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Exploring the Key Factors Affecting Development of Bond Market in Bangladesh: An Application of Exploratory Factor Analysis

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ABSTRACT

An efficient and well-functioning government bond market is often considered important to the smooth functioning of financial markets more generally. To enhance corporate bond financing, it is important to examine factors that affect the effective development of bond markets in Bangladesh. The aim of this study was to determine key factors affecting the development of bond market in Bangladesh. The study was conducted over 60 respondents from financial institutions by using convenient sampling technique. For data collection structured questionnaire has been used. The questionnaire was developed with 5-point Liker scale where, 1 refers to "strongly disagree" and 5 refers to strongly agree. The study attempts to identify the determinants of bond market development in Bangladesh economies through examining the relationship of bond issuance with selected key financial and economic factors. Major determinants for bond market development in Bangladesh include developing the money market, strengthening the government's debt and cash management capacity, reforming the national savings scheme, reducing issuance costs for corporate bonds, broadening the investor base, increasing transparency in the secondary market, creating and enabling legal and regulatory framework, strengthening the credit rating industry.

Keywords: Bond Market, Factor Analysis, Capital Market
JEL Classifications: G1, G2, G4

1. BACKGROUND

The Financial sector is a fundamental sector of any financial system of a country, which affects its investment in business environment, financial prospects and social magnitude, as well as poverty. An immense empirical and logical literature propose that in addition to other economic factors, the country's degree of financial sector development depends on performance of long term economic growth and welfare. The financial markets are the crucial point of financial sector, perform an essential function within the universal economic system such as alluring and allocating of savings, setting interest rates and discovering the prices of financial assets (Rose, 2003). A well extended financial sector is highly dependent on the intense associations of financing from equity market, bond market, and banks. In both developing and developed countries, the government bond market formulates the structure of a securities market. For the economic development of a country, a good performing domestic bond markets are incredibly crucial as they assist long term financing for facilities like infrastructural development, housing and private sector development etc. But it is difficult to develop a well functioning diversified bond market.

As this market is important for the whole economy, it is required that the governments should take the course of actions to develop a effective bond market by forming a domestic securities market and granting an ample scaffold to develop corporate bond market. This research devises an effort to address some basics to the expansion of government bond market in Bangladesh and to bring into spotlight the methods of government bond market development in South Asia. The contribution of Corporate and Government bond in Bangladesh is negligible and consequently experiences the slighter amount of economic growth. The recent financial structure of Bangladesh, with dominating existence of commercial banks, the debt market is very small compare to other

South Asian countries total of only 5.5% of country's GDP (Mujeri and Rahman, 2008).

Inspired and motivated by the above mentioned bond market, this research is taken to assess the efficacy of selected bond market of some developed countries by different qualitative methods of impact assessment in order to put some policy recommendation for the vibrant bond market development in Bangladesh. This paper tries to find some prerequisites to develop a vibrant bond market for the sustainable economic development.

The main objective of this study is to exploring the key factors, which are affecting the developments of the Bond Market in Bangladesh.

2. LİTERATURE REVİEW

Available literature found that Bond markets attained importance after financial crisis in East Asia during 1997. The crisis forced to reconsider influence of financial market in economic growth. Numerous limitations of banking systems including currency mismatches, maturity and moral hazard problems were identified (Barry and Pipat, 2004). According to Eichengreen and Luengnaruemitchai (2004) among different determinates to issue bonds, size and liquidity play important role for the firms. A study conducted by Thumrongvi et al. (2013) over thirty eight countries recommended that a well established stock market contributes economic development. They found that dominance of bank credits are negatively related with domestic bond market development. They further recommended that economic development is also positively associated with government bond. On the other hand contribution of corporate bond is mixed from positive to negative based on size and diversity of financial structure.

