

An Empirical Study of the Dim Sum Market

by

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Abstract

This thesis represents a comprehensive study of the Hong Kong Dim sum market and the effect of country, issuers' industry, and rating on the characteristics of Dim sum bonds. I find evidence that Dim sum bonds issued by China firms tend to have shorter maturities and higher coupon rates. However, there is no evidence that China firms tend to issue Dim sum bonds in larger amounts. I also find that Government issues tend to be smaller and have longer maturities. As one would expect, Dim sum bonds with higher ratings have lower coupon rates and this is confirmed in my empirical tests.

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CHAPTER I: INTRODUCTION

Dim sum bonds (also called offshore renminbi bonds) are bonds issued outside of China but denominated in the Chinese currency, renminbi. They are named after Dim sum, a kind of small bite-sized Cantonese food in Hong Kong. The first Dim sum bond was issued by the China Development Bank in July 2007. The first Chinese government Dim sum bonds were issued by the Ministry of Finance (MOF) in three tranches for a total amount of RMB6 billion in October 2009. Before July 2010, only Chinese and Hong Kong issuers were allowed to issue Dim sum bonds (Fung, Ko and Yau, 2014). Due to strict regulations, the market stumbled in its early years. However, later deregulation led to the development of the renminbi offshore market and the internationalization of Dim sum bonds (Li, 2011).

Since 2011, in order to develop the offshore market, China has signed bilateral local currency swap agreements with many countries. These currency swaps allow trade settlement in RMB. Foreign companies can now convert their local currency into renminbi more easily. In August 2011, China Vice Premier Li Keqiang announced concessions on Foreign Direct Investment (FDI) and renminbi Qualified Foreign Institutional Investor (RQFII), which permits foreign institutional investors to invest in China's domestic securities markets using the renminbi they raise from the offshore

RMB market. This policy enables foreign issuers of Dim sum bonds who have business in China to invest those funds they raise from Dim sum bonds directly back into the securities market in mainland China. China's efforts to internationalize its renminbi make it easier for foreign investors to invest in the China market and has attracted more potential foreign issuers to enter the Dim sum market.

The Dim sum bond market has flourished as foreign investors seek Yuan-denominated assets to participate in the appreciation of the renminbi. The information of USD/CNY exchange rate (yuan per dollar) is provided in Figure 1.

Figure 1. USD/CNY Exchange rate from 2000 to 2013

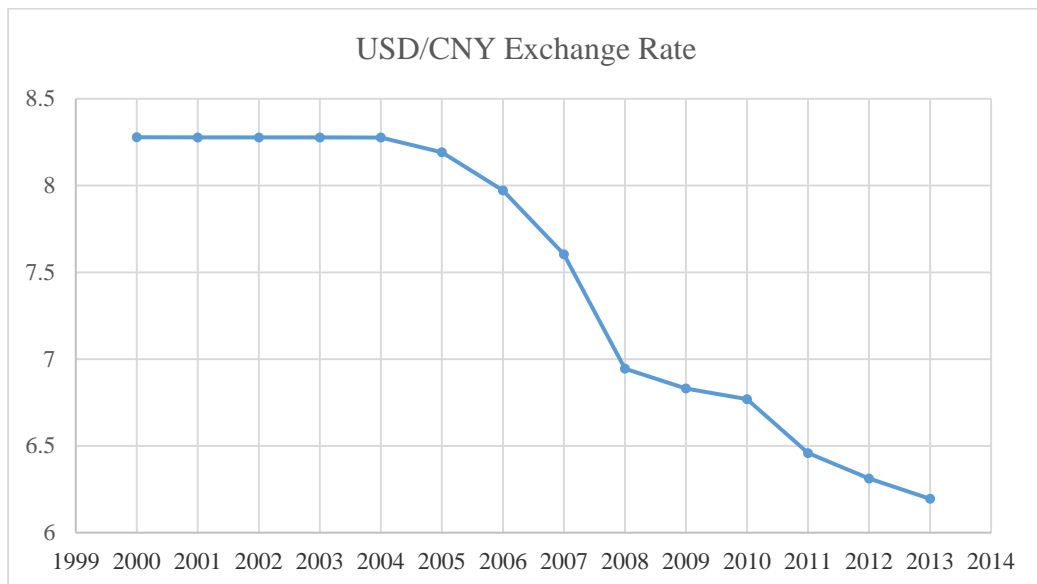


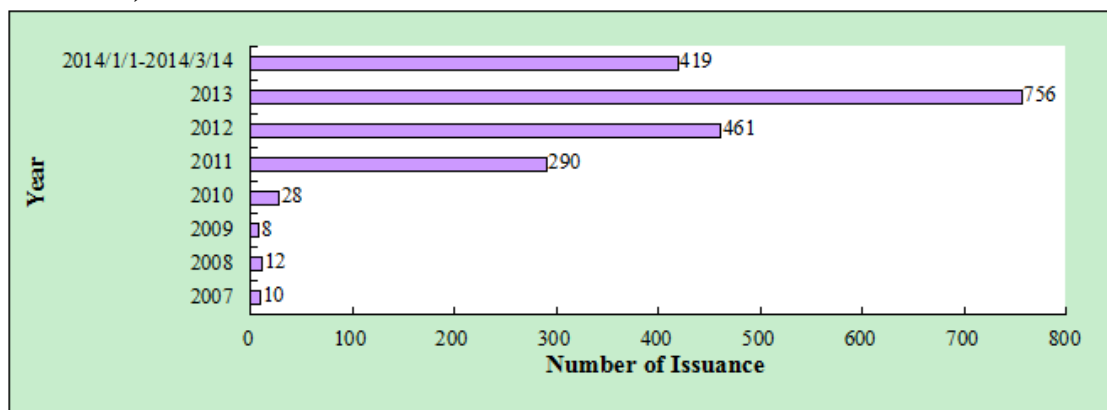
Figure 1 shows that the number of yuan needed to buy a dollar has been going down from 2005 to 2013. In other words, the renminbi has been steadily appreciating.

Dim sum bonds are also a favorite arbitrage funding method for mainland issuers to lower their funding costs as the regulations are more restrictive and the borrowing cost are higher in China mainland market. For China issuers, they can enjoy the benefit of the large renminbi deposit pool in Hong Kong and the cheaper funding as the interest rate is lower in Hong Kong. For foreign issuers, the arbitrage opportunity appears when the swap rate of fixed-rate offshore renminbi to floating rate U.S. dollars is high and issuers of Dim sum bonds can arbitrage through converting the renminbi they raise from Dim sum bonds into U.S. dollars. Foreign companies that have branches operating in China also issue longer-maturity Dim sum bonds to raise capital. In September 2010, McDonald's became the first foreign nonfinancial company to issue Dim sum bonds with an amount of 200 million RMB. More foreign corporations including Volkswagen and BP, who are doing business in mainland China, have issued Dim sum bonds to finance a portion of their renminbi investments, using the renminbi debt as a natural hedge.

