CHAPTER 15

Offshore Renminbi Dim Sum Bonds

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The market for dim sum bonds (bonds issued outside of China and denominated in Chinese renminbi) in Hong Kong SAR has expanded since 2011, underpinned by policies promoting external use of the renminbi and liberalization of two-way renminbi fund flows between onshore and offshore markets, before peaking in 2015.

Key driving forces for the attractiveness of the market include the need from foreign companies for offshore renminbi funds to support businesses in the onshore market and from mainland firms for external financing to support outward direct investment (ODI) conducted through Hong Kong SAR. The role of the dim sum bond market as an alternative renminbi fundraising platform for international and mainland issuers helps promote external use of the currency by global firms and investors attracted by its high accessibility. Indeed, the market has played an important role in price discovery and intermediating renminbi funds between onshore and offshore markets.[1]

Accordingly, policymakers must understand the major factors driving the dim sum bond market to formulate appropriate policy to foster the development of the offshore renminbi bond market. In this spirit, this chapter reviews the structure of the dim sum bond market, including its issuer profile and key features of dim sum bonds. It identifies factors driving issuance, and suggests that economic growth, offshore-onshore yield differentials, the use of the renminbi funds raised, the effective and forward exchange rate of renminbi, and mainland policy factors are key determinants of net issuance of dim sum bonds in the offshore market.

STRUCTURE OF THE DIM SUM BOND MARKET

The dim sum bond market has grown quickly since the China Development Bank issued the first offshore RMB bond in Hong Kong SAR in 2007.[2] In October 2009, China's Ministry of Finance issued RMB 6 billion of Treasury

[1] For a detailed discussion of the role of the offshore market and its relationship with the external use of a currency, see HE and McCauley (2012).

[2] In July 2007, the China Development Bank issued a two-year offshore RMB bond in Hong Kong SAR, with a coupon rate of 3.0 percent and face value of RMB 5 billion.

bonds in Hong Kong SAR, marking the milestone of issuing renminbi bonds by the central government in the offshore market.[3] The continuous issuance of offshore renminbi bonds by the Ministry of Finance helps establish a benchmark yield curve to facilitate pricing of renminbi bonds issued in Hong Kong SAR, the so-called dim sum bonds. Underpinned by expectations that the renminbi would appreciate, and the limited supply of renminbi-denominated assets relative to the fast growth in renminbi deposits in the offshore market, the robust demand propelled the size of the corporate dim sum bond market to increase nine-fold in five years, reaching a peak of RMB 580 billion at the end of 2015 (Figure 15.1). Compared to the size of the renminbi liquidity pool in Hong Kong SAR, the size of outstanding dim sum bonds is relatively small, equivalent to 0.9 percent of offshore renminbi deposits as of March 2018, after reaching a peak of 1.3 percent in February 2017. While gross issuance of dim sum bonds has fallen in recent years due to factors such as higher renminbi volatility and slower China's economic growth, issuance activities in dim sum bonds stabilized in early 2018, driven by the needs for external financing by mainland enterprises, and the demand for renminbi funding by foreign firms to support their business and investment in China (Figure 15.2).[4]

Given the absence of restrictions on the type of issuer in dim sum bonds and the use of renminbi funds raised by issuers, the issuer profile is diverse, ranging from multinationals to Chinese firms and to companies doing business in Hong Kong SAR. When the dim sum bond market took off in 2011, international issuers (outside China and Hong Kong SAR) accounted for 20–30 percent of gross issuance, Chinese firms took up more than half, and the rest were Hong Kong SAR companies (Figure 15.3).[5] In 2014, the number of mainland issuers in the dim sum bond market picked up markedly, contributing substantially to more than 70 percent of gross issuance. During 2016–17, international issuers began to actively tap offshore renminbi funds through the dim sum bond market, while gross issuance by mainland firms fell, in part reflecting increased scrutiny of external borrowing by the Chinese authorities.

The industry profile of dim sum bond issuers is diverse (Figure 15.4). Nonbank financial companies and real estate developers are active issuers in the offshore renminbi bond market.[6] To facilitate issuance of dim sum bonds, China's firms usually set up subsidiaries or special purpose vehicles to raise renminbi funds in the offshore market. This explains the relatively large share of issuance

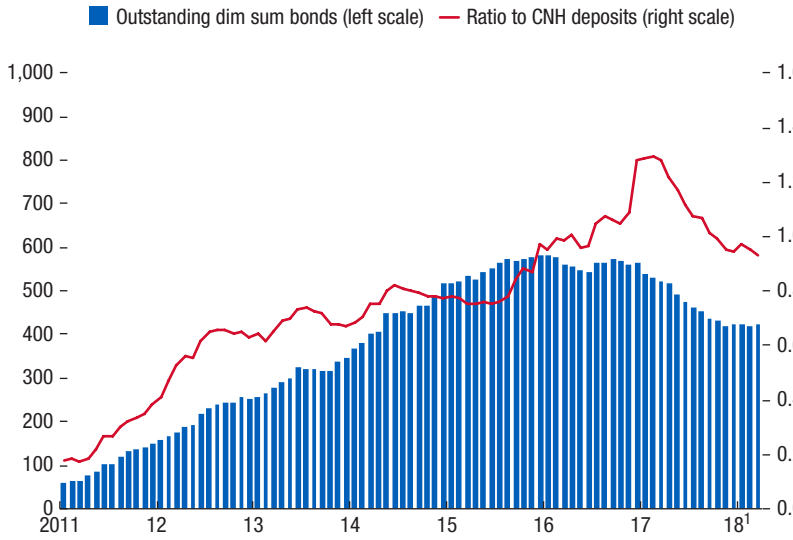
[3] The inaugural issue of offshore renminbi bonds issued by the Ministry of Finance in Hong Kong SAR included tenors of two, three, and five years.

[4] A detailed discussion of the development of the dim sum bond market can be found in Fung, Tzau, and Yau (2013).

[5] "Issuer by nationality" is classified based on the country of risk as defined by Bloomberg, which refers to the beneficial ownership of the company in general. For example, the subsidiary of a mainland enterprise incorporated in Hong Kong SAR would be classified as a mainland firm.

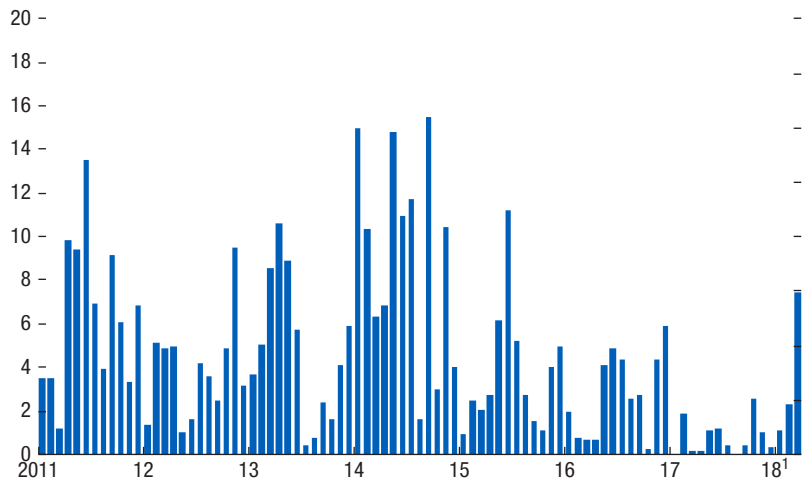
[6] Nonbank financial companies exclude international financial institutions, policy banks, banks, and insurance companies, but include securities firms.