In order to identify the prerequisites of bond market development in Asian Countries Bhattacharyay (2013) attempted to examine the connection of bond issuance with some selected key economic and financial factors. sHe concluded that bond market development in Asia depends on the economy size, the level of economic growth, openness, the variability of exchange rate, the dominance of bank, and inconsistent interest rate. Hakansson (1999) indentified different benefits of an established bond market in his study. According to him sound financial structure largely depends on established bond market. He suggested that transparent reporting system, availability of financial experts, efficient and effective mechanism of corporate reform and proper liquidation policy are vital determinates for developing a sound bond market. Herring and Chatusripitak (2000) also found consistency with Hakansson (1999). They recommended that not having a well-established bond market may diminish the efficient growth of an economy and consequently raise the vulnerability in financial system to a financial crisis. Moreover Eichengreen et al. (2008) find contradictory results concerning a number of the institutional and corporate governance factors, like economy with strong creditor rights have small private bond markets. According to them private bond capitalization varies with a partial amount of policy variables along with country characteristics. They concluded that Size of Country, development level, financial system, geographical and historical factors are critical for bond market development. Some Policy variables like macroeconomic stability, openness to trade, protection of investor, cost associated with contract enforcement and privatized pension also have power on economic development.

A recent study conducted by Bae (2012) analyse the factors affecting the development of bond market in China, conducting survey on forty three developing and developed countries during the period of 1990–2009. This research differentiates among finance, private and public bond market. According to the finding the level of economic growth is measured on the basis of GDP per capita. Fiscal balance plays important role in government bond market with larger deficit lending. In case of financial bond GDP per capital is most vital factor while low rate of interest, established government bond and dominance of banks have significant influence on market development for corporate bond. Aktaruzzaman et al. (2008) explained that the small bond market in Bangladesh faces different challenges originating from numerous sources including extreme dependence on bank credit, domination of primary auction based activity in government debt instruments, lack of yardstick yield curve, and absence of product variation. They recommended some policies and actions in several areas like decrease in interest on government savings instruments and registration fees, tax release on income of bonds/debentures, ranking of bond instruments by sovereign rating agency. Jahur (2009) conducted a study on bond market in Bangladesh by taking a personal interview from twenty two financial executive of companies has identified six important barriers to the development of bond market in Bangladesh. In this study he has graded six important impediment to the development of bond market in Bangladesh in order of their magnitude like (i) risk and return (ii) liquidity and government policy (iii) issue management (iv) investment policy factor (v) macro economic and regulatory factor (vi) market and issue related factors. Misir et al. (2010) suggested following measures to improve Bangladesh bond market: (i) Develop a sovereign yield curve (ii) government should act as a credible Issuer and market establisher (iii) flexible SLR for strengthening institutional investor (iv) forming sound environment for retail and foreign investor (v) developing ground for primary dealers (vi) form secondary market (vii) ensuring transparency and disseminating information in the secondary market (viii) formulating negotiated dealing (ix) initiating delivery versus payment system (x) establishing bond index (xi) adopting the improvement agenda recommended by different expert committees (xii) establishing qualitative strength. In a recent study by Pradhan et al. (2016) find that bond market development and the four macroeconomic covariates may be long-run causative factors for economic growth. As a result, policy makers seeking to foster economic growth are warned to check multi-causal studies involving all these variables before setting their policies.

Based on the previous literatures, there are many researchers conducted in the field of bond market development. Most of the articles are concerned with the concerns of western countries and some are Asian countries. Some study has been found in Bangladesh perspectives but no in depth study has been found on the development of bond market in Bangladesh perspectives. Therefore, the author took interest to somewhat cover this wide research gap. This study gap persuaded the researcher to carry out the current research.

3. RESEARCH METHODOLOGY

With regard to research methodology, this study have been used a fully integrated mixed method of research including desk review (research), a questionnaire survey, and semi structured interview. The rationale of using this method in this study is that it considered applications to practice and policy as well as theory and research based knowledge (Tashakkori and Teddlie, 2010). However, more emphasis has been given on the qualitative methodology. In addition, this study conducted an interview with financial analyst and industry expert groups.

3.1. Sample Design

The population of this study is total Capital Market sector. The target population areas were Dhaka and Chittagong, Bangladesh and sample data is collected from financial analyst and executives of banking and nonbanking financial institution of Bangladesh. There are 30 listed banks and 23 listed non-banking financial institutions. The Banking sector has been divided into four parts: Regulatory body i.e., Bangladesh Bank (BB), first generation, second generation and third generation bank. To answer the quantitative proportion of research questions with relating to the development of bond market non probabilistic convenient sampling technique has been designed. For quantitative data purpose target sample have selected from the total set of population listed in Stock Exchanges in Bangladesh. Data have collected from 60 participants consist of financial analyst and financial executives. Out of them, 10 sample from each part of the banks and 20 samples from nonbank financial institutions.

