UNIVERSITI PUTRA MALAYSIA

CLASSIFICATION, YIELD TO MATURITY DETERMINANTS
AND VALUATION OF ISLAMIC DEBT SECURITIES

MEYSAM SAFARI

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CLASSIFICATION, YIELD TO MATURITY DETERMINANTS AND VALUATION OF ISLAMIC DEBT SECURITIES

By
MEYSAM SAFARI

Thesis submitted to the Graduate School of Management, University Putra Malaysia, in Fulfillment of the Requirement for the Degree of Doctor of Philosophy

July 2012
DEDICATION

To my father, mother, and wife; the treasures of my life
ABSTRACT

Abstract of thesis presented to the Senate of University Putra Malaysia in fulfillment of requirement for the degree of Doctor of Philosophy

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Sukuk securities are new debt instruments introduced to market since less than two decades ago. The market has grown to about US$ 850 billion in just 16 years. Unlike conventional bonds, which have been studied thoroughly over some 6 decades, there is a dearth of studies on sukuk market behavior. This thesis aims to begin one by providing: (i) a new and comprehensive classification; (ii) exploratory findings on determinants of yield; (iii) a comparison of yields of sukuk and bond securities; (iv) charting new time-line cash flow charts; (v) establish first principles of valuation for sukuk; (vi) a comparison of actual price against theoretical prices computed using conventional theory. In particular objectives (iv) and (v) are critical for market practices as well as academic teaching.

We collected primary and secondary data covering 2001-2011 for 11 countries: the data set had 37,000 observations. Apart from using
descriptive and simple statistical methods to analyze sukuk, regression analyses are used to estimate empirical determinants of yield to maturity, tested by parametric and non-parametric methods. Granger Causality tests are applied to explore a central question as to whether there is a causality link between yields of sukuk securities and yields of conventional bonds. In valuation model development, mathematical techniques are applied to identify the principles that should be considered in constructing valuation models.

After careful examination of mostly descriptive statistics, we propose a new classification to categorize underlying contracts based on the intrinsic nature of fund raising: Pure-Debt, Equity-based, and Asset-Backed. Furthermore, Yields are analyzed to determine what factors influence them using cross-sectional tests. Liquidity, country of domicile, issuer-country risk, promised payments’ rate, maturity, and issue size are found to be significant factors affecting sukuk yields. Payment frequency and market sectors are not relevant. Importantly, the magnitudes of the factor effects are different in different sukuk types.

An important finding is that Sukuk securities are different from conventional bonds. Data on sukuk and matched bonds of (i) government, (ii) central bank, (iii) agencies, (iv) financial institutions, and (v) corporate issues are tested via pair-wise tests. Tests on yield spreads suggest there is a significant difference between sukuk and
bonds in 72 per cent of tested pairs. There is also no causal relation in Granger Causality tests between yields of two types of securities.

Current market practices of pricing *sukuk* securities by means of typical conventional models are tested. Results show that there is a significant deviation between model-driven and market prices, questioning the use of bond formula. Using mathematical techniques, modified valuation models are proposed. Underlying *Shariah*-consistent contractual specifications are taken into account. Price limit for *musharakah sukuk* securities is proposed.

Most important finding is the nullifying of the assumption of sameness of *sukuk* and conventional bonds. This implies that conventional bond and *sukuk* certificates are intrinsically different, so market needs to develop new methods of valuation and measurements. Moreover, by providing classification as well as creating a foundation literature, a better understanding is possible for more advanced studies of this growing market. Our identification of determinants of yields to maturity and the development of valuation models will enable changes in practices to be adopted. More research may be done on building complex valuation models based on our time line flow charts of cash flow.
ABSTRAK

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KLASIFIKASI, PENENTU PULANGAN HINGGA MATANG DAN PENILAIAN SEKURITI PINJAMAN BERLANDASKAN SHARIAH