Figure 15.1. Outstanding Dim Sum Bonds, 2011–18
(Billions of renminbi, left scale; percent, right scale)



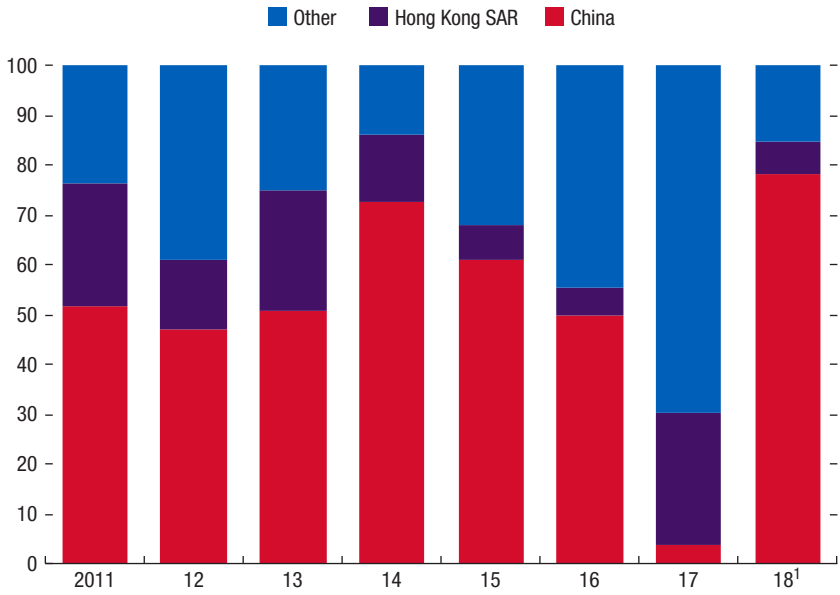
Sources: Bloomberg L.P.; CEIC data; and authors' calculations.
Note: CNH deposits refer to offshore renminbi deposits in Hong Kong SAR.
[1] Data for 2018 are through March.

Figure 15.2. Dim Sum Bonds, Gross Issuance, 2011–18
(Billions of renminbi)



Sources: Bloomberg L.P.; and authors' calculations.
[1] Data for 2018 are through March.

Figure 15.3. Dim Sum Bond Issuers by Nationality, 2011–18
(Percent)



Sources: Bloomberg L.P.; and authors' calculations.
Note: "Issuers by nationality" is classified based on the country of risk as defined by Bloomberg.
[1] Data for 2018 are through the first quarter.

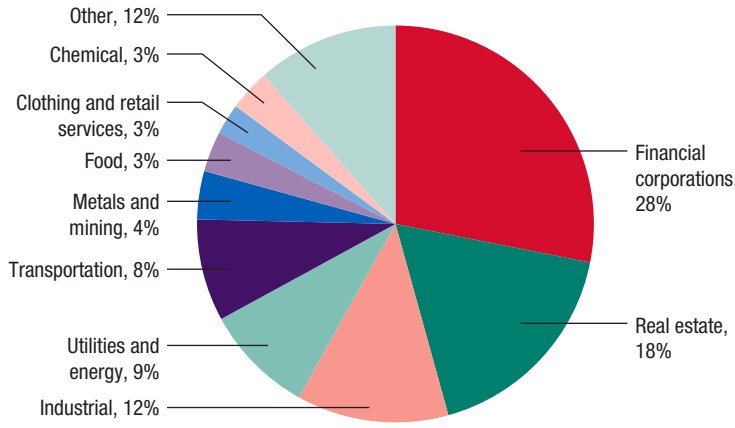
by nonbank financial companies, including special purpose vehicles. The use of special purpose vehicles is common for mainland companies to invest overseas or raise funds in the offshore market given their flexibility and easy-to-establish properties, particularly for mainland companies without having to set up overseas subsidiaries.[7]

Real estate developers—from both Hong Kong SAR and the mainland—are also active dim sum bond issuers. Hong Kong SAR developers raise renminbi funds in the offshore market to finance their construction projects in the onshore market. For mainland developers, the dim sum bond market is an alternative fundraising avenue when liquidity tightens in the onshore market.

Most dim sum bond issuers raise renminbi funds to support investment projects or for working capital. Reflecting this, the tenor of most dim sum bonds is one to three years (Figure 15.5). By investor profile, both retail and institutional

[7] To recognize the common use of special purpose vehicles by mainland companies for purposes of overseas investment and external financing, the State Administration of Foreign Exchange issued a circular in July 2014 to set out the rules and regulations on the use of overseas special purpose vehicles in overseas investment and external financing.

Figure 15.4. Industry Profile of Dim Sum Bond Issuers



Sources: Bloomberg L.P.; and authors' calculations.
Note: Issuers in "Financial corporations" include nonbank non-insurance financial institutions such as securities firms, finance companies, and special purpose vehicles. Issuers in the "other" category include other service sectors and investment holding companies with diversified business portfolios.

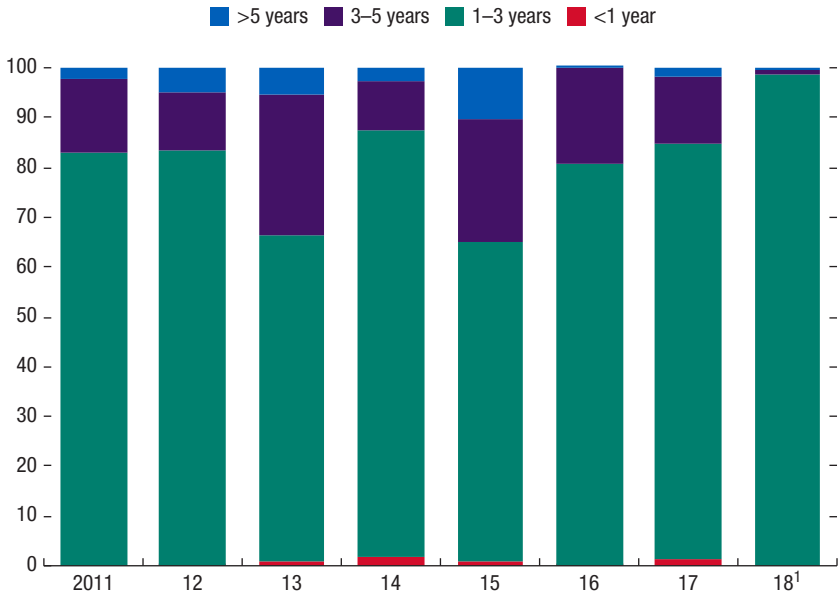
investors, such as mutual fund managers, are major buyers of dim sum bonds, given their higher yields than renminbi deposit rates in the offshore market. Based on data from the Central Moneymarkets Unit, the major custodian of renminbi bonds traded in Hong Kong SAR, no detailed information exists on ultimate investors because it is common for banks to act as trustee to hold and settle dim sum bonds on behalf of clients. For daily turnover, data from the Central Moneymarkets Unit on renminbi bonds issued by banks, corporations, and government organizations show that trading is most active in tenors of one year or less, probably because institutional investors usually hold dim sum bonds to maturity (Figure 15.6).[8]

THE DIM SUM BOND MARKET AS A PLATFORM FOR RAISING OFFSHORE RENMINBI FUNDS

When the offshore renminbi bond market took off in 2011, multinationals such as McDonald's, Unilever, and Caterpillar issued dim sum bonds to tap renminbi funds in Hong Kong SAR to support businesses in the onshore market, such as purchasing equipment or setting up production plants. Issues usually ranged from two to three years. Given strong credit standings and strong demand for renminbi

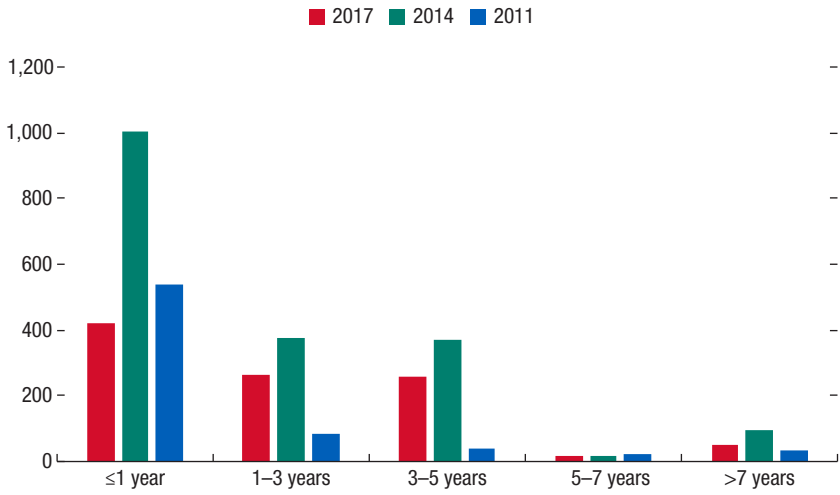
[8] Renminbi bond turnover lodged with the Central Moneymarkets Unit includes dim sum bonds issued by the government, policy banks, supranationals, banks, and nonbank corporations.