3.2. Data Collections

3.2.1. Primary data

The primary data has been collected by sending the questionnaire to the target participants through email and face to face interviews. The primary data collected through interview from financial executives, and financial analyst. To collect primary data a structured questionnaire consisting of 12 questions was developed, using a 5-point Likert Scale ranging from strongly agree (1) to strongly disagree (5).

3.2.2. Secondary data

Data has been collected from the available public sources. The secondary data has been collected from the following sources: BB, Securities and Exchange Commission (SEC), Dhaka Stock Exchange, Central Depository Bangladesh Limited, World Bank, Asian Development Bank, Bank for International Settlement, Debt Management Department, Research publications from Policy Analysis Unit of BB, Economic Relations Division, Finance Division, Ministry of Finance-GOB, Donor publications, Government publications, Journals, Working papers, Newspaper clippings, and Website materials.

3.3. Data Analysis

Relevant research papers and reports from South-Asian and global perspective have been analyzed to find out the important determinants for developing vibrant bond markets in Bangladesh. To analyze the factors relating to the development of bond market have been used for data analysis. The data thus collected through questionnaire survey has been tabulated first and then analyzed with the support of different financial and descriptive statistical tools like mean, mode, sum, ranking, comparison among the factors etc. and factor analysis were done. The factors have been ranked according to lowest total sum which indicates more positive answer from respondents.

4. RESULTS

The following tables describe about the factors that determine the development of corporate bond market in Bangladesh. The factors have been divided into five segments.

4.1. A Stable Political Environment

Table 1 describes about the factors that determine a stable political environment. The respondents given their preferences among the factors. According to the respondents' perspective political stability ranked as 1 and they are neutral about their choice. Weak investors rights ranked 2, government policy ranked as 3, strengthening of institutions ranked as 4 and finally the promulgation of new constitution ranked as 5.

4.2. The Macro-economic Environment

A large numbers of factors have been identified under the macro-economic environment segment. The factor alternative finance has been ranked as (1) excessive govt. bond has been ranked as (2) ınterest rate exchange rate and inflation has been ranked as (3) low foreign investors participation and control on capital flows (4) current tax regime 6, disproportionate taxes 7 and finally high level and long term strategic decision ranked as 8. For the factors High level and long term strategic decision, Interest rate, exchange rates and inflation and Low foreign investor participation respondents are neutral about their opinion. Respondents are agreed about the factors: Current tax regime, disproportionate taxes, excessive govt. bond, Alternative finance, and control on capital flows [Table 2].

4.3. Supervision and Regulation

Table 3 describes about the segment supervision and regulation. There are 7 factors under this segment. Respondents ranked the factor lack of requisite experience, skill and expertise as 1and they are strongly agree about their opinion. Less expertise authorities ranked as 2 and respondents are agreed about it. Disclosures requirements ranked as 3, less information flow ranked as 4, lack of effective coordinating mechanism ranked as 5 and the respondents are agreed about their opinion. The factor self regulatory function and the factor monitored by relevant supervisor are ranked 6 and 7 respectively. Respondents are neutral about these factors.

4.4. Effective Market İnfrastructure

Table 4 explains about the segment effective market infrastructure. This segment consists of 6 factors. The respondents ranked the factor Absence of effective information dissemination system as 1 and they are agreed about their opinion. Absence of an effective government benchmark yield curve ranked as 2 and they are neutral about it. Absence of formal automated centralized system

Table 1: Factors determining a stable political environment

Statistics					
Statistics for variables	Political stability	Weak investor rights	Govt. policy	Strengthening of institutions	Promulgation of new constitution
N					
Valid	60	60	60	60	60
Missing	0	0	0	0	0
Mode	3	3	2	3	3
Sum	137	142	164	166	183
Rank	1	2	3	4	5

Table 2: Factors determining macro-economic environment

Statistics								
Statistics for variables	Current tax regime	Disproportionate taxes	Excessive govt. bond	Alternative finance	Interest rate, exchange rates and inflation	High level and long term strategic decision	Low foreign investor participation	Control on capital flows
N								
Valid	60	60	60	60	60	60	60	60
Missing	0	0	0	0	0	0	0	0
Mode	2	2	2	2	3	3	3	2[a]
Sum	176	191	132	120	134	211	147	147
Rank	6	7	2	1	3	8	4	4

