is the four year change of real consumption (GDP).

- Low value of λ indicates that agents are able to diversify against the shocks to their income, hence the lower is the value of λ the higher is the risk sharing in a country.

Methodology

- Since Δy_t might be correlated with the disturbance term ε_t we instrument Δy_t with its own lags, Δy_{t-2} , Δy_{t-3} , Δy_{t-4} .
- Once we have the risk sharing estimate(λ) we test whether this estimate is positively correlated with the ratio of the Total Islamic Banks Assets to GDP
- For robustness check we use the estimate of λ from both approaches (basic OLS and IV)

Data

- Annual real GDP and real consumption data from Penn World Tables between the years 1990-2011.
- Explanatory variables: averages over 1990-2011:
 - Total Islamic Bank Assets/GDP (from IBIS)
 - To estimate the significance of Islamic Finance in a country
 - (Exports+Imports) of goods and services (% of GDP) (from WDI)
 - To capture the effect of diversification through international risk sharing.
 - General government final consumption expenditure (% of GDP) from WDI. (from WDI)
 - To capture the effect of welfare states on consumption smoothing.
 - School enrollment, secondary (% gross) (from WDI)
 - To capture the effect of level of educated labor force
 - Domestic credit to private sector (% of GDP) (from WDI)
 - To capture the effect of financial sector on diversification against income shocks.
 - Personal remittances, received (% of GDP)
 - To capture the effect of remittances flowing from abroad to deal with negative income shocks.

Results (large sample)

Dependent Variable: Risk Sharing Estimate λ : Countries without Islamic Banking data are included as "0"
 λ is estimated as the coefficient in the regression: $\Delta c_t = \alpha + \lambda \Delta y_t + \varepsilon_t$ by IV where Δy_{t-2} , Δy_{t-3} , Δy_{t-4} are the instruments for Δy_t

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|----------------------------------|
| Islamic Banking Assets/GDP | -10.31412 (1.788395)*** | -12.60173 (2.293491)*** | -11.91048 (2.260634)*** | -7.794655 (2.419346)*** | -10.40214 (2.615749)*** | -9.59971 (2.709233)*** | -6.570131 (2.207395)** |
| (Export+Import)/GDP | | -.0012684 (.0006086)** | -.0013422 (.0005942)** | -.000742 (.0010083) | -.0007858 (.0009318) | -.0004129 (.0008493) | -.0004267 (.0006957) |
| General government final consumption expenditure (% of GDP) | | | .0071003 (.0054979) | .0149512 (.007544)* | .0177199 (.0075358)** | .011706 (.0069576)* | .0123642 (.0061731)** |
| School enrollment, secondary (% net) | | | | -.0034469 (.0014865)*** | -.0014732 (.0017223) | -.0014313 (.0021669) | -.0013152 (.0020641) |
| Domestic credit to private sector (% of GDP) | | | | | -.0024437 (.0008015) | -.0017476 (.0012289) | -.0017781 (.0011403) |
| Market capitalization of listed companies (% of GDP) | | | | | | -.0007367 (.0011272) | -.0000474 (.0009596) |
| Personal remittances, received (% of GDP) | | | | | | | .0204362 (.0069036)** |
| Constant | .7898396 (.0301563)*** | .8938723 (0.0307)*** | .7904529 (.0968256)*** | .8411493 (.1258575)*** | .7949317 (.1292174) | .8321031 (.1723101)*** | .729881 (.1655151)*** |
| Number of Obs | 122 | 119 | 119 | 95 | 95 | 67 | 66 |
| R-squared | 0.0044 | 0.0325 | 0.0415 | 0.0991 | 0.1528 | 0.1546 | 0.2656 |

Islamic Banking Assets are **significantly negatively** correlated with λ in all regressions which indicates that the presence of Islamic Banks promote risk sharing.

Robustness check 1 (using λ from OLS)

Dependent Variable: Risk Sharing Estimate λ : Countries without Islamic Banking data are included as "0"

λ is estimated as the coefficient in the regression: $\Delta c_t = \alpha + \lambda y_t + \varepsilon_t$ by OLS.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|-----------------------------------|-----------------------------------|-----------------------------------|--------------------------------|---------------------------------|----------------------------------|--------------------------------|
| Islamic Banking Assets/GDP | -5.200399 (1.464458)*** | -7.252662 (1.650409)*** | -7.218476 (1.726395)*** | -2.974029 (1.991261) | -3.606464 (2.000273)* | -3.556368 (1.690798)** | -3.508247 (1.639234) |
| (Export+Import)/GDP | | -0.0010334 (.0004449)** | -0.0010356 (.0004426)** | -0.000214 (.0005835) | -0.0000746 (.0005702) | .0004363 (.0005954) | .0001997 (.0005434) |
| General government final consumption expenditure (% of GDP) | | | .0003011 (.0054233) | .007322 (.0065388) | .0078741 (.006586) | .0006691 (.0064513) | .0032113 (.0056723) |
| School enrollment, secondary (% net) | | | | -0.0044141 (.0011283)*** | -0.0036934 (.0012376)*** | -0.0047525 (.0019417)** | -0.0046991 (.0017425)*** |
| Domestic credit to private sector (% of GDP) | | | | | -0.0009686 (.0006066) | .000034 (.0009163) | .0003613 (.000886) |
| Market capitalization of listed companies (% of GDP) | | | | | | -0.001266 (.0007646)* | -0.0008384 (.0061427) |
| Personal remittances, received (% of GDP) | | | | | | | .0226196 (.0061427)*** |
| Constant | .7135607 (.0242363)*** | .8023285 (.0438346)*** | .7977494 (.0893687)*** | .9016084 (.1084869)*** | .8786273 (.1125633)*** | 1.030592 (.1379662)*** | .9006386 (.1263465)*** |
| Number of Obs | 160 | 157 | 157 | 128 | 127 | 89 | 88 |
| R-squared | 0.0010 | 0.0232 | 0.0232 | 0.1405 | 0.1535 | .24059 | 0.3452 |

Islamic Banking Assets are **significantly negatively** correlated with λ in all regressions which indicates that the presence of Islamic Banks promote risk sharing.