Figure 15.5. Maturity Profile of Dim Sum Bonds, 2011–18
(Percent)



Sources: Bloomberg L.P.; and authors' calculations.
[1] Data for 2018 are through the first quarter.

Figure 15.6. Average Daily Turnover of Renminbi Bonds in the Custody of the Central Moneymarkets Unit
(Millions of renminbi)



Sources: Central Moneymarkets Unit; and authors' calculations.
Note: Includes offshore renminbi bonds issued by banks, corporations, and government organizations.

TABLE 15.1.

Dim Sum Bonds Issued by Multinationals and China's Ministry of Finance, September 2010 through September 2011

Issuer	Issue Date	Amount (RMB million)	Tenor (years)	Coupon Rate (percent)	Onshore AAA Enterprise Bond Yield (3-year) (percent)	Yield Differential: Offshore Minus Onshore (basis points)
McDonald's	Sept. 16, 2010	200	3	3.00	3.32	–32
Caterpillar Financial Services	Dec. 1, 2010	1,000	2	2.00	4.38	–238
Ministry of Finance, China	**Dec. 20, 2010**	**3,000**	**2**	**1.60**	**3.30**[1]	**–170**
Unilever	Mar. 31, 2011	300	3	1.15	4.65	–350
Caterpillar Financial Services	Jul. 12, 2011	2,300	2	1.35	5.11	–376
Tesco PLC	Sept. 1, 2011	725	3	1.75	5.82	–407
BP PLC	Sept. 14, 2011	700	3	1.70	5.82	–412

Sources: Bloomberg L.P.; and media reports.
Note:
[1] Yield on three-year renminbi bond issued by the Ministry of Finance in the onshore market.

assets, the coupon rates of offshore renminbi bonds issued by multinationals were generally lower than the yields of comparable AAA enterprise bonds issued in the onshore market (Table 15.1). Sovereign issuers, such as China's Ministry of Finance, also enjoyed a lower cost of bond financing in the offshore market.

Attracted by competitive pricing, a growing number of mainland companies have been tapping renminbi funds in the dim sum bond market. For state-owned enterprises, the funds raised could be used to support their direct investment overseas, such as outbound mergers and acquisitions. For privately owned enterprises, an incentive for them to issue dim sum bonds is to diversify sources of funding, particularly when liquidity becomes tight in the onshore market. For example, when onshore funding costs picked up during 2013–14, there was a broad-based increase in dim sum bond issuance by mainland companies across sectors including issuers in the mining, financial, and real estate segments (Table 15.2). Historically, there has been a relatively strong co-movement between onshore-offshore yield differentials and gross issuance of dim sum bonds in the offshore market (Figure 15.7).[9]

A host of policies and market factors underpinned the rapid expansion of the dim sum bond market in earlier years. Among these, liberalization supporting the use of renminbi in direct investment is important. In January 2011, the People's Bank of China announced a pilot scheme to allow China's mainland enterprises

[9] Onshore-offshore yield differentials are based on the indices developed by the Bank of China and the Bank of China International (Hong Kong), which selects qualified three-year (the mainstream tenor of offshore renminbi bonds) offshore and onshore renminbi corporate bonds as constituents. The index and its sub-indices calculate the difference of weighted average yield to maturity between the onshore and offshore markets.

TABLE 15.2.

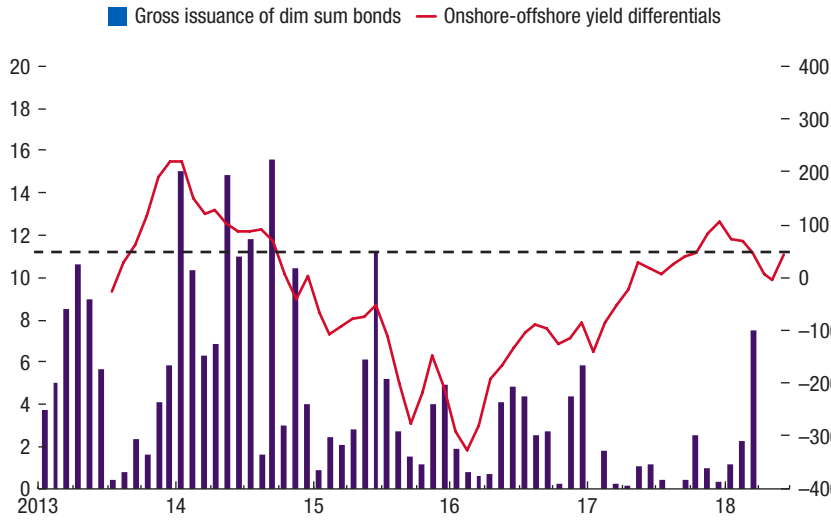
Bond Funding Cost of Mainland Issuers in Onshore versus Offshore Markets, 2010–14

	Offshore markets			Yield Differential Offshore Minus		Onshore markets		
State- or Privately Owned Enterprise[1]	Issue Month and Year	Tenor (no. of years)	Coupon (% per annum)	Onshore (basis points)		Issue Month and Year	Tenor (no. of years)	Coupon (% per annum)
CNPC Finance HK Ltd.	Oct. 2011	3	2.95	–102	Petrochina Co. Ltd.	May 2010	5	3.97
Shanghai Baosteel Group	Feb. 2012	3	3.675	–144	Shanghai Meishan Iron & Steel	Apr. 2012	3	5.11
Huaneng Power Intl Inc.	Feb. 2013	3	3.85	–130	China Huaneng Group	Mar. 2013	5	5.15
Vanke	Apr. 2013	5	4.5	–20	Vanke	Dec. 2014	3	4.7
Yunnan Energy Investment	Oct. 2014	3	5.5	–65	Yunnan Provincial Energy	Oct. 2014	3	6.15

Sources: Bank of China; and Bank of China International (HK) Ltd.

[1] Some dim sum bond issuers in Hong Kong SAR are subsidiaries of their mainland parent companies.