Table 3: Factors determining supervision and regulation

Statistics							
Statistics for variables	Lack of requisite experience, skill and expertise	Less information flow	Less expertise authorities	Disclosure requirements	Self regulatory function	Monitored by relevant supervisor	Lack of effective coordinating mechanism
N							
Valid	60	60	60	60	60	60	60
Missing	0	0	0	0	0	0	0
Mode	1	2	2	2	3	3	2
Sum	113	130	119	125	173	193	132
Rank	1	4	2	3	6	7	5

Table 4: Factors determining effective market infrastructure

Statistics						
Statistics for variables	Absence of an effective government benchmark yield curve	Absence of effective information dissemination system	Expeditious and efficient offering	Absence of formal automated centralized system	An effective market-making system	Lack of credible and effective credit rating agencies
N						
Valid	60	60	60	60	60	60
Missing	0	0	0	0	0	0
Mode	3	2	4	1	3	2
Sum	144	113	211	158	182	179
Rank	2	1	6	3	5	4

Table 5: Factors determining diversified intermediaries

Statistics						
Statistics for variables	Lack of appreciation and understanding	Competition in financial intermediation and a reduction	Regulatory framework has not sufficiently recognized	Institutional investors are subject to restriction	Narrow investor base	Securitization has been relatively underdeveloped
N						
Valid	60	60	60	60	60	60
Missing	0	0	0	0	0	0
Mode	2	2	1	2	1	2
Sum	130	125	125	107	102	117
Rank	6	4	4	2	1	3

ranked as 3 and the respondents are strongly agreed about it. Lack of credible and effective credit rating agencies factor ranked as 4 agreed about it. The factor an effective market-making system ranked as 5 and respondents are neutral about their opinion. The last factor expeditious and efficient offering ranked as 6 and the respondents are disagreed about their opinion.

4.5. Diversified İntermediaries

The last segment is diversified intermediaries and it consists of 6 factors. Here the respondents ranked the factor narrow investor base as 1 and strongly agreed. The factor ınstitutional investors are subject to restriction ranked as 2, securitization has been relatively underdeveloped ranked as 3, competition in financial intermediation and a reduction ranked as 4 and the respondents are agreed about their opinion for these factors. Regulatory framework has not sufficiently recognized also ranked as 4 as the sum value are same but investors are strongly agreed about it. Finally, the factor Lack of appreciation and understanding ranked as 6 and respondents are agreed about their opinion [Table 5].

4.6. Comparisons Among the Factors

Table 6 shows the comparison among the factors that determine the development of Corporate Bond Market in Bangladesh. After comparison the factor diversified intermediaries ranked as 1, supervision and regulation ranked as 2, the macro-economic environment ranked as 3, A stable political environment ranked as 4 and effective market infrastructure ranked as 5.

Table 6: Comparisons among the factors

Factors	Sum	Average	Rank
A stable political environment	792	158.40	4
The macro-economic environment	1258	157.25	3
Supervision and regulation	985	140.71	2
Effective market infrastructure	987	164.50	5
Diversified intermediaries	706	117.67	1

4.7. Factor Analysis

Factor analysis is a tool which helps to reduce large number of variables to a smaller number of accepted underlying hypothetical entities called factor (Fruchter, 1967). The objective of factor analysis is mainly: Minimizing data and substantive interpretation. It attempts to simplify the diverse relationship by detecting common dimensions or factors that exist among a set of observed variables. It also links together the dissimilar variables and as a result provides insight into the underlying structures of the data (Dillion and Goldstein, 1984). In this study, "principal component matrix" of factor has been analyzed to discover the factors determining development of bond market in Bangladesh (Table 7).

Principal component factor (Appendix Table 1 - communalities) clarifies more variance that the loadings obtained from any method of factoring. In order to define the group membership, an algorithm may be used to uncover a structure purely on the basis of the correlation structure of the input variables. Then the number of principal components to be retained in the study has been decided on the basis of Kaiser's criterion (1958) of Eigen value >1. The factor model indicates seven distinct factors loading without any misclassification: Factors 1–7. In Sppendix Tables 3 and 4 the correlation matrix of the variable and name of the variables are explained.