Within seven years since its inception, the Dim sum market has developed into one of the fastest growing capital markets in the world. From the first Dim sum bond issuance in July 2007 to March 2014, there have been more than 1,400 Dim sum bonds issued by more than 250 issuers, including governments and companies across 29 industry sectors, for a total amount of 107.14 billion. The number of Dim sum

bond issues in 2011 is 290, which is more than ten times the number of the total issues in 2010. In 2013, there were more than 700 Dim sum bond issues and in 2014, during the month January alone, more than 100 were issued. Figure 2 provides a summary of Dim sum bond issues by year.

Figure 2. Dim sum bonds number of issues by year (From January, 2007 to March, 14th 2014)



Source: Fung 2014, Bloomberg

The Dim sum bond market consists of China and Non-China, government and non-government, investment grade and non-investment grade bonds. The characteristics and features of these bond categories differ from one another. The primary purpose of this paper is to examine these bond characteristics and to empirically test for differences in coupon rates, original maturity and amount issued.

Chapter II is the literature review. Chapter III presents the sample and the composition by country of issuer. In this chapter, I develop my hypotheses and regression models for empirically testing for differences in the original maturity, amount issued and coupon rate between bond subsamples. Chapter IV summarizes and discusses my empirical results. I examine the country effect and government effect on the amount issued and original maturity of Dim sum bonds. In studying the coupon rate of the bond, I also examine the country and bond rating effects on the coupon rate using a regression model. Finally, I discuss the effect of other variables including a dummy describing whether the firm belongs to the financial sector on the characteristics of the bonds. Chapter V presents the conclusion.

CHAPTER II: LITERATURE REVIEW

The literature exploring the Dim sum bond market is limited since the market just started in 2007 and really took off in 2011. But the market is becoming more and more important as China is pursuing a strategy to internationalize its renminbi. Law (2013) explained that growing confidence in China's economy and prospects for the currency's rise increased demand for Dim sum bonds. Rising yields and an increase in the credit-worthiness of issuers have also helped generate demand by investors. Law also mentions that the esoteric reason is the boom in currency swap contracts. These swaps enable companies to cheaply convert renminbi into U.S. dollars. In a typical cross-country swap, Non-China companies lend renminbi, usually for one to three years, while borrowing dollars. If swap rates increase, the return they receive from lending renminbi grows, offsetting the costs of selling bonds. In this way, Dim sum bonds effectively enable them to raise U.S. dollars at a lower rate than they could obtain in a dollar-bond market.

Interest among institutional investors is growing as the depth of the offshore yuan market has increased and hedging products are available. However, Law (2013) points out that not everyone is rushing to the Dim sum market. Multinationals such as Caterpillar Inc., McDonald's Corp. and British Petroleum, which have tested the

market in previous years, have yet to return, largely because of its limited size and depth. In his work, he also found that institutional investors, such as banks and fund managers, account for the bulk of Dim sum investors. Fung, Ko, & Yau (2014) study the Dim sum market and find that another benefit of the Dim sum bonds to the issuers is that the Dim sum bond market is less vulnerable to interest rate risk because the typical maturity (tenor) of Dim sum bonds is generally shorter than other USD-based Asia bonds.

Wong (2012) examined the market and found that the lower cost and the fact that Chinese companies don't need mainland approval also contribute to the attractiveness of the Dim sum market. However, Jenkins (2013) held that the Dim sum market is small and newly established and Yuan-denominated bonds trade less frequently than other denominated debt, like those in the West. Investors of Dim sum bonds may have a problem finding a buyer at a desired price. Liquidity concerns in the secondary market could partly explain the short maturity of the Dim sum bonds.

Nobel (2013) also raised concern about the poor liquidity and lack of long-term investors in the Dim sum market. He examined the market and found that central banks and insurers account for less than 10% of all the purchases in the primary market. Nobel found that other problems discouraging the development are China's interbank liquidity crunch and concerns that U.S. monetary policy may wreak havoc

on offshore renminbi debt. In late May 2013, investors of Dim sum bonds withdrew money from the market at a record pace as Mr. Bernanke referred to the potential downsizing of asset purchases by the U.S. Federal Reserve. In June 2013, China's interbank lending market endured its worst-ever cash squeeze as the People's Bank of China held back from adding liquidity to the system. The liquidity crunch in the interbank lending market led to a spike in borrowing costs. Some offshore subsidiaries of Chinese banks responded by shifting renminbi back over the border, sapping liquidity from the Hong Kong Dim sum market. Nobel also mentioned that expectations that the renminbi will appreciate further, which is a key driver for Dim sum bonds, have also been dampened by China's falling growth rate and weak trade figures in 2013.

Some scholars raise concerns about the tight regulation of the Dim sum market. Parisis (2013) held that tight regulations including approval from the State Administration of Foreign Exchange (SAFE) and People's Bank of China to repatriate the offshore renminbi back to the mainland would be a potential setback for the market.

Other setbacks of the Dim sum market include the weak credit quality and the narrowing of the interest spreads between mainland China and Hong Kong. Yap

(2013) documented the creditworthiness problem of the market. Most of the bonds are unrated and the companies issuing unrated debt aren't being transparent enough, or showing a long-term commitment to the market. Wong (2012) also raised concern about the market noting that the funding cost between mainland and offshore market is narrowing and the Dim sum bonds are becoming less unfavorable as a cheaper funding method.

While there are limited empirical studies on the Dim sum bond market, there are studies about other types of offshore local-currency denominated bonds. Batten, Hogan and Szilagyi (2008) conducted a study on the Kangaroo bond (foreign Australian dollar denominated bonds). They examined the Kangaroo bond market and found out that the majority (50.5%) of the Kangaroo bonds were issued by U.S. and U.K. companies. Only one Kangaroo bond was issued by an Australia incorporated company. In terms of industry sectors, banks and financial services companies together issued 75.9% of the Kangaroo bonds. The overall quality of the Kangaroo bonds are very high with 28.3% carrying Moody's highest rating of Aaa and 26.7% carrying Standard and Poor's highest rating AAA. According to the Moody's rating, 59.4% of the Kangaroo bonds are rated above investment grade. Less than 1% of the Kangaroo bonds are below investment grade. A number of the Kangaroo bonds (Moody's, 24.1% and Standard and Poor's 39.6%) had either had their rating

withdrawn (due to bond maturing) or were never rated. In their work, Batten et al. also found that issuers with better quality ratings and sovereign and supranational issuers tend to issue Kangaroo bonds with longer maturities. The issues are mostly swap driven and swaps are used by supranational issuers and financials to leverage a funding advantage in their currency. The maturities of all the Kangaroo bonds fall within one-year to 10-years range. Batten et al. conclude that the concentration of issues to specify maturity helps liquidity. They also suggest that foreign firms would enter the market when they have local currency requirements or to seek cost-efficient funding.

The Dim sum market is the first offshore renminbi market. It was established by the China government as a tactical move to complement their strategy for the internationalization of its renminbi. China's fast economy growth, relaxed regulations of foreign investors, and renminbi appreciation all contribute to the phenomenal growth of the Dim sum market. But there are still problems including the illiquid secondary market, tight regulation to fully convert renminbi, and poor credit quality of the bonds that is hampering the further development of the market. In short, the Dim sum market is a new offshore bond market with some unique characteristics and problems. An empirical study of the Dim sum market will lead to a better

understanding of the characteristics of this important new market and the issues faced in this market as it develops and matures.