Figure 15.7. Onshore-Offshore Yield Differentials and Gross Issuance of Dim Sum Bonds, 2013 through March 2018
(Billions of renminbi, left scale; basis points, right scale)

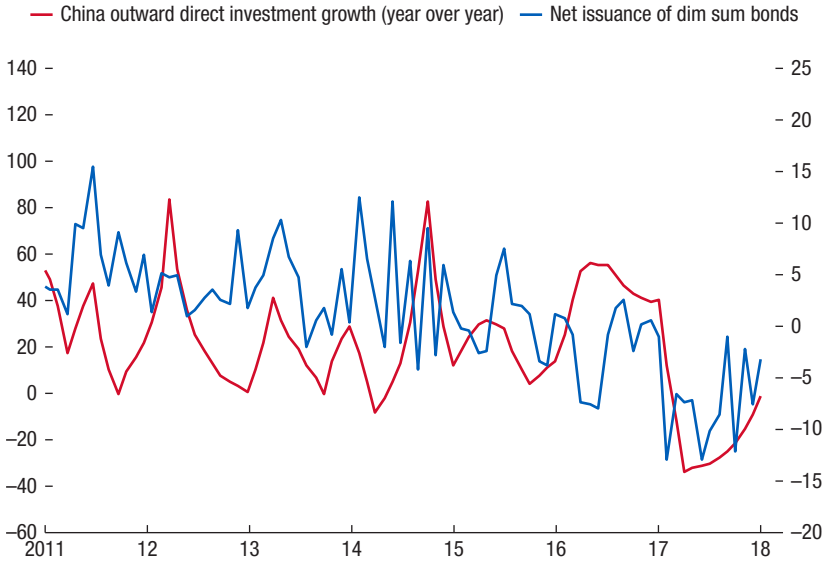


Sources: Bank of China; and Bloomberg L.P.

to use renminbi in conducting ODI, as noted in the introduction. In October 2011, the Ministry of Commerce and the People's Bank of China issued separate circulars to allow foreign investors to use offshore renminbi funds to finance foreign direct investment (FDI) in China, including renminbi funds raised in the offshore bond market. These liberalization measures have boosted issuance of dim sum bonds by foreign companies and mainland firms in the offshore market. Details on the liberalizing measures are listed in Annex Table 15.1.1 in Annex 15.1.

The large swing in yield differentials reflected segmentation between onshore and offshore markets with different demand and supply conditions, while room for risk-free arbitrage is limited given that capital controls are still in place in China. Differences in market liquidity and monetary conditions also contribute to differences in onshore and offshore bond yields. For example, the A-share market rout in mid-2015 boosted the safe-haven demand for bonds and raised the prospect of monetary easing by the People's Bank of China. Strong demand suppressed corporate bond yields to unusually low levels with credit spreads narrowing to historical lows, which largely explained the swing in onshore-offshore yield differentials from positive in 2013–14 to negative in 2015–16 (see Figure 15.7). Since 2017, stricter oversight of shadow banking and increased numbers of bond defaults have widened the risk premium in bond pricing, pushing up onshore bond yields relative to their offshore counterparts.

Figure 15.8. China's Outward Direct Investment and Net Issuance of Dim Sum Bonds, 2011–17
(Percent, left scale; billions of renminbi, right scale)

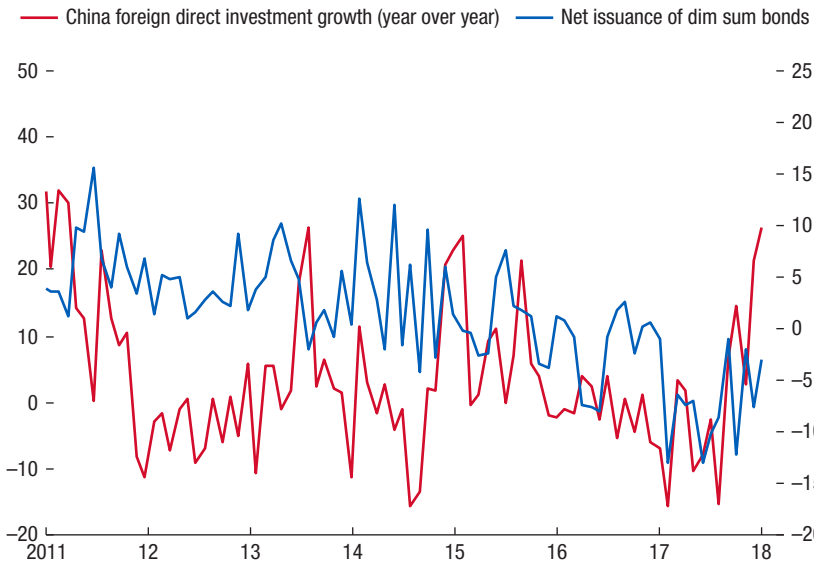


Sources: Bloomberg L.P.; CEIC data; and authors' calculations.

To explain issuance activity in the offshore renminbi bond market, the net issuance of dim sum bonds is used to examine its dynamics with different driving factors. One motive for enterprises to raise offshore renminbi funds is to finance their direct investment overseas or in China. Past development shows that net issuance of dim sum bonds has stronger co-movement with China's ODI than inward FDI (Figures 15.8 and 15.9). This echoes the fact that China's mainland firms have been more active than foreign companies in raising renminbi funds in the dim sum bond market (see Figure 15.3). Given that a significant portion of ODI conducted by mainland firms is in the form of outbound merger and acquisitions, which are usually settled in US dollars or other foreign currencies, the use of renminbi would be more common in developing economies with closer economic ties with China, as they can use renminbi to settle imports of goods and services from China.[10] This can be seen from the rapid expansion in China's ODI

[10] China's ODI settled in renminbi has been growing. For example, a mainland petroleum company invested in an oil field in Brunei. Given that about 80 percent of oil extraction and refinery facilities will be constructed by mainland contractors, the mainland investor agreed to use renminbi to settle the investment in the oil field to reduce exchange rate risk and conversion costs.

Figure 15.9. China's Foreign Direct Investment and Net Issuance of Dim Sum Bonds, 2011–17
(Percent, left scale; billions of renminbi, right scale)



Sources: Bloomberg L.P.; CEIC data; and authors' calculations.

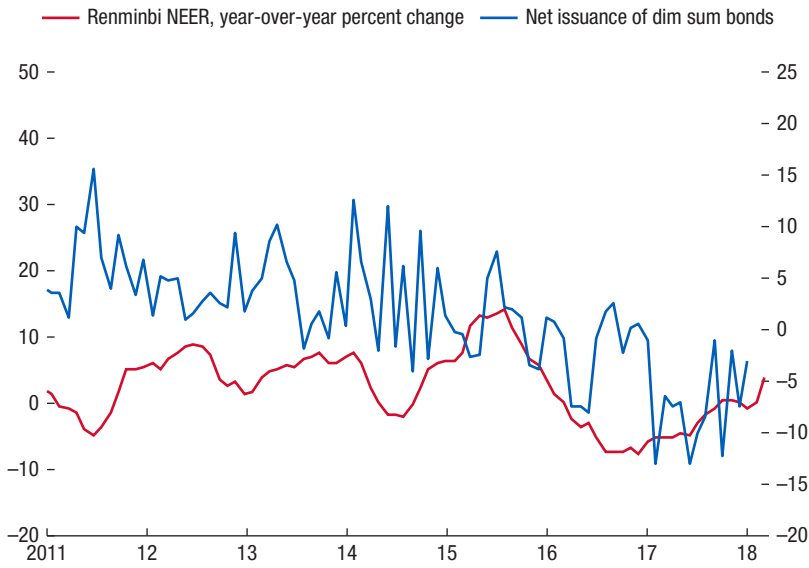
settling in renminbi from RMB 27 billion in 2011 to RMB 1,062 billion in 2016, before easing to RMB 457 billion in 2017.[11]

Policy factors may also play a role in boosting issuance of dim sum bonds in the offshore market. For mainland firms seeking external financing, the People's Bank of China together with the State Administration of Foreign Exchange will set an upper limit based on the net assets of the company and a macroprudential factor (risk factor) determined by the regulator. In general, the risk factor of external borrowing in foreign currencies is higher than that for renminbi borrowings, which makes issuing renminbi bonds less restrictive. Meanwhile, the "going out" policy advocated by the central government propelled China's ODI during 2015–16. This may also partly explain the pickup in net issuance of dim sum bonds over the same period.[12]

[11] Given that ODI settling in renminbi is compiled using both credit and debit transaction data, the figures are not directly comparable to the headline ODI figures released by the Ministry of Commerce and the National Bureau of Statistics.

[12] "Going out" or "going global" policy refers to the Chinese government's initiatives to promote and encourage mainland enterprises to invest overseas. These initiatives include policy to facilitate ODI through merger and acquisitions, or expansion of business abroad by setting up subsidiaries overseas.