Factor 1 includes 8 variables which are absence of formal automated centralized system, disproportionate taxes, absence of an effective government benchmark yield curve, current tax

Table 7: Principal component matrix

Items	Component						
	1	2	3	4	5	6	7
Absence of formal automated centralized system	−0.789						
Disproportionate taxes	−0.731						
Absence of an effective government benchmark yield curve	−0.690						
Current tax regime	−0.687						
Interest rate, exchange rates and inflation	−0.672						
Less information flow	0.626						
Lack of appreciation and understanding	0.616						
Lack requisite experience, skill and expertise	0.533						
Weak investor rights		0.652					
High level and long term strategic decision		0.608					
Securitization has been relatively underdeveloped		−0.606					
Low foreign investor participation		−0.605					
Absence of effective information dissemination system		0.600					
Regulatory framework has not sufficiently recognized		0.546					
Authorities lack expertise		0.525					
Disclosure requirements			0.632				
Monitored by relevant supervisor			0.628				
Expeditious and efficient offering				0.634			
An effective market-making system				0.629			
Lack of credible and effective credit rating agencies				0.529			
Excessive govt. bond					0.574		
Political stability					0.514		
Strengthening of institutions						0.681	
Lack of effective coordinating mechanism						0.535	
Self regulatory function							0.639

Extraction method: Principal component analysis. [a]7 components extracted regime, ınterest rate, exchange rates and inflation, less information flow, lack of appreciation and understanding, lack of requisite experience, skill and expertise., This factor explains 20.05% of the total variations existing in the variable set. This factor has significant factor loadings on these variables which have formed this major cluster.

Factor 2 explains 15.70% of the total variations existing in the variable set. This includes variables are weak investor rights, high level and long term strategic decision, securitization has been relatively underdeveloped, low foreign investor participation, absence of effective information dissemination system, regulatory framework has not sufficiently recognized and lack of expertise authorities. This factor has moderate factor loadings on these variables which has formed second important cluster with respect to the variation.

Factor 3 explains 12.10% of the total variations existing in the variable set. This factor includes disclosure requirements and monitored by relevant supervisor. Factor 4 explains 9.40% of the total variations existing in the variable set. This factor includes expeditious and efficient offering, an effective market-making system, and lack of credible and effective credit rating agencies.

Factor 5 explains 7.12% of the total variations existing in the variable set. Excessive govt. bond and political stability.

Factor 6 explains 5.80% of the total variations existing in the variable set. This factor includes strengthening of institutions and lack of effective coordinating mechanism.

Factor 7 explains 4.60% of the total variations existing in the variable set. This factor includes Self regulatory function. So this factor is less important factor among the seven factors. Together the seven factors explain almost75% of the variance (total in Appendix Table 2 total variance explained).

5. DİSCUSSİON AND CONCLUSİON

The debt securities market in Bangladesh remains at an initial stage. This empirical study has identified that well-functioning bond markets sharp the effectiveness of monetary policy operations and thereby accelerates the desired effect on the real economy. The study demonstrates that the seven factors discussed in this research can have a significant impact for developing vibrant bond market in Bangladesh. Market infrastructure development and an allowing environment for the bond market development by promoting the depository activity along with arrangements of clearing and settlement, promoting money market development, strengthening cash and debt management capacity of government, establishing legal and regulatory framework, form in the credit rating engineering, executing education program for investor, encouraging bond market development by reformatting the SEC rules on issuance of bonds, strengthening atmosphere for asset backed securitization and infrastructure bonds can ensure well established bond market in Bangladesh.

6. POLİCY IMPLİCATİONS

The study has some implications. Firstly, this study provides empirical evidence on the factors affecting bond market development, thus ultimately contributing to the money market and economic expansion of the country. Secondly, the present study advised the policy maker, economic planners, SEC, entrepreneur and investors to focus on key factors that are affecting the well-functioning bond markets and money market. Finally, the investigation and findings of this study will help the future researcher in the field of money market development.