CHAPTER III: DATA AND METHODOLOGY

3.1 Data

The sample I used in the study covers all the 1447 outstanding Dim sum bonds issued from January 2007 to April 18, 2014. The data in my study are obtained from the Bloomberg database. In the sample, all prices are denominated in the Chinese local currency, renminbi (CNY). There are 79 zero coupon Dim sum bonds and seven of the Dim sum bonds' coupon rate are not available. Only companies with complete data are included in my study.

Table 1. Summary Statistics of the Sample

	N	Mean	Standard Deviation	Median	Max	Min
Amount Issued(in CNY)	1447	74,045,400	103,557,038	39,147,400	1,274,570,000	492,967
Coupon Rate*	1361	3.10%	1.12%	2.85%	12.50%	0.60%
%Zero Coupon	79(5.50%)					
Maturity in Years	1447	1.92	2.17	0.99	30.00	0.077
%Investment Grade	139(9.61%)					
%Not Rated	1294(89.43%)					

*There are 79 zero-coupon bonds and seven whose coupon rate is not available. As the historical data for the Dim sum bonds are limited, I am not able to get more information of the yield of the zero coupon Dim sum bonds. I exclude those 86 Dim sum bonds in my sample for empirical study.

3.2 Key Variables

Country

In the sample, I use the location where the company is registered as the incorporate country. The information of the country can be found in Table 2 and Table 3. In the study, I count all the mainland China, Hong Kong and Macau incorporated companies as China companies. There are 729 mainland China companies (with a total amount issued of 16.977 billion in CNY), 399 Hong Kong companies (with a total amount issued of 30.681 billion in CNY) and 6 Macau companies (with a total amount of 0.996 billion in CNY).

Table 2: Information of the Incorporate Country

Incorporate Country	Number	% Number	Amount issued(millions)	% Amount
Australia	2	0.14%	2.252	0.002%
Austria	1	0.07%	1.117	0.001%
[±] Bermuda	14	0.97%	22.577	0.021%
Brazil	13	0.90%	32.076	0.030%
Britain	19	1.31%	913.121	0.850%
[±] British Virgin	59	4.08%	26543.565	24.721%
Canada	2	0.14%	6.831	0.006%
[±] Cayman Islands	38	2.63%	6070.368	5.653%
Chile	1	0.07%	3.963	0.004%
China	729	50.38%	16977.853	15.812%
[±] Curacao	2	0.14%	85.339	0.079%
France	15	1.04%	745.442	0.694%
Germany	18	1.24%	790.812	0.737%
Hong Kong	399	27.57%	30681.680	28.575%
India	9	0.62%	1182.718	1.101%
Ireland	3	0.21%	390.614	0.364%
Italy	3	0.21%	414.195	0.386%
Japan	10	0.69%	1496.352	1.394%
[±] Jersey	2	0.14%	283.336	0.264%
Luxembourg	16	1.11%	2614.306	2.435%
Macau	6	0.41%	996.327	0.928%
Malaysia	3	0.21%	517.953	0.482%
Mexico	1	0.07%	170.068	0.158%
Mongolia	1	0.07%	165.131	0.154%
Netherlands	9	0.62%	1672.628	1.558%
New Zealand	2	0.14%	391.149	0.364%
Panama	1	0.07%	196.776	0.183%
Singapore	15	1.04%	3356.796	3.126%
Supranational	11	0.76%	2608.900	2.430%
South Korea	14	0.97%	2186.345	2.036%
Sweden	5	0.35%	987.53	0.920%
Switzerland	1	0.07%	3.5000	0.003%
UAE	5	0.35%	4.47129	0.004%
United States	16	1.11%	4367.155	4.067%
Taiwan	2	0.14%	491.058	0.457%
In Total	1447	100.00%	107374.3043	100.000%

[±]Some countries including Bermuda, British Virgin, Cayman Islands, Curacao and Jersey are offshore financial centers. Typically companies from other countries incorporate there due to favorable tax treatment and less regulation. No attempt was made to identify the country of origin, although it is assumed that the country of origin is not the country of incorporation in these cases.

From the information provided in Table 2, in terms of the number of issues, China mainland, Macau and Hong Kong companies issued 78.36% of Dim sum bonds.

Unlike Kangaroo bonds, a large weight of Dim sum bonds are issued by China companies. U.S. companies only issue 4.067% of the Dim sum bonds and there are no U.K. Issues. China mainland, Macau and Hong Kong issues represent 45.315% of total amount issued. The percentage of the amount issued by companies from offshore financial centers such as British Virgin and Cayman Islands are 27.721% and 5.653%, respectively.

Table 3. Summary Statistics by Country

Variable	China			Non-China		
	N	Mean	Median	N	Mean	Median
Amount Issued	1134	66,734,859	34,999,300	313	100,525,991***	65,297,600
Coupon Rate	1134	3.13***	2.90***	227 [±]	2.95	2.25
Zero Coupons	0			79 [±]		
Original Maturity	1134	1.56	0.99	313	3.22***	3.00***
Rating [#]	1134	0.037	0	313	0.31***	0
Investment Grade Rating	42			81		
Rated Below Investment	5			25		
Not rated	1087			207		

*** denotes significantly higher at the 1% levels.

[±]There are 7 Non-China companies (all of them belong to finance sector) whose coupon rate are not available.

[#]Rating is a (0,1) dummy variable in my analysis, in which rated above investment grade Dim sum bonds take on the value of 1 and both unrated Dim sum bonds and rated below investment grade Dim sum bonds take on the value of 0.

Results from Table 3 shows that the incorporation country is an important factor in determining many characteristics of Dim sum bonds issues.

All other things being equal, one might expect China issues to have higher coupon rates in comparison to similar Non-China issues. 1087 out of the 1134 China Dim sum bonds are not rated (95.86%) and only 42 of the rated bonds are above the investment grade (3.7% of the total issuance). Non-China Dim sum bonds have better credit quality. Only 207 out of the 313 Non-China Dim sum bonds are not rated (66.13%). 81 out of them are above the investment grade (25.87%). Investors will always require less premium for higher rating bonds and the demand is also greater for higher rating bonds, other things being equal. So with better credit quality, Non-China issues are expected to have a lower coupon rate and larger issue size than China firms. There are less regulations for China issuers to repatriate the offshore renminbi into mainland and China issuers always have greater needs for renminbi funding. They are expected to issue Dim sum bonds more frequently than corresponding foreign issuers. So China issuers tend to issue Dim sum bonds in shorter term.

Formally stated, the testable hypotheses are:

H₁. Ceteris paribus, the original maturity of China issues is shorter than the original maturity of corresponding Non-China issues.

H₂. Ceteris paribus, the amount issued by Non-China firms is greater than the

corresponding China firms' Dim sum bonds.