Figure 15.10. Renminbi NEER and Net Issuance of Dim Sum Bonds, 2011–17
(Percent, left scale; billions of renminbi, right scale)



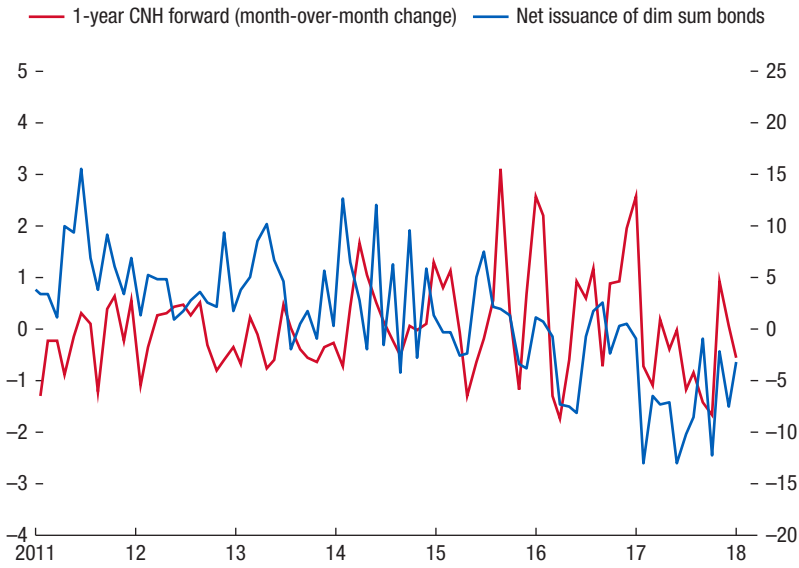
Sources: Bloomberg L.P.; CEIC data; and authors' calculations.
Note: NEER = nominal effective exchange rate.

To overcome the currency mismatch between the source and use of funds, some dim sum bond issuers may swap renminbi into US dollars in the offshore market to fund their overseas investment. Mainland issuers that receive US dollar revenues generated from their overseas investments may swap the US dollar proceeds into renminbi to pay off the mature dim sum bonds. This suggests that the renminbi exchange rate and hedging cost play a role, as they would affect overall funding costs. Historically, appreciation of the renminbi effective exchange rate has tended to support external financing using dim sum bonds, while depreciation has discouraged issuance activities (Figure 15.10).[13] Apart from exchange rate considerations, hedging costs may also influence issuance of dim sum bonds if the issuers plan to swap back their US dollar proceeds from overseas investment to settle renminbi bond payments at maturity. This suggests that a weaker renminbi forward rate may increase such incentives, which can be shown from the positive correlation between net issuance of dim sum bonds and changes in the one-year offshore renminbi forward rate, which is a proxy of hedging costs (Figure 15.11).

Apart from funding overseas investment, dim sum bond issuers may also use the renminbi funds raised to support their onshore business. As discussed, there

[13] Based on the nominal effective exchange rate of renminbi estimated by the Bank for International Settlements.

Figure 15.11. CNH Foward and Net Issuance of Dim Sum Bonds, 2011–17
(Percent, left scale; billions of renminbi, right scale)



Sources: Bloomberg L.P.; and authors' calculations.
Note: CNH forward = offshore renminbi/US dollar forward rate.

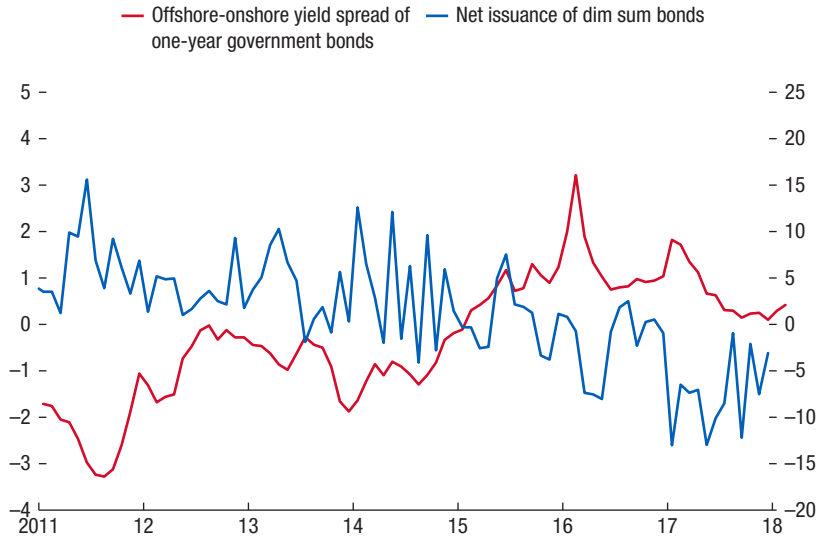
is a strong incentive for international and mainland issuers to borrow renminbi offshore when there is a cost advantage of doing so. A study by HE, Luk, and Zhang (2015) suggests that interest rate differential is a crucial factor driving the international demand for renminbi assets and liabilities. An examination of the yields of renminbi sovereign bonds issued in the offshore and onshore markets shows that there has been an inverse relationship between yield differentials and net issuance of dim sum bonds (Figure 15.12).[14]

The preceding observations suggest that at the firm level, factors such as the cost of funds raised, exchange rate fluctuations, hedging costs, and use of funds could help explain issuance activity in the dim sum bond market.[15] At the macro level, real economic activities and changes in policy could also affect the fundraising decisions of firms. One useful proxy for gauging real activities is growth in China's industrial production in value-added terms, given its high correlation with GDP growth and high data frequency. Figure 15.13 shows that net issuance in the dim sum bond market follows a trend similar to growth in China's industrial production.

[14] The repatriation of offshore renminbi funds onshore has become more common since 2011, when mainland authorities allowed such cross-border movement of funds for direct investment.

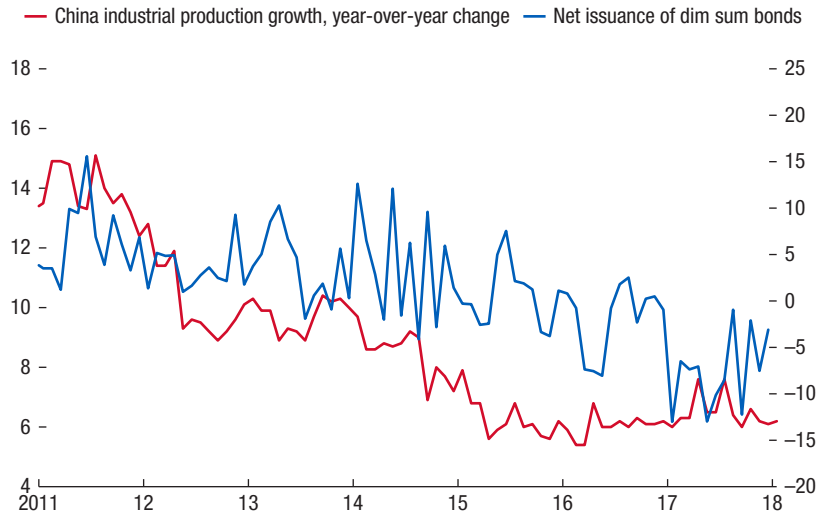
[15] For analysis of the factors determining firms' decisions in investing and raising funds in offshore renminbi bond market, see Mizen and Tsoukas (2015).