7. LİMİTATİONS

The present study has a number of limitations. Firstly, the study was based on data collected from financial analyst and executives of banking and nonbanking financial institution of Bangladesh. Secondly, the survey instrument was mainly constructed with Likert scale, there could be the chance of central tendency bias, acquiescence bias and social desirability bias. Finally, this study was confined to only 60 respondents of banking and nonbanking financial institution located in Dhaka, Bangladesh and therefore it may not be representative one in terms of relationships in other developing countries. In spite of these limitations, the findings of the study will reflect the scenario of the development of well-functioning bond market for ensuring established capital market in Asia almost same and identical.

8. FUTURE DİRECTİONS FOR FURTHER RESEARCH

This study has conducted on banking and non banking financial institutions of Bangladesh. Potential researchers can widen the scope of the study by taking data from other sectors. Research can also be conducted by taking the lessons from developed countries rather than Asian countries. Moreover, the study can also be done on the selection of highly/less significant variable(s) influencing the effectiveness of bond market development.

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APPENDIX: FACTOR ANALYSIS TABLES

Table 1: Communalities

Items	Initial	Extraction
Political stability	1.000	0.834
Weak investor rights	1.000	0.826
Govt. policy	1.000	0.826
Strengthening of institutions	1.000	0.817
Promulgation of new constitution	1.000	0.817
Current tax regime	1.000	0.858
Disproportionate taxes	1.000	0.916
Excessive govt. bond	1.000	0.847
Alternative finance	1.000	0.745
Interest rate, exchange rates and inflation	1.000	0.947
High level and long term strategic decision	1.000	0.604
Low foreign investor participation	1.000	0.815
Control on capital flows	1.000	0.766
Lack requisite experience, skill and expertise	1.000	0.849
Less information flow	1.000	0.817
Authorities lack expertise	1.000	0.808
Disclosure requirements	1.000	0.747
Self regulatory function	1.000	0.752
Monitored by relevant supervisor	1.000	0.656
Lack of effective coordinating mechanism	1.000	0.821
Absence of an effective government benchmark yield curve	1.000	0.862
Absence of effective information dissemination system	1.000	0.823
Expeditious and efficient offering	1.000	0.837
Absence of formal automated centralized system	1.000	0.908
An effective market-making system	1.000	0.847
Lack of credible and effective credit rating agencies	1.000	0.739
Lack of appreciation and understanding	1.000	0.806
Competition in financial intermediation and a reduction	1.000	0.733
Regulatory framework has not sufficiently recognized	1.000	0.943
Institutional investors are subject to restriction	1.000	0.628
Narrow investor base	1.000	0.684
Securitization has been relatively underdeveloped	1.000	0.800

Extraction method: Principal component analysis

Table 2: Total variance explained

Component	Initial eigen values			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5.822	18.192	18.192	5.822	18.192	18.192
2	4.550	14.219	32.411	4.550	14.219	32.411
3	3.693	11.541	43.953	3.693	11.541	43.953
4	2.728	8.524	52.477	2.728	8.524	52.477
5	2.669	8.340	60.817	2.669	8.340	60.817
6	1.898	5.931	66.748	1.898	5.931	66.748
7	1.642	5.132	71.880	1.642	5.132	71.880
8	1.510	4.719	76.599	1.510	4.719	76.599
9	1.166	3.644	80.243	1.166	3.644	80.243
10	0.999	3.123	83.366			
11	0.878	2.742	86.108			
12	0.713	2.227	88.335			
13	0.571	1.786	90.121			
14	0.491	1.534	91.655			
15	0.463	1.447	93.102			
16	0.429	1.339	94.441			
17	0.382	1.193	95.634			
18	0.292	0.914	96.548			
19	0.274	0.856	97.403			
20	0.187	0.585	97.989			
21	0.143	0.447	98.436			
22	0.138	0.430	98.866			
23	0.090	0.281	99.147			
24	0.075	0.235	99.382			
25	0.059	0.186	99.568			
26	0.048	0.149	99.717			
27	0.032	0.099	99.815			
28	0.025	0.077	99.892			
29	0.016	0.050	99.942			
30	0.014	0.043	99.985			
31	0.004	0.011	99.996			
32	0.001	0.004	100.000			

Extraction Method: Principal Component Analysis.