H3. Ceteris paribus, the coupon rate of China issues is greater than the corresponding Dim sum bonds issued by Non-China firms.

Original Maturity

The information on the original maturity for the Dim sum bonds is provided in Table 4. 62.38% of the Dim sum bonds fall within the 0-1 year maturity range and 32.11% of the Dim sum bonds have a maturity of 1-5 years. In total, 94.49% of the Dim sum bonds are short-term bonds (with a maturity of less than five years). The prevalence of short maturities can be explained by the demand of risk-averse investors who invest in Dim sum bonds as a one-way bet on the renminbi appreciation against USD dollars in the presence of an illiquid secondary market. The average maturity of all outstanding issues is 1.92 years. There are only two long-term Dim sum bonds (tenor longer than 20 years). The China government issued a Dim sum bond with 30-year maturity and China Development Bank Corporation issued a Dim sum bond with a maturity of 20 years. Only five of the bonds have a maturity of more than 15 years and all of them were issued either by the China government or China state-held banks. Like the Kangaroo bond market, the Dim sum bond market is still constrained in terms of maturity with most maturities falling within ten years. There are only a few long-term Dim sum bonds outstanding. The supply of long-term Dim sum bonds

cannot meet the latent demand from investors who are looking at the Dim sum market as a currency play for a longer horizon. Table 4 also shows that as the maturity of Dim sum bond increases, the average amount issued tends to increase as well except for those two long-term bonds.

Table 4: Summary Statistics of the Original Maturity

Original Maturity(Years)	Number	Weight (%)	Average Amount Issued (in millions)
0-1	849	62.38%	49.68
1-5	437	32.11%	102.80
5-10	58	4.26%	91.36
10-15	12	0.88%	104.57
15-20	3	0.22%	208.27
20-25	1	0.07%	157.02
25+	1	0.07%	81.31

Coupon Rate

Dim sum bonds with fixed-rate coupons are the overwhelming majority, accounting for 94.54% of all issues in terms of the number of issues. There are 79 zero-coupon Dim sum bonds outstanding in the market. According to Fung (2014), Zeros in the Dim sum bond market only started to appear in 2011, almost four years after the inception of the market. Five zero-coupon rate Dim sum bonds were issued in 2011 and 12 in 2012. Because fixed rate Dim sum bonds were priced at par when issued and bonds have relatively short maturities, the coupon rate should approximate the yield on these bonds. The average

coupon rate (3.10% excluding the 79 zero-coupon bonds) is relatively low compared to the yield on comparable main land bonds (more than 6%). The low yield pattern of this market reflects the low interest rate environment in the global market after the financial crisis. More importantly, the large pool of RMB deposits accumulated in Hong Kong tends to cap the yield of the Dim sum bond market.

Credit Rating

Table 5 lists the Dim sum bond characteristics by credit rating. Of the 1447 issues, less than 10% of all Dim sum bonds are rated by one of the big three ratings agencies (Moody's, Standard & Poor's, and Fitch). 89.71% of the Dim sum bonds currently outstanding have no ratings or the ratings are not available. A high percentage of the unrated Dim sum bonds are issued by China companies. Only 8.3% of the Dim sum bonds are above investment grade (rated BBB or above BBB).

According to Fung (2012), there are three possible reasons for the lack of ratings on China issuers. The first one is that issuers such as the Chinese government and Bank of China have high perceived credit quality, and thus there is no need for credit rating on their issues. Avoiding the credit rating process if not necessary saves both time and money in issuing Dim sum bonds. The second one is that issuers do not want to disclose too much information to the market. Short maturity is another reason. The

fact that the majority of Dim sum bonds do not have credit ratings is a peculiar characteristic of the early stage of market development. Rated Dim sum bonds tend to be larger than unrated Dim sum bonds.

As one would expect, the coupon rate of Dim sum bonds rated above investment grade tends to be lower than unrated and below investment grade bonds. This confirms the general risk-return pattern that bonds with lower credit risk are associated with lower coupons. The discussion concerning the credit rating suggests the following test:

H4. Ceteris paribus, the coupon rate of below investment grade Dim sum bonds is greater than the corresponding above investment grade Dim sum bonds.

Table 5: Summary Statistics of the Dim Sum Bond Standard and Poor's Credit Rating

	Rating	Number	Weight (%)	Average Amount Issued
Above	AAA	11	0.81%	146.77
Investment Grade	AA+	3	0.22%	21.76
	AA	4	0.29%	314.10
	AA-	29	2.13%	209.05
	A+	15	1.10%	94.89
	A	34	2.50%	126.56
	A-	10	0.73%	123.92
	BBB+	1	0.07%	78.64
	BBB	6	0.44%	150.14
Below	BBB-	10	0.73%	136.06
Investment Grade	BB+	2	0.15%	159.72
	BB	1	0.07%	290.93
	BB-	7	0.51%	245.63
	B+	4	0.29%	224.61
	B	1	0.07%	97.23
	B-	2	0.15%	268.70
	Not Rated or Not Available			
		1221	89.71%	59.26
		1361	100%	69.45

Industry

I obtain the sector category from Bloomberg. More than 20 sectors including utilities, airlines, auto manufacturers, banking, and automotive have issued Dim sum bonds. Table 6 shows the weight of Dim sum bonds issued by different sectors. The sector that has the most Dim sum bonds outstanding is the banking sector, representing 73.79% of the Dim sum bonds currently outstanding. Government development banks comprise 6.08% of total issuance, with financial services companies representing 4.84% and real estate

companies comprising 1.87% of Dim sum bond issues. In total, the financial sector accounts for more than 85% of the Dim sum bonds outstanding. There are 1125 Dim sum bonds issued by the financial sector and 143 Dim sum bonds issued by 15 governments and one supranational agency.

Table 6: Summary Statistics of the Sectors

Sector	Weight (%)
Banking	73.79
Government Development Banks	6.08
Financial Services	4.84
Real Estate	1.87
Sovereigns	1.72
Utilities	1.25
Commercial Finance	1.17
Super nationals	0.78
Automotive	0.70
Food & Beverage	0.55
Governments Regional/Local	0.55
Metals & Mining	0.55
Chemicals	0.47
Home Improvement	0.47
Transportation & Logistics	0.47
Airlines	0.39
Life Insurance	0.39
Hardware	0.31
Industrial Other	0.31
Retail Discretionary	0.31
Others	3.04

Amount Issued

The average amount issued is 74.045 million in Chinese yuan and 11.15 million in USD.

The information of the amount issued is provided in Table 7. 55.70% of the bonds

outstanding are within the 10 million and 50 million Yuan range. The large issues were all by government and governmental agencies. The China government issues large-size Dim sum bonds to support its RMB policy and to internationalize its currency renminbi. Other governments may also issue large-size Dim sum bonds to boost their ties and enhance their trade relationship with China and attract more China investors (Barris 2014). The results of the study of Kangaroo bonds also show that government issues tend to be larger. All other things being equal, one might expect the government issues to be larger in amount and longer in maturity in comparison to similar non-government issues. So the testable hypotheses are;

H₅. Ceteris paribus, the amount issued of government Dim sum bonds is greater than the corresponding Dim sum bonds issued by non-government firms.