Robustness check 2 (using λ from IV and excluding countries without Islamic Banks)

Dependent Variable: Risk Sharing Estimate λ : Countries without Islamic Banking data excluded

λ is estimated as the coefficient in the regression: $\Delta c_t = \alpha + \lambda \Delta y_t + \varepsilon_t$ by IV where Δy_{t-2} , Δy_{t-3} , Δy_{t-4} are the instruments for Δy_t

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|
| Islamic Banking Assets/GDP | -7.002025 | -11.06465 | -11.1286 | -7.472821 | -6.230252 | -7.89466 | -3.298777 |
| | (3.053825)** | (4.482589)** | (4.581379)** | (4.707397) | (4.718786) | (5.707382) | (6.50303) |
| (Export+Import)/GDP | | -.0026667 | -.0025533 | -.0022292 | -.0023805 | -.0004202 | -.0019886 |
| | | (.0019352) | (.0017699) | (.0017154) | (.0198547) | (.0230867) | (.0016381) |
| General government final consumption expenditure (% of GDP) | | | -.002699 | -.0003985 | -.0062995 | .009347 | .0003659 |
| | | | (.0143236) | (.0189134) | (.0048939) | (.0173277) | (.0156744) |
| School enrollment, secondary (% net) | | | | -.0054028 | -.0082156 | -.0095811 | -.0076531 |
| | | | | (.0049229) | (.0048951) | (.005908) | (.0064706) |
| Domestic credit to private sector (% of GDP) | | | | | .0013743 | .0065487 | .0023908 |
| | | | | | (.0014396) | (.0035058)* | (.005669) |
| Market capitalization of listed companies (% of GDP) | | | | | | -.0050615 | -.0010196 |
| | | | | | | (.0028952)** | (.0047198) |
| Personal remittances, received (% of GDP) | | | | | | | .0248442 |
| | | | | | | | (.0161402) |
| Constant | .7232417 | .9269452 | .9583549 | 1.261531 | 1.289001 | 1.244703 | 1.244545 |
| | (.065843)*** | (.1633966)*** | (.2656435)*** | (.4195855)*** | (.4239556)*** | (.4818832)** | (.5034876) |
| Number of Obs | 28 | 28 | 28 | 23 | 23 | 20 | 19 |
| R-squared | 0.0088 | 0.0881 | 0.0896 | 0.2027 | 0.2270 | 0.3356 | 0.5086 |

Islamic Banking Assets are **insignificantly negatively** correlated with λ in all regressions.

Robustness check 3 (using λ from OLS and Excluding Countries Without Islamic Banks)

Dependent Variable: Risk Sharing Estimate λ : Countries without Islamic Banking data excluded

λ is estimated as the coefficient in the regression: $\Delta c_t = \alpha + \lambda y_t + \varepsilon_t$ by OLS.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|--------------------------------|-------------------------------|---------------------------------|-------------------------------|--------------------------------|-------------------------------|--------------------------------|
| Islamic Banking Assets/GDP | -1.918219 (3.051552) | -6.49634 (4.249941) | -6.911501 (4.029558)* | -3.23738 (4.543604) | -1.664918 (4.398996) | -5.089178 (4.90417) | -.3774691 (5.697772) |
| (Export+Import)/GDP | | -.0029231 (.0021063) | -.0019131 (.0017223) | -.0013278 (.0017073) | -.0015454 (.0015659) | .00049 (.0018269) | -.001311 (.0015941) |
| General government final consumption expenditure (% of GDP) | | | -.0182127 (.011617) | -.016591 (.0126403) | -.0175492 (.0131063) | -.0048855 (.0174163) | -.0116936 (.0128351) |
| School enrollment, secondary (% net) | | | | -.0055784 (.0043126) | -.0068689 (.0041666) | -.0096605 (.0049068) | -.0077484 (.0052848) |
| Domestic credit to private sector (% of GDP) | | | | | .0019126 (.0016073) | .0065322 (.0026746) | .0021621 (.0054689) |
| Market capitalization of listed companies (% of GDP) | | | | | | -.0050688 (.00234)** | -.0008425 (.0042072) |
| Personal remittances, received (% of GDP) | | | | | | | .0263529 (.0161402) |
| Constant | .6486521 (.0649979)*** | .8754791 (.1678566)*** | 1.078806 (.2244727)*** | 1.376924 (.3242198)*** | 1.400072 (.3147474) | 1.358741 (.3782284)*** | 1.342009 (.3949898)*** |
| Number of Obs | 31 | 31 | 31 | 26 | 26 | 21 | 20 |
| R-squared | 0.0005 | 0.0827 | 0.1565 | 0.2757 | 0.3185 | 0.4148 | 0.5289 |

Islamic Banking Assets are **insignificantly negatively** correlated with λ in all regressions.

Conclusions and food for thought

- Our initial results indicate that:
 - The existence and a larger share of Islamic Banks is associated with higher consumption smoothing, thus higher risk sharing
 - Results sensitive
 - Robust to controlling for other factors associated with consumption smoothing
- Important caveat:
 - Cross-country results cannot establish causality in this context (reverse causation and omitted variable bias)
- Looking forward:
 - Can we distinguish between different types of Islamic products?