Table 3: Correlation matrix

	q^{1}	q^{2}	q^{3}	q^{4}	q^{5}	q^{6}	q^{7}	q^{8}	q^{9}	q^{10}	q^{11}	q^{12}	q^{13}	q^{14}	q^{15}	q^{16}
q^{1}	1.00															
q^{2}	0.33	1.00														
q^{3}	0.38	0.25	1.00													
q^{4}	0.23	−0.11	0.28	1.00												
q^{5}	−0.04	0.19	−0.08	−0.01	1.00											
q^{6}	0.41	0.62	0.26	−0.10	−0.03	1.00										
q^{7}	0.66	0.32	0.26	−0.04	−0.23	0.63	1.00									
q^{8}	0.22	0.20	−0.04	−0.21	0.03	−0.11	−0.13	1.00								
q^{9}	−0.29	−0.07	−0.07	0.00	0.00	−0.17	−0.27	0.08	1.00							
q^{10}	0.37	0.37	0.02	0.32	−0.04	0.56	0.56	−0.42	−0.26	1.00						
q^{11}	−0.05	0.33	−0.04	−0.17	0.04	0.06	−0.09	0.34	0.39	−0.01	1.00					
q^{12}	−0.01	−0.32	0.27	0.15	−0.30	−0.13	−0.19	0.03	−0.07	−0.23	−0.29	1.00				
q^{13}	0.24	−0.02	0.01	−0.20	−0.06	0.04	0.37	0.04	−0.24	0.07	0.03	0.23	1.00			
q^{14}	−0.05	0.18	−0.18	−0.24	−0.04	−0.12	−0.26	0.43	0.24	−0.22	0.15	0.16	−0.05	1.00		
q^{15}	−0.14	−0.06	0.11	0.22	−0.28	−0.32	−0.27	0.15	0.48	−0.22	0.24	0.34	−0.09	0.44	1.00	
q^{16}	−0.16	0.35	−0.20	−0.12	−0.12	0.16	−0.09	0.22	0.43	0.01	0.30	0.09	0.09	0.50	0.50	1.00
q^{17}	0.13	0.12	0.23	0.29	−0.08	−0.20	−0.21	0.23	0.17	−0.14	0.16	0.46	0.15	0.24	0.45	0.45
q^{18}	−0.03	−0.12	−0.05	0.06	0.23	−0.21	0.01	−0.11	−0.18	0.02	−0.13	0.09	0.33	−0.02	−0.05	−0.22
q^{19}	0.17	−0.09	0.29	0.02	−0.16	0.03	0.15	−0.12	0.04	−0.12	−0.02	0.40	0.32	0.11	0.29	0.17
q^{20}	0.09	−0.09	0.33	0.22	0.17	−0.08	−0.35	0.06	−0.27	−0.12	−0.23	0.62	0.05	0.04	−0.03	−0.15
q^{21}	0.09	0.18	0.36	−0.07	0.04	0.60	0.52	−0.47	−0.04	0.37	−0.25	0.09	0.15	−0.18	−0.23	−0.01
q^{22}	0.12	0.59	−0.06	0.04	0.47	0.33	0.10	−0.04	0.11	0.46	0.22	−0.19	0.00	0.22	0.04	0.45
q^{23}	0.16	0.15	0.01	0.11	−0.07	0.10	0.12	0.06	0.12	0.17	0.26	−0.23	0.00	−0.40	0.02	0.12
q^{24}	0.31	0.48	0.28	0.04	−0.08	0.68	0.72	−0.37	−0.24	0.68	0.01	−0.16	0.37	−0.36	−0.23	0.06
q^{25}	0.23	−0.29	0.52	0.22	−0.09	−0.29	−0.03	0.09	0.15	−0.46	−0.12	0.16	0.00	−0.21	0.19	−0.22
q^{26}	0.32	−0.30	0.19	0.15	−0.10	−0.31	0.13	0.38	0.13	−0.09	0.03	0.13	0.09	0.00	0.16	−0.22
q^{27}	0.08	0.12	−0.08	−0.06	−0.09	−0.15	−0.29	0.61	0.03	−0.22	0.35	0.22	0.10	0.58	0.42	0.44
q^{28}	−0.16	−0.43	0h. 06	0.23	−0.32	−0.42	−0.19	−0.05	0.14	−0.35	−0.04	0.53	0.02	0.01	0.63	0.23
q^{29}	−0.02	0.09	−0.41	0.05	0.18	−0.36	−0.32	0.49	0.34	−0.06	0.61	−0.42	−0.27	0.19	0.17	0.18
q^{30}	0.16	0.28	0.04	−0.03	0.14	−0.11	−0.14	0.53	0.05	−0.31	0.31	0.04	0.12	0.36	0.27	0.26
q^{31}	−0.20	0.10	−0.08	−0.01	−0.21	0.00	−0.30	0.07	0.30	−0.02	0.36	0.05	−0.09	0.34	0.41	0.46
q^{32}	0.17	−0.28	0.03	−0.06	0.20	−0.26	−0.10	0.05	−0.43	−0.17	−0.34	0.49	0.34	0.23	−0.19	−0.29