H₆. Ceteris paribus, the original maturity of government Dim sum bonds is greater than amount issued of the corresponding Dim sum bonds issued by non-government issuers.

Table 7: Summary Statistics of the Amount Issued of Dim sum bonds

Amount Issued(in renminbi, M: million B: billion)	Number	Weight (%)
0M-1M	3	0.21%
1M-10M	82	5.67%
10M-50M	806	55.70%
50M-100M	279	19.28%
100M-500M	269	18.59%
500M-1B	6	0.41%
Above 1B	2	0.14%

3.3 Regression Models

Here I use regression models to empirically test my hypotheses. To test H₁ and H₆ (as is possible) on our subsamples of Dim sum bonds, I use the following regression:

$$\begin{aligned} \text{MATURITY} = & \beta_0 + \beta_1 \text{COUNTRY} + \beta_2 \text{GOVERNMENT} + \beta_3 \text{CPN} + \beta_4 \text{RATING} + \beta_5 \text{LN} \\ & (\text{AMOUNT}) + \beta_6 \text{FINANCIAL} + \varepsilon \end{aligned} \quad (1)$$

MATURITY is the maturity or tenor of the bonds. In my regressions, I employ the (0, 1) *COUNTRY* dummy variable to test the sovereign effects. China companies take on a value of 1 and Non-China companies take on a value of 0. In my sample, I counted Hong Kong and Macau firms as China firms because they are all subject to the regulations by People's Bank of China. Companies held by Chinese investors but incorporated in offshore financial centers such as Cayman Islands are not counted as China companies. *GOVERNMENT* is a (0,1) dummy variable indicating whether the bond was issued by government or government agencies, in which case the variable takes on a value of 1 and 0 otherwise. Empirical results from regression Eq. (1) finding a statistically significant negative coefficient estimate on *COUNTRY* would support H₁ and a statistically significant positive coefficient estimate on *GOVERNMENT* would support H₆.

CPN is a control variable denoting the coupon rate when the bonds were issued. Because the historical data of *YTM* of Dim sum bonds are not available and *YTM* is needed in analyzing the yield of zero coupon bonds, I excluded the zero coupon bonds. Due to data limitation and limited market liquidity, the *YTM* is not available and I use the coupon rate. $LN(AMOUNT)$ is the natural log of the amount issued. *RATING* is a (0,1) dummy variable corresponding to the Standard & Poor's credit ratings assigned to the bond issues, in which case the above investment grade (above 'BBB') variable takes on a value of 1 and 0 (below 'BBB', not rated or data not available) otherwise. One would expect the above investment grade firms to be financially stronger than those below investment grade. *FINANCIAL* is a (0, 1) dummy variable in which financial non-government issues take on the value of 1 and 0 otherwise. Here I include all the banking, Government Development Banks, financial services companies and real estate companies in the financial sector. β_0 is the intercept and ϵ is the residual error term.

Similarly, to test H₂ and H₅, I use the following regression:

$$LN(AMOUNT) = \beta_0 + \beta_1 COUNTRY + \beta_2 GOVERNMENT + \beta_3 CPN + \beta_4 RATING + \beta_5 MATURITY + \beta_6 FINANCIAL + \epsilon \quad (2)$$

Empirical results from regression Eq. (2) finding a statistically significant negative coefficient estimate on *COUNTRY* would support H₂ and a statistically significant positive coefficient estimate on *GOVERNMENT* would support H₅.

To test H₃ and H₄, I use the following regression:

$$CPN = \beta_0 + \beta_1 COUNTRY + \beta_2 RATING + \beta_3 MATURITY + \beta_4 GOVERNMENT + \beta_5 LN(AMOUNT) + \beta_6 FINANCIAL + \varepsilon \quad (3)$$

Empirical results from regression Eq. (3) finding a statistically significant positive coefficient estimate on *COUNTRY* would support H₃ and a statistically significant negative coefficient estimate on *RATING* would support H₄.

3.4 Correlation Matrix

To study the correlation between the variables, I build a correlation matrix (Table 8).

Table 8. Correlation Matrix between Variables

Pearson Correlation Coefficients, N = 1361						
Probability > r under H ₀ : Rho=0						
	<i>CPN</i>	<i>MATURITY</i>	<i>COUNTRY</i>	<i>RATING</i>	<i>GOVERNMENT</i>	<i>LN(AMOUNT)</i>
<i>CPN</i>	1.0000	0.1332 (<0.0001 ^{***})	0.0607 (0.0250 ^{**})	0.0197 (0.4688)	0.0822 (0.0024 ^{**})	0.2445 (<0.0001 ^{***})
<i>MATURITY</i>	0.1332 (<0.0001 ^{***})	1.0000	-0.3198 (<0.0001 ^{***})	0.3577 (<0.0001 ^{***})	0.3358 (<0.0001 ^{***})	0.2358 (<0.0001 ^{***})
<i>COUNTRY</i>	0.0607 (0.0250 ^{**})	-0.3198 (<0.0001 ^{***})	1.0000	-0.3725 (<0.0001 ^{***})	-0.0460 (0.0902)	-0.1470 (<0.0001 ^{***})
<i>RATING</i>	0.0197 (0.4688)	0.3577 (<0.0001 ^{***})	-0.3725 (<0.0001 ^{***})	1.0000	0.2182 (<0.0001 ^{***})	0.2728 (<0.0001 ^{***})
<i>GOVERNMENT</i>	0.0822 (0.0024 ^{**})	0.3358 (<0.0001 ^{***})	-0.0460 (0.0902)	0.2182 (<0.0001 ^{***})	1.0000	0.1187 (<0.0001 ^{***})
<i>LN(AMOUNT)</i>	0.2445 (<0.0001 ^{***})	0.2358 (<0.0001 ^{***})	-0.1470 (<0.0001 ^{***})	0.2728 (<0.0001 ^{***})	0.1187 (<0.0001 ^{***})	1.0000

***, ** and * denotes significantly higher at the 1%, 5% and 10% levels respectively.

Table 8 shows that there is significant positive correlation between *CPN* and *COUNTRY*. This is consistent with H₃ that the coupon rate of China issues is greater than the corresponding Dim sum bonds issued by Non-China firms. *CPN* is also significantly positively correlated with *MATURITY*, *GOVERNMENT* and *LN(AMOUNT)*. There is no significant correlation between *CPN* and *RATING*. This is inconsistent with H₄ that the coupon rate of below investment grade Dim sum bonds is greater than the corresponding above investment grade Dim sum bonds. *MATURITY* is significantly negatively correlated with *COUNTRY*. This is consistent

with H₁ that the original maturity of China issues is shorter than the original maturity of corresponding Non-China issues. However, *MATURITY* is significantly positively correlated with *GOVERNMENT*. This is consistent with H₆ that the original maturity of government Dim sum bonds is greater than the corresponding Dim sum bonds issued by non-government issuers. *MATURITY* is also significantly positively correlated with *RATING* and *LN (AMOUNT)*. *COUNTRY* is negatively correlated with *LN (AMOUNT)*. This is consistent with H₂ that the amount issued by Non-China firms is greater than the corresponding China firm's Dim sum bonds. *COUNTRY* is also negatively correlated with *RATING*. There is no significant correlation between *COUNTRY* and *GOVERNMENT*. Table 8 also shows that *RATING* is significantly positively correlated with *GOVERNMENT* and *LN (AMOUNT)*. *GOVERNMENT* is significantly positively correlated with *LN (AMOUNT)*. This is consistent with H₅ that the amount issued of government Dim sum bonds is greater than the amount issued of corresponding Dim sum bonds issued by non-government firms.