Figure 15.12. Yield Differentials and Net Issuance of Dim Sum Bonds, 2011–17
(Percentage points, left scale; billions of renminbi, right scale)



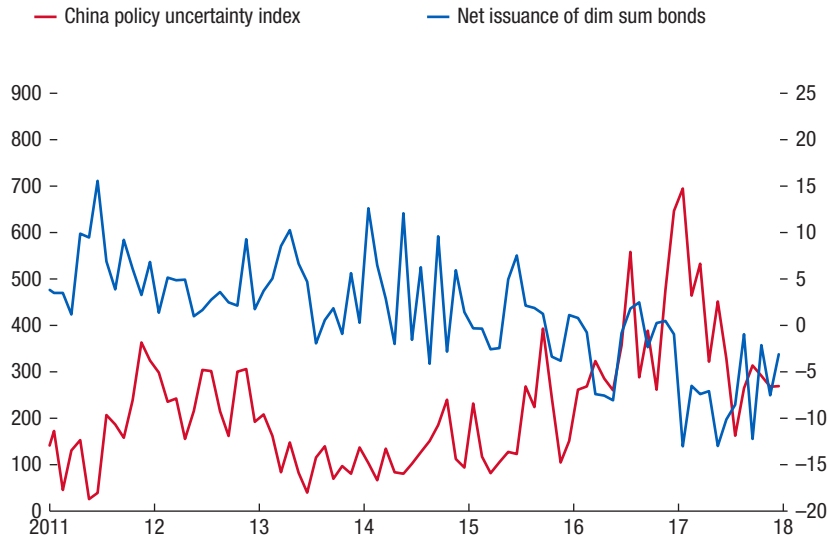
Sources: Bloomberg L.P.; CEIC data; and authors' calculations.

Figure 15.13. Industrial Production Growth and Net Issuance of Dim Sum Bonds, 2011–17
(Percent, left scale; billions of renminbi, right scale)



Sources: Bloomberg L.P.; CEIC data; and authors' calculations.

Figure 15.14. Policy Uncertainty Index and Net Issuance of Dim Sum Bonds, 2011–17
(Index, left scale; billions of renminbi, right scale)



Sources: Bloomberg L.P.; CEIC data; and authors' calculations.

With the capital controls policy still in place, any changes to liberalization measures would have a significant impact on renminbi fundraising in the offshore market. One example is the 2011 policy on the use of offshore renminbi funds by mainland firms to support ODI, which helped boost issuance of offshore renminbi bonds by these firms. During 2016–17, increased scrutiny of cross-border capital flows and ODI by the Chinese authorities, however, dampened external financing activities of mainland issuers. Using the Economic Policy Uncertainty Index compiled by Baker, Bloom, and Davis (2016) to gauge the change in China's policy stance suggests that a marked increase in policy uncertainty tends to weigh on dim sum bond issuance in the offshore market (Figure 15.14).[16]

FACTORS DRIVING ISSUANCE OF DIM SUM BONDS: EMPIRICAL FINDINGS

To estimate the impact of different factors on net issuance of dim sum bonds, which is calculated by gross issuance net of matured amount, this analysis uses monthly offshore renminbi bond data compiled by Bloomberg. The sample

[16] Details on the methodology can be found in Baker, Bloom, and Davis (2016).

period spans January 2011 to December 2017. Dim sum bonds are defined as renminbi-denominated bonds issued in Hong Kong SAR by nonbank corporations. Certificates of deposit are excluded because they are deposit-like products issued by banks for funding purposes. Nonbank corporations exclude insurers and public sector issuers such as sovereigns, government agencies, and multilateral organizations such as the World Bank and the Asian Development Bank.

To estimate the relationship between net issuance of dim sum bonds (net issuance) and macro and policy factors, regression analysis is used, as specified in equation (15.1), to estimate the impact of different factors on issuance activities in the dim sum bond market.

$$\begin{aligned} Net\ issue_t = {} & \alpha + \beta_1 IP_t + \beta_2 Cost_t + \beta_3 FX_t \\ & + \beta_4 Hedge_t + \beta_5 Uses_t + \beta_6 Policy_t + \varepsilon_t, \end{aligned} \tag{15.1}$$

where *IP* denotes China's industrial production growth, which is a proxy for macroeconomic factors and serves as a control variable; *Cost* denotes factors related to differences in borrowing costs between the offshore and onshore markets; *FX* denotes the effect of the renminbi effective exchange rate; and *Hedge* is a measure of the hedging cost of bond issuers if there is a need to swap the renminbi funds into foreign currency. The one-year offshore renminbi/US dollar (CNH) forward rate is used as a proxy, with an increase in the forward rate denoting a weaker renminbi or lower hedging cost. *Uses* denotes factors related to the use of renminbi funds raised, and *Policy* denotes factors related to mainland China policy.

Industrial production growth is used to gauge macroeconomic conditions in China given its higher data frequency than GDP and its high correlation with economic growth. To gauge the difference in borrowing costs, the yield differential of one-year sovereign bonds issued by China's Ministry of Finance in offshore and onshore markets is used, given their high liquidity in the secondary markets, and assuming that credit spreads of the same issuers would be similar in both markets.

The renminbi nominal effective exchange rate (NEER) and one-year CNH forward rate are used to gauge the impact of exchange rate fluctuations and changes in hedging costs on net issuance of dim sum bonds. In general, a stronger renminbi tends to boost market sentiment, and it would be beneficial for issuers to swap renminbi into foreign currencies for use overseas. Meanwhile, a weaker renminbi forward rate in the offshore market suggests that the cost of swapping foreign currency back to renminbi would be cheaper at a specified time in the future. Both would increase the incentive for dim sum bond issuers to swap the renminbi funds raised into foreign currency, and vice versa upon the maturity of the bond, to fund their investment overseas. This suggests that the renminbi NEER and CNH forward rate should be positively correlated with net issuance of dim sum bonds, as shown in Table 15.3.

On the use of renminbi funds raised, faster growth in China's FDI and ODI tends to boost dim sum bond issuance, but the correlation between net issuance and FDI is 0.13, much weaker than the correlation of 0.36 with ODI. This

TABLE 15.3.

Correlation of Net Issuance of Dim Sum Bonds and Its Determinants

	1	2	3	4	5	6	7	8
1. Net issuance								
2. Industrial production growth	0.56							
3. Yield differentials	−0.60	−0.86						
4. RMB NEER	0.28	0.03	−0.12					
5. CNH forward	0.12	−0.19	0.12	0.01				
6. ODI growth	0.36	0.12	−0.13	0.03	0.11			
7. FDI growth	0.13	0.23	−0.22	0.15	−0.03	−0.05		
8. Policy uncertainty	−0.50	−0.36	0.50	−0.46	0.10	−0.10	−0.34	

Sources: Bloomberg L.P.; CEIC data; and authors' calculations.

Note: CNH forward = offshore renminbi/US dollar forward rate; FDI = foreign direct investment; NEER = nominal effective exchange rate; ODI = outward direct investment; RMB = renminbi.

probably reflects the less dominant role of international issuers in the dim sum bond market (see Figure 15.3). As a result, this analysis uses China's ODI as a proxy for the use of funds by dim sum bond issuers.

To capture the impact of policy changes on issuance activities in the dim sum bond market, the political uncertainty index is used based on the frequency of the appearance of key words related to changes in mainland China's policy in the headlines in Hong Kong SAR's *South China Morning Post*. The index is compiled by Baker, Bloom, and Davis (2016) of the research group Economic Policy Uncertainty.[17]

Putting the six explanatory variables together, Table 15.4 shows the regression results of estimating their effects on the net issuance of dim sum bonds.[18] To show the robustness of parameter estimates, explanatory variables are included one by one in the regression model. First, growth in industrial production is included, which is a control variable used to capture changes in macroeconomic conditions in China. Second, the one-month lag of offshore-onshore yield differentials is used to dampen its collinearity with other explanatory variables.[19] Third, the one-month lag of year-over-year growth in the renminbi NEER and month-over-month growth in the one-year CNH forward are included. Fourth, China's ODI and FDI growth are added, but the results show that only the former is significant. Finally, the Economic Policy Uncertainty Index is added in the model.

The full model estimates show that regression coefficients are significant with correct signs, with R^2 of 58 percent (the last column of Table 15.4). China's FDI

[17] The research group Economic Policy Uncertainty uses a similar methodology in compiling the political uncertainty index for China as it does for the United Kingdom and the United States.