	q^{17}	q^{18}	q^{19}	q^{20}	q^{21}	q^{22}	q^{23}	q^{24}	q^{25}	q^{26}	q^{27}	q^{28}	q^{29}	q^{30}	q^{31}	q^{32}
q^{1}																
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q^{14}																
q^{15}																
q^{16}																
q^{17}	1.00															
q^{18}	0.15	1.00														
q^{19}	0.41	0.15	1.00													
q^{20}	0.33	0.10	0.22	1.00												
q^{21}	−0.15	0.15	0.28	−0.07	1.00											
q^{22}	0.22	−0.13	−0.01	0.08	0.16	1.00										
q^{23}	−0.07	−0.43	−0.20	−0.12	−0.23	0.15	1.00									
q^{24}	−0.12	0.11	0.20	−0.21	0.64	0.28	0.24	1.00								
q^{25}	0.18	−0.09	0.34	0.05	−0.05	−0.44	0.21	−0.16	1.00							
q^{26}	0.15	0.15	0.18	0.03	−0.19	−0.27	0.16	−0.07	0.40	1.00						
q^{27}	0.36	−0.20	0.07	0.20	−0.40	0.19	−0.09	−0.38	−0.10	0.06	1.00					
q^{28}	0.41	0.10	0.35	0.06	−0.17	−0.30	−0.07	−0.28	0.32	0.09	0.08	1.00				
q^{29}	0.14	−0.16	−0.37	−0.19	−0.70	0.18	0.37	−0.41	−0.11	0.29	0.34	−0.07	1.00			
q^{30}	0.37	0.08	0.20	0.15	−0.37	0.17	0.05	−0.11	0.08	0.07	0.27	0.19	0.26	1.00		
q^{31}	0.27	−0.37	0.08	0.02	−0.16	0.25	−0.05	−0.17	−0.24	−0.27	0.57	0.02	0.15	0.00	1.00	
q^{32}	0.26	0.34	0.32	0.48	−0.02	−0.06	−0.37	−0.20	0.10	0.21	0.08	0.08	−0.24	0.11	−0.29	1.00

Table 4: Name of the factors in correlation matrix

q^{1} - Political stability
q^{2} - Weak investors right
q^{3} - Govt. policy
q^{4} - Strengthening institutions
q^{5} - Promulgation of new constitutions
q^{6} - Current tax regime
q^{7} - Disproportionate taxes
q^{8} - Excessive govt. bond
q^{9} - Alternative finance
q^{10} - Interest rate, exchange rate and inflation
q^{11} - High level and strategic decision
q^{12} - Low foreign investor participation
q^{13} -Control on capital flows
q^{14} - Lack requisite experience, skill and expertise
q^{15} - Less information flow
q^{16} - Authorities less expertise
q^{17} - Disclosure information
q^{18} - Self regulatory function
q^{19} - Monitored by relevant supervisor
q^{20} - Lack of effective coordinating mechanism
q^{21} - Absence of an effective government benchmark yield curve
q^{22} - Absence of an effective information dissemination system
q^{23} - Expeditious and efficient offering
q^{24} - Absence of formal automated centralized system
q^{25} - An effective market-making system
q^{26} - Lack of credible and effective credit rating agencies
q^{27} - Lack of appreciation and understanding
q^{28} - Competition in financial intermediation and reduction
q^{29} - regulatory framework has not sufficiently recognized
q^{30} - Institutional Investor are subject to rejection
q^{31} - Narrow investor base
q^{32} - Securitization has been relatively underdeveloped