CHAPTER IV: EMPIRICAL RESULTS AND DISCUSSION

My purpose is not to estimate anything but to examine factors that influence Dim sum bond characteristics.

4.1 Test Result for Original Maturity

Table 9 presents the regression coefficient estimates for the regression using regression Eq. (1).

Table 9. Dim sum Bond Original Maturity Regression

	Regression of Eq. (1)
<i>INTERCEPT</i>	-0.23508 (0.8280)
<i>Test Variables</i>	
<i>COUNTRY</i>	-1.15476*** (<.0001)
<i>GOVERNMENT</i>	1.11549*** (<.0001)
<i>Control Variables</i>	
<i>CPN</i>	0.16530*** (0.0004)
<i>FINANCIAL</i>	-0.85844*** (0.0001)
<i>RATING</i>	1.34889*** (<.0001)
<i>LN(AMOUNT)</i>	0.17246*** (0.0035)
<i>N</i>	1361
<i>R²</i>	0.2695

This table displays regression Eq. (1) coefficient estimates from regressing Original Maturity on certain test and control variables. Two-sided p-values are in (parentheses). ***, ** and * denotes significantly higher at the 1%, 5% and 10% levels respectively.

Examination of the table shows that the adjusted R^2 is 0.2695. Further examination of the table for Model 1 shows that the estimated coefficient for *COUNTRY* is significantly negative, indicating that Dim sum bonds issued by China firms tend to shorter maturity. Consequently, the corresponding null hypothesis for H_1 can be accepted. *GOVERNMENT* is positive and significant, suggesting that government issues tend to have longer maturity; hence, H_6 is supported.

CPN, *LN (AMOUNT)* and *RATING* are statistically significantly positive. Other things being equal, one would get higher coupon rates on longer-term bonds because there is more risk associated if it's a long-term bond and investors would require a premium for being willing to take more risk. In my study, Dim sum bonds with higher coupons also tend to have a longer maturity. One would expect Dim sum bonds with higher ratings to have longer maturity because better quality would save the funding costs. In my regression, I find that larger Dim sum bond issues also tend to have longer maturities, which is consistent with Table 4. *FINANCIAL* is significantly negative, suggesting that financial companies' Dim sum bonds tend to have shorter maturity. Financial companies tend to issue Dim sum bonds more frequently as they have more use of the Dim sum bonds such as to hedge the currency exchange risk.

4.2 Test Result for Amount Issued

Table 10 presents the regression coefficient estimates for the regression using regression Eq. (2).

Table 10. Dim sum Bond Amount Issued Regression

	Regression of Eq. (2)
<i>INTERCEPT</i>	17.65727*** (<0.0001)
<i>Test Variables</i>	
<i>COUNTRY</i>	0.02955 (0.6769)
<i>GOVERNMENT</i>	-0.61193*** (<0.0001)
<i>Control Variables</i>	
<i>FINANCIAL</i>	-0.78219*** (<0.0001)
<i>CPN</i>	0.16135*** (<0.0001)
<i>RATING</i>	0.59493*** (<0.0001)
<i>MATURITY</i>	0.03632*** (0.0035)
<i>N</i>	1361
<i>R²</i>	0.1795

This table displays regression Eq. (2) coefficient estimates from regressing Original Maturity on certain test and control variables. Two-sided p-values are in (parentheses). ***, ** and * denotes significantly higher at the 1%, 5% and 10% levels respectively.

Examination of table 10 shows that the adjusted R^2 is 0.1795. Coefficient estimate for *COUNTRY* is positive but insignificant. Hence, H_2 is not supported by the data. This means that there is no evidence supporting that Non-China Companies tend to issue larger amount of Dim sum bonds than China companies. This may be partly explained

by different degree of regulations in different time periods, different exchange rate and different market overall funding cost.

GOVERNMENT is negative and significant, so H_5 is rejected by the data. The empirical results suggest that government issues would be smaller in amount than non-government issues, which is unusual. Later in this section I will discuss the effect of *GOVERNMENT* on Dim sum bond in more detail.

The coefficient estimate for *FINANCIAL* is negative and significant, which indicates that the financial sector tend to issue Dim sum bonds in smaller amount compared with other sectors. Coefficients for *CPN*, *RATING* and *MATURITY* are all positive and significant. Dim sum bond issues with higher coupon rates tend to be larger. It makes sense that Dim sum bonds with a higher rating will be larger in amount issued as investors prefer bonds with higher rating and there is more demand for investment grade Dim sum bonds. My result also suggest that Dim sum bond issues with longer maturities tend to be larger. This might be because the larger issue size will save refinancing costs and filing costs.

I examined the outstanding Dim sum bond issued in 2013 to study the effect of GDP growth, interest rate, exchange rate, and policy changes and events on the size of Dim

sum bond issues. Information of the exchange rate, interest rate, and GDP growth rate of China for the 2013 outstanding Dim sum bonds is provided in Table 11 and Figure 3.

Table 11. Statistic of Dim sum Bonds in 2013

Month	Number of Bonds Issued	Amount Issued(in billion)	GDP Growth Rate by Quarter	Hong Kong Average Interest Rate	China Average Interest Rate	USD/CNY exchange rate
January	9	0.63				6.2244
February	26	1.18	1.50%			6.2350
March	82	4.20				6.2169
April	79	3.51				6.1877
May	76	4.96	1.80%			6.1429
June	58	5.03				6.1374
July	30	3.65		0.50%	6.00%	6.1378
August	39	7.14	2.20%			6.1220
September	82	18.90				6.1201
October	95	4.24				6.1045
November	89	3.02	1.80%			6.0939
December	92	3.99				6.0736
In total	757	60.44				

Due to data limitation, it was not available to get the whole data of the bond issuance before 2013. I only included the outstanding Dim sum bonds issued in 2013.