[18] Summary statistics of the explanatory variables are listed in Annex Table 15.1.2 in Annex 15.1.

[19] Given the high correlation between yield differential and industrial production growth, which is –0.86, as shown in Table 15.3, the one-month lag of yield differential is used as an instrumental variable because of its high correlation with net issuance of dim sum bonds and weak collinearity with other regressors.

TABLE 15.4.

Multiple Regression Results of Net Issuance of Dim Sum Bonds

Specification	A	B	C	D	Full Model
Constant	−9.19 ***	−1.49	−4.67	−5.30 **	−3.30
	(1.80)	(2.87)	(2.87)	(2.71)	(2.85)
Industrial production growth (year-on-year in percent)	1.21 ***	0.23	0.55	0.53	0.54 *
	(0.20)	(0.35)	(0.34)	(0.32)	(0.32)
Offshore-onshore yield differentials (1-month lag, percentage point)		−2.46 ***	−1.83 ***	−1.73 ***	−1.37 **
		(0.69)	(0.68)	(0.64)	(0.66)
Changes in renminbi NEER (1-month lag, year-on-year in percent)			0.25 ***	0.25 ***	0.17 *
			(0.09)	(0.08)	(0.09)
Changes in 1-year CNH forward (month-on-month in percent)			0.99 *	0.76	0.90 *
			(0.52)	(0.49)	(0.49)
ODI growth (seasonally adjusted, year-on-year in percent)				0.05 ***	0.05 ***
				(0.02)	(0.02)
FDI growth (seasonally adjusted, year-on-year in percent)				−0.01	
				(0.04)	
China Political Uncertainty Index (divided by 100)					−0.78 *
					(0.42)
N	84	83	83	83	*83*
R^2	31.1%	41.3%	49.1%	56.0%	*57.9%*
Adjusted R^2	30.2%	39.8%	46.4%	52.5%	*54.6%*
Durbin-Watson statistics	1.37	1.53	1.74	1.91	*1.94*

Source: authors' calculations.

Note: Numbers in parentheses are standard errors of coefficient estimates. CNH forward = offshore renminbi/US dollar forward rate; FDI = foreign direct investment, NEER = nominal effective exchange rate; ODI = outward direct investment.

*$p < 0.1$ **$p < .05$ ***$p < .01$.

is not included in the full model because it is insignificant. For individual explanatory variables, an increase of 1 percentage point in industrial production growth would on average boost the net issuance of dim sum bonds (the dependent variable) by RMB 0.54 billion, or 0.13 percent of outstanding dim sum bonds at the end of 2017. In terms of borrowing costs, if offshore bond yields come down by 1 percentage point relative to the onshore counterpart, net issuance would increase by RMB 1.37 billion, or 0.32 percent of the outstanding amount. On the exchange rate effect, annual renminbi appreciation of 1 percent against a basket of currencies would boost net issuance of dim sum bonds by RMB 0.17 billion, equivalent to 0.04 percent of the outstanding amount. For hedging costs, if the renminbi forward rate depreciated by 1 percent month over month, net issuance would expand by RMB 0.9 billion, or 0.21 percent of the outstanding amount. On the uses of funds, if China's ODI growth picked up 1 percentage point, this would drive up net issuance by RMB 0.05 billion, or 0.012 percent of the outstanding amount. For the impact of policy changes, an increase in 100 points in the political uncertainty index would drag down net issuance of dim sum bonds by RMB 0.78 billion, equivalent to 0.18 percent of the outstanding amount.

To compare the relative contribution of individual explanatory variables to the variation of net issuance of dim sum bonds, equation (15.1) can be expressed in variance form represented by equation (15.2):[20]

$$\begin{aligned} Var(\text{Net Issue}) = {} & \beta_1^2\, Var(X_1) + \beta_2^2\, Var(X_2) + \beta_3^2\, Var(X_3) + \\ & \beta_4^2\, Var(X_4) + \beta_5^2\, Var(X_5) + \\ & \beta_6^2\, Var(X_6) + Var(\varepsilon) + \Sigma_{i \neq j}\, \beta_i\, \beta_j\, Cov(X_i, X_j), \end{aligned} \tag{15.2}$$

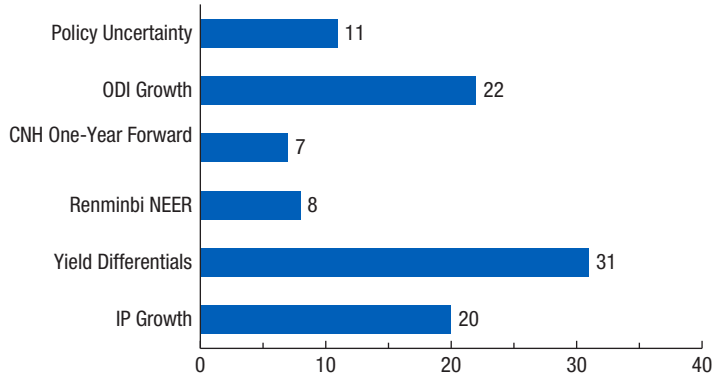
where *Var(Net Issue)* is the variance of net issuance of dim sum bonds. In total, the six regressors explain about 58 percent of variance in net issuance as indicated by the R^2, while the rest is unexplained and captured by the variance of the error term or *Var(ε)*. Given that the cross-product terms $\Sigma_{i \neq j}\, \beta_i\, \beta_j\, \mathrm{Cov}(X_i, X_j)$ cannot be disentangled by individual explanatory variables and regressors are orthogonal to the error term ε, the variance of net issuance explained by individual regressors, or the model variance, could be simplified to the following:

$$\begin{aligned} Var(\text{Net Issue}\hat{}) = {} & \beta_1^2\, Var(X_1) + \beta_2^2\, Var(X_2) + \beta_3^2\, Var(X_3) + \\ & \beta_4^2\, Var(X_4) + \beta_5^2\, Var(X_5) + \beta_6^2\, Var(X_6), \end{aligned} \tag{15.3}$$

where *Net Issue^* is estimated net issuance of dim sum bonds based on regression, as opposed to the observed or actual net issuance of dim sum bonds. From equation (15.3), the term $\beta_1^2\, Var(X_1)$ represents the contribution of industrial production growth to the variance of estimated net issuance. The same interpretation can be applied to the rest of the explanatory variables. The contribution of an

[20] The decomposition of variance of the dependent variable is similar to the method used by Altman, Fargher, and Kalotay (2011) in examining the relative importance of individual factors in explaining the default probability of borrowers.

Figure 15.15. Contribution to Model Variance, by Explanatory Variable
(Percent)



Source: Authors' calculations.
Note: CNH forward = offshore renminbi/US dollar forward rate; IP = industrial production; NEER = nominal effective exchange rate; ODI = outward direct investment.

individual regressor to the variance of estimated net issuance can be expressed as follows:

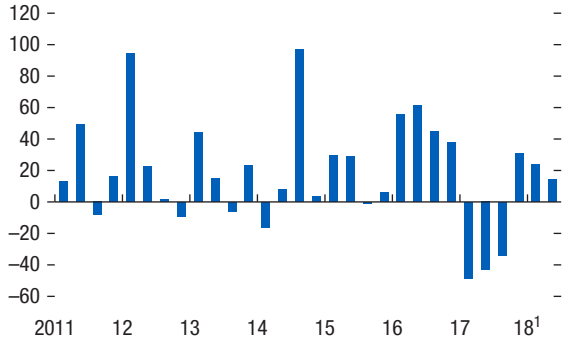
$$Share_i = \frac{\beta_i^2 \sigma_i^2}{\sum_i \beta_i^2 \sigma_i^2}, \tag{15.4}$$

where $Share_i$ is the portion of model variance attributable to explanatory variable i, β_i is the regression coefficient, and σ_i^2 is the variance of explanatory variable i.