Figure 3. Statistics of Dim sum bonds in 2013`

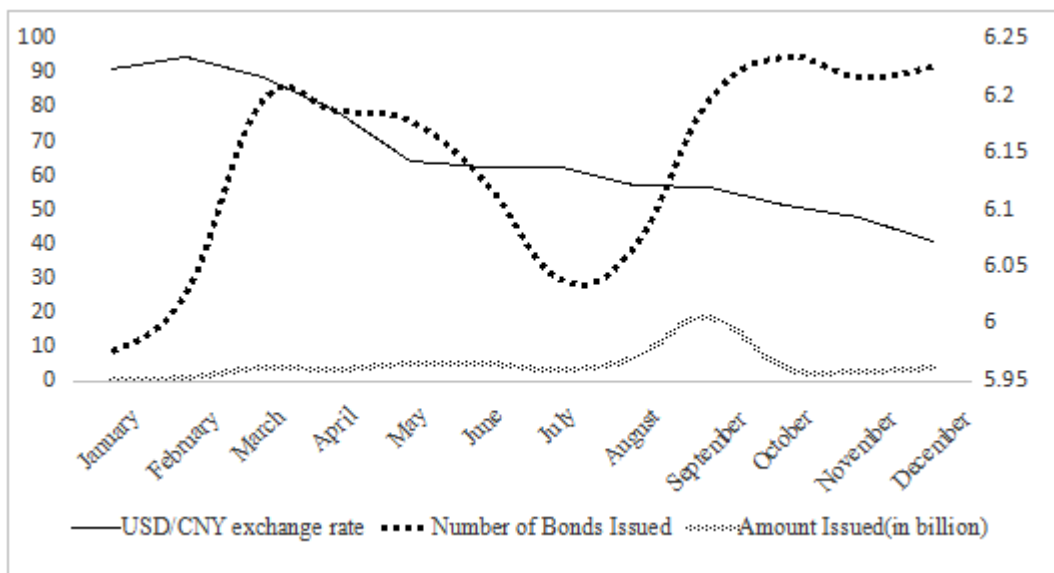


Table 11 shows that the basic interest rate of both China mainland and Hong Kong did not change much in 2013. However, during the third quarter, China’s economy growth was at its peak with a GDP growth of 2.2% in this quarter and the Dim sum market started to pick up in third quarter as well. Although the total amount issued did not change much, the number of Dim sum bond issued reached its peak during the last quarter of 2013. The USD/CNY exchange rate kept dropping through the year but there were several months when the Dim sum market stagnated. During the months April, May, June and July, both the number and amount of Dim sum bond issues plummeted. This tells us that there are other factors other than GDP growth, exchange rate, and interest rate that are affecting the Dim sum market and we need to look further into the related policy changes and major events. Information of the related policy changes in 2013 is provided in Table 12.

Table 12. Information of Related Policy Changes in 2013

Date	Related Policy Changes and Events
January	-
February 8	PBC authorized the Industrial and Commercial Bank of China (ICBC) Singapore Branch to act as the clearing bank for RMB business in Singapore.
March 7	The PBC renewed the bilateral local currency swap agreement with the Monetary Authority of Singapore. The size of the swap facility was doubled from 150 billion yuan, or SGD 30 billion, to 300 billion yuan, or SGD 60 billion.
March 13	The PBC issued the Notice on Issues Related to Investments in the Interbank Bond Market by Qualified Foreign Institutional Investors, allowing QFIIs to apply to the PBC for access to the interbank bond market.
March 26	The PBC signed a bilateral local currency swap agreement with the Banco Central Do Brasil (BCB). The size of the swap facility is 190 billion yuan. The agreement will be valid for three years and can be extended by mutual consent.
March 26	The PBC and South African Reserve Bank signed an agreement for the latter to invest in China's interbank bond market via the PBC.
April 2	The PBC signed an RMB clearing agreement with the Singapore Branch of the Industrial and Commercial Bank of China. Financial institutions in Singapore and China can process their clients' cross-border RMB settlements through the RMB clearing bank as well as through the channel of the corresponding banks. On the same day, the PBC also signed a memorandum of understanding (MOU) on RMB business cooperation with the Monetary Authority of Singapore.
April 9	With the authorization of the PBC, the China Foreign Exchange Trade System (CFETS) announced it would improve the trading mode between RMB and the Australian dollar (\$) and launched direct trading between the two currencies on the interbank foreign exchange market.
May 22	Mr. Bernanke referred to potential downsizing of asset purchases by Federal Reserve.
June	China's interbank borrowing rate increased sharply and there was a record cash squeeze.
June 22	The PBC signed a bilateral local currency swap agreement with the Bank of England. The size of the swap facility is 200 billion yuan, or 20 billion pounds.

July 9	The PBC issued the Notice on Simplifying the Procedures for Cross-border RMB Business and Improving Relevant, which simplified cross-border RMB business procedures under the current account, relaxed regulations on the maturity and quota of account financing, and standardized overseas RMB loan and guarantee businesses by domestic non-financial institutions, and so forth.
July 20	The PBC decided to remove controls over interest rates on loans offered by financial institutions. First, the lending-rate floor, which was 70 percent of the benchmark lending rate, was removed. Financial institutions will now independently determine their lending rates based on commercial principles. Second, controls over interest rates of bill discounts were removed. Instead of adding a certain amount of basis points to the central bank discount rate, the financial institutions will price bill discounts independently. Third, the lending-rate ceiling for rural credit cooperatives was removed. Fourth, to strictly implement the differentiated housing mortgage policy and to promote the sound development of the real-estate market, the band for home mortgage loan rates was not adjusted.
August	-
September 9	The PBC signed a bilateral local currency swap agreement with the Magyar Nemzeti Bank (Hungarian National Bank). The size of the swap facility is 10 billion yuan, or 375 billion ISK.
September 11	The PBC and the Central Bank of Iceland renewed their local currency swap agreement. The size of the new swap facility is 3.5 billion yuan, or 66 billion ISK.
September 12	The PBC signed a bilateral local currency agreement with the Bank of Albania. The size of the swap facility is 2 billion yuan, or 35.8 billion lek.
September 23	The PBC issued the Notice on Issues Concerning the RMB Settlement Business of Investments in Domestic Financial Institutions by Overseas Investors to standardize the use of the RMB settlement business by overseas investors for their investments in the establishment, merger and acquisition, and holding of equity in financial institutions in China.
October 1	The PBC and Bank Indonesia renewed their local currency swap agreement. The size of the swap facility is 100 billion yuan, or IDR175 trillion.
October 8	The PBC and the ECB signed a bilateral local currency swap agreement. The swap line has a maximum size of 350 billion yuan, or 45 billion euro.
November	-
December	China interbank borrowing rate surged again.

Source: People's Bank of China and Yahoo Finance.

In May 2013, Mr. Bernanke referred to potential downsizing of asset purchase and this event had a great impact on all the emerging bond markets including Dim sum markets (Noble 2013). Investors of Dim sum bonds withdrew money from the market. Figure 3 shows that following Bernanke's announcement, Dim sum issuance plummeted during the time period from May and July. Another factor that led to the cool-down of Dim sum market is the on-going cash squeeze in the China interbank borrowing market. The interbank borrowing rate rose and the seven-day interbank repo rate soared to 11.62% (almost triple current rates as of this writing) as People's Bank of China held back from adding liquidity to the system. Concerns raised about risk in the China financial system affected the Dim sum market as a result.

Policy also plays an important role. Figure 3 shows that following favorable policy changes in March, there were more Dim sum bonds issued. 82 Dim sum bonds were issued in March, which is more than three times February's volume. Policy changes in June and July including China signing currency swap agreements with different countries and deregulation of financial institutions helped the Dim sum market to recover from the crunch. There was a spike of Dim sum bonds issuance after September, when there were several major policy changes including signing currency swap agreements and a set of policies to remove regulations on foreign renminbi investors.

In conclusion, appreciation of renminbi, deregulation on foreign renminbi investors, policies to internationalize renminbi, and China's economy growth all help the development of the Dim sum market. On September 23, the People's Bank of China issued the notice to standardize the use of the RMB settlement business and this policy change relaxed regulations for foreign investors. Both the number and the amount of Dim sum bond issued grew in the fourth quarter as a result. On the other hand, unfavorable announcements by U.S. Federal Reserve and the liquidity crunch in the mainland market hampered the development of the market.

As the China government has been seeking to internationalize renminbi, they have issued Dim sum bonds for strategically purposes. In studying why the government issues tend to be smaller in amount issued than non-government issues, I decided to add a control variable *CHINA GOVERNMENT* to Eq. (2) to control for the effect of the Dim sum bonds issued by the China government.

Our new Hypothesis is:

H₇. Ceteris paribus, the amount issued of China government issues is greater than the corresponding China non-government issues.

The new Equation is:

$$LN(AMOUNT) = \beta_0 + \beta_1 CHINA\ GOVERNMENT + \beta_2 COUNTRY + \beta_3 GOVERNMENT + \beta_4 CPN + \beta_5 RATING + \beta_6 MATURITY + \beta_7 FINANCIAL + \varepsilon \quad (2a)$$

Table 13 reports the results of Equation (2a):

Table 13. Dim sum Bond Amount Issued Regression for Eq. (2a)

	Regression of Eq. (4)
<i>INTERCEPT</i>	17.68884*** (<0.0001)
<i>Test Variables</i>	
<i>CHINA GOVERNMENT</i>	0.28428 (0.1340)
<i>Control Variables</i>	
<i>RATING</i>	0.61419*** (<0.0001)
<i>FINANCIAL</i>	-0.76328*** (<0.001)
<i>GOVERNMENT</i>	-0.81641*** (<0.0001)
<i>CPN</i>	0.15713*** (<.0001)
<i>COUNTRY</i>	-0.01007 (0.8941)
<i>MATURITY</i>	0.03383** (0.0071)
<i>N</i>	1361
<i>R²</i>	0.1802

This table displays regression Eq. (2a) coefficient estimates from regressing Original Maturity on certain test and control variables. Two-sided p-values are in (parentheses). ***, ** and * denotes significantly higher at the 1%, 5% and 10% levels respectively.

Table 13 shows that the coefficient estimate for *China Government* is positive but insignificant. H₇ is not supported by the data. There are no data supporting that China

government tends to issue Dim sum bonds in larger amount. The coefficient estimate for *GOVERNMENT* is still negative and significant. Non-China governments tend to issue Dim sum bonds in smaller amount.

4.3 Test Result for Coupon Rate

Table 14 presents the regression coefficient estimates for the regression using regression Eq. (3)

Table 14. Dim sum Bond Coupon Rate Regression

	Regression of Eq. (3)
<i>INTERCEPT</i>	-1.47021** (0.0200)
<i>Test Variables</i>	
<i>COUNTRY</i>	0.44973*** (<.0001)
<i>RATING</i>	-0.26798** (0.0281)
<i>Control Variables</i>	
<i>FINANCIAL</i>	-0.55241*** (<0.001)
<i>GOVERNMENT</i>	-0.35773** (0.0174)
<i>LN(AMOUNT)</i>	0.26197*** (<.0001)
<i>MATURITY</i>	0.05653*** (0.0004)
<i>N</i>	1361
<i>R²</i>	0.0923

This table displays regression Eq. (3) coefficient estimates from regressing Original Maturity on certain test and control variables. Two-sided p-values are in (parentheses). ***, ** and * denotes significantly higher at the 1%, 5% and 10% levels respectively.

Examination of Table 14 shows that the adjusted R^2 is 0.0923. The coefficient estimate for *COUNTRY* is positive and significant. Hence, H_3 is supported by the data. Dim sum bonds issued by China firms tend to have higher coupon rate. The *RATING* test variable is negative and statistically significant at the 5% confidence level, thus H_4 is supported. It implies that above investment grade Dim sum bonds would have lower coupon rates when issued, taken into consideration of effect of the maturity, which confirms H_4 .

FINANCIAL control variable is negative and significant. It suggests that financial companies tend to issue Dim sum bonds with lower coupon rates. Usually financial firms have more expertise and they are better at controlling the issue costs because they frequently use Dim sum bonds as a way to arbitrage. The *GOVERNMENT* control variable is negative and significant. One would expect governments to have a better reputation and it would be easier for governments to sell their bonds with a lower coupon rate. *LN (AMOUNT)* and *MATURITY* are both positive and significant, which indicates that Dim sum bonds with larger amount issued and longer maturity also have higher coupon rates. According to the normal bond yield curve, bonds with longer maturity would be expected to have higher coupons.

CHAPTER V: CONCLUSION

In my study, I develop regression models to compare differences that should logically exist at issuance. My empirical results show that the original maturity of Dim sum bonds issued by Non-China companies is greater than the original maturity of those Dim sum bonds issued by China companies. Similarly, the original maturity of government issues is greater than the original maturity of non-government issues, suggesting that governments aim at long-term goals by issuing Dim sum bonds. The China government issues Dim sum bonds to support its RMB policy. The China government has long planned its currency to play an increasingly important role in the global financial system.

However, in my study, I don't find support for the hypothesis that China firms tend to have larger issues. The difference is not significant. My hypothesis that government tends to have large issues is not supported by the data. This is because China firms who have large need for renminbi, apart from issuing Dim sum bonds, can also borrow money from the traditional banking system or via shadow banking channels. China firms do not always have to issue large amount Dim sum bonds, while foreign issuers benefit from the relaxed restrictions on invest renminbi back into China onshore market. Foreign investors with operations in China might tend to issue large

amount Dim sum bonds. However, I find that government issuances tend to have smaller amount size, which is unusual. Then I conduct further study on the effect of government and control for the effect of China government and find no data supporting that China government issues tend to be larger in amount issued.

I also find that China firms tend to issue Dim sum bonds at a lower coupon rate. This might be because they have less regulations than companies located in other countries and thus have lower filing issuing costs. China sets regulations on foreign investors and renminbi is not fully convertible which needs the opening up of capital account and the liberalization of exchange rates. The Renminbi Qualified Foreign Institute Investors (RQFII) program is still not fully expanded and foreign issuers have also to face the policy risk of the RQFII program. Foreign issuers who do not have need for onshore demand for renminbi are concerned about the swap liquidity since they have to swap renminbi back to other currencies. The swap rate and swap liquidity are both factors that would affect the funding costs. Moreover, with respect to the rating, I find that there is statistically significant relationship between the rating and the coupon rate. Usually other things being equal, highly rated firms would have better creditworthiness and lower funding costs than lower-rated firms. This rule also holds in the Dim sum bond market.

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