Figure 15.15 compares the contribution of individual regressors to the variance of estimated net issuance of dim sum bonds. During the sample period, yield differentials explained most of the variation of the estimated net issuance of dim sum bonds, contributing 31 percent to the model variance. This suggests that differences in borrowing cost could be a key consideration for corporate owners in choosing between onshore and offshore markets in issuing renminbi bonds. Both ODI and industrial production growth explained about one-fifth of variation in net issuance estimated by the model, suggesting that the issuance of dim sum bonds is driven by the investment needs of corporations and macroeconomic conditions, which are key determinants of corporate funding demand.[21] Changes in the renminbi effective exchange rate and hedging cost together explained about 15 percent of the variation of net issuance estimated by the model, while the

[21] Studies by IMF economists Ayala, Nedeljkovic, and Saborowski (2015) indicate that macroeconomic fundamentals play an important role in fostering bond market development in emerging market economies.

Figure 15.16. Growth in China's Nonfinancial Outward Direct Investment, 2011–18
(Percent, year over year)



Sources: CEIC data; and authors' calculations.
[1] Data for 2018 are through the second quarter.

factor of policy uncertainty contributed 11 percent to the model variance. While the decomposition of model variance indicates that differences in offshore-onshore borrowing costs, the investment needs of corporations, and the macroeconomic environment play key roles in driving dim sum bond issuance, the results should be interpreted with caution as these are crude estimates and could be sensitive to sample size. The relatively small sample of some 80 observations suggests that the regression results may be subject to omitted variable bias and endogeneity in parameter estimates.

NEAR-TERM PROSPECTS OF THE DIM SUM BOND MARKET

Given that the dim sum bond market serves as an alternative renminbi fundraising platform, its near-term prospects will hinge on the mainland economic outlook, corporate investment needs, and borrowing costs, as these are the key considerations for international and mainland issuers to issue renminbi bonds in the offshore market.[22] Empirical findings suggest that the decline in dim sum bond issuance in recent years could be attributed to the moderation of China's GDP growth and slowdown in ODI (Figure 15.16). Meanwhile, the reduction in renminbi deposits in the offshore market has also driven up borrowing costs in the dim sum bond market relative to the onshore counterpart.

As the mainland economy is rebalancing from investment to consumption, it is reasonable to expect some moderation of GDP growth in the foreseeable future.

[22] For a detailed discussion on the role of the dim sum bond market, see Fung and Yau (2012).

Provided that the slowdown in GDP growth is gradual, say from near 7 percent in recent years to 6–6.5 percent in the next few years, its impact on external borrowing through the dim sum bond market should be manageable. In comparison, the trend of offshore borrowing costs and ODI would play a more important role in driving dim sum bond issuance, underpinned by China's "going-out" policy and Belt and Road Initiative. Factors such as fluctuations in the renminbi exchange rate and policy uncertainty are likely to affect market sentiment, which could have short-term impacts on the dim sum bond market. For example, renminbi depreciation and increased scrutiny of overseas investment by mainland authorities are likely to weigh on dim sum bond issuance, while tightening in onshore liquidity conditions would increase the incentive for mainland issuers to borrow abroad.

CONCLUSIONS

Underpinned by measures liberalizing external use of renminbi and cross-border renminbi fund flows between onshore and offshore markets, the dim sum bond market has expanded rapidly since 2011. The moderation of dim sum bond issuance in 2017 could be due to a slowdown in China's ODI following increased scrutiny of capital outflows. The recent rebound in ODI and higher onshore borrowing costs could revive issuance of renminbi bonds in the offshore market, as indicated by their strong co-movement in the past.

While an active offshore dim sum bond market helps promote the external use of renminbi, the dominant role of mainland China's issuers indicates room exists to increase the participation of international issuers in tapping offshore renminbi funds to support their onshore business and investment. Given bond issuers' need to manage exchange rate risk, a liquid market for hedging instruments also helps promote raising renminbi funds through the dim sum bond market.

The growing integration of capital markets between China and Hong Kong SAR, such as the launch of Bond Connect, expands the choice of renminbi assets available to offshore investors. That said, the fundraising function of dim sum bonds would not be affected much given that it is less accessible for foreign issuers to tap renminbi funds in the onshore market. Given the free flow of capital, highly accessible market, and internationally recognized strong legal and regulatory frameworks, the dim sum bond market remains an attractive platform for international and mainland issuers to tap renminbi funds outside China. For global investors, dim sum bonds offer an additional choice of renminbi assets to international investors, which promotes the external use of renminbi in securities transactions.[23] These roles of the dim sum bond market are likely to continue, despite the opening up of onshore financial markets.

[23] For the discussion of renminbi as an investing and funding currency, please see He, Luk, and Zhang (2015).

ANNEX 15.1

ANNEX TABLE 15.1.1.

Policy Announcements Related to the Dim Sum Bond Market, 2007–15

Month and Year	Policies	Issuer	Implications
Jun. 2007	"Interim Measures for the Administration of the Issuance of RMB Bonds in Hong Kong SAR by Onshore Financial Institutions"	National Development and Reform Commission	The issuance of RMB bonds in Hong Kong SAR by onshore financial institutions
Feb. 2010	"Elucidation of Supervisory Principles and Operational Arrangements Regarding Renminbi Business in Hong Kong SAR"	Hong Kong Monetary Authority	Multinational companies and international financial institutions
Oct. 2011	"Administrative Measures on RMB Settlement in Foreign Direct Investment"; "Circular Concerning Certain Issues on Direct Investment involving Cross-border RMB"	People's Bank of China Ministry of Commerce	Simplify approval process for repatriation of RMB bond proceeds back to China by issuers not incorporated in the mainland. The Ministry of Commerce Circular allows foreign investors to use offshore RMB, including funds raised from issuing bonds, to conduct direct investment or to repay loans in China.
May 2012	"Circular on the Matters Relating to the Issuance of RMB Bonds in Hong Kong SAR by Onshore Non-Financial Institutions"	National Development and Reform Commission	The NDRC circular formalized the approval process and stipulated the regulatory framework for onshore mainland China nonfinancial institutions to issue RMB bonds in Hong Kong SAR, compared to a discretionary basis previously used by the authority.
May 2014	"Regulations on Foreign Exchange Administration of Cross-Border Guarantees and Security"; "Operational Guidelines on Foreign Exchange Administration of Cross-Border Guarantees and Security"	State Administration of Foreign Exchange	Replace approval-based issuance with registration-based cross-border guarantee for using funds raised from offshore bonds in overseas investment.
Sep. 2015	"Notice on Promoting the Reform of the Filing and Registration System for Issuance of Foreign Debt by Corporates"	National Development and Reform Commission	Registration-based issuance for mainland issuers with a national annual quota, compared to approval-based issuance.

Sources: Media reports; and websites of authorities in China.
Note: NDRC = National Development and Reform Commission; RMB = renminbi.

ANNEX TABLE 15.1.2.

Key Statistics of Explanatory Variables in Multiple Regression

Independent Variable	Mean	Standard Deviation	Minimum	Maximum
Industrial production growth (percent year-over-year)	8.7	2.7	5.4	15.1
Offshore-onshore yield differentials (percentage points)	−0.3	1.3	−3.3	3.2
Renminbi nominal effective exchange rate (percentage change year-over-year)	2.4	5.5	−7.6	14.3
One-year CNH forward rate (percentage change month-over-month)	0.03	1.0	−1.7	3.1
ODI growth (seasonally adjusted, percentage change year-over-year)	16.1	29.3	−48.7	92.1
China's Political Uncertainty Index (divided by 100)	2.2	1.4	0.3	6.9

Sources: Bloomberg L.P.; CEIC data; and authors' calculations.
Note: CNH forward = offshore renminbi/US dollar forward rate; ODI = outward direct investment.

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