Oleh

MEYSAM SAFARI

July 2012

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Sukuk merupakan instrumen hutang baru yang diperkenalkan ke dalam pasaran kurang dari dua dekad yang lalu. Pasaran Sukuk telah berkembang kepada kira-kira US850 bilion sejak ia diperkenalkan 16 tahun yang lepas. Tidak seperti bon konvensional yang telah banyak dikaji dengan mendalam sejak enam dekad yang lalu, tidak banyak kajian dilakukan ke atas gelagat pasaran Sukuk. Tesis ini bertujuan untuk menghasilkan satu permulaan yang berhati-hati dengan meneliti: (i) klasifikasi baru dan komprehensif untuk diguna; (ii) penemuan awal penentu pulangan; (iii) membuat perbandingan pulangan ke atas Sukuk dengan bon konvensional setelah mengawal beberapa faktor; (iv) mencatatkan garisan masa baru carta aliran tunai; (v) menentukan prinsip-prinsip utama untuk penilaian Sukuk; membandingkan harga sebenar dan harga teoretikal yang dikira dengan menggunakan teori konvensional, (vi)
membuat perbandingan antara harga sebenar dengan harga teori dengan menggunakan teori konvensional. Terutamanya objektif (iv) dan (v) adalah kritikal untuk amalan industri dan juga tugas pengajaran akademik.


Setelah penilaian terperinci yang kebanyakannya berbentuk statistik deskriptif, adalah dicadangkan satu klasifikasi komprehensif digunapakai untuk semua kontrak yang sedia ada ke dalam tiga kumpulan, iaitu: kontrak berdasarkan hutang sepenuhnya, kontrak berdasarkan equiti sepenuhnya dan kontrak berdasarkan Aset. Klasifikasi berdasarkan tiga kumpulan tersebut dicadangkan untuk

Penemuan yang paling penting ialah penentuan bahawa andaian kesamaan antara sukuk dan bon biasa ditolak. Implikasi dari penemuan ini ialah bahawa sijil bon konvesional dan sukuk adalah berbeza dengan ketara, jadi pasaran perlu membentuk kaedah penilaian dan pengukuran baharu. Tambahan pula, dengan menyediakan pengklasifikasi dan juga merekacipta literatur asas, pemahaman yang lebih mantap untuk membolehkan pengajian lanjutan pasaran kewangan Islam yang pesat membangun. Dengan mengenalpasti penentu pulangan hingga kematangan dan pembangunan model penilaian akan mengubah amalan yang digunapakai. Lebih banyak penyelidikan mungkin perlu dilakukan untuk membentuk model penilaian yang canggih berdasarkan garis-masa carta aliran tunai.
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Every voyage has an end, and reaching the destination is the ultimate moment of success and happiness of the whole journey. This moment of joy is remembered and cherished for long times. This is true, especially when you sail in misty water, full of unforeseen weaknesses and dangers hampering you from reaching where you initially headed to. These challenging times, which have sank many before, are sometimes forgotten in the moments of victory. Then, only one should praise all the kindnesses and helps he received. The burdens of the way are heavier than one could bear alone. In my own story, I was blessed with best of the best accompanies one may dream of.

I still can remember the first time I discussed my idea of research topic with Professor Dr Ariff Mohamed. I vividly remember his reasons on how and where I was wrong in my approach; and I can remember our long discussion on what can be a good research topic and his suggestions. I’m very happy and proud with my decision on working on his genuine noble idea which turned into this dissertation in less than two and half years. Two years which are of my best years ever experienced, not only because I learned what I know about sukuk and Islamic finance, but I learned much more than that. I learned the scholar way of thinking from numerous and various discussions I had with professor Ariff, discussions which were never
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APPROVAL

I certify that a Thesis Examination Committee has met on 4 July 2012 to conduct the final examination of Meysam Safari on his thesis entitled “Classification, Yield to Maturity Determinants and Valuation of Islamic Debt Securities” in accordance with the Universities and University Colleges act 1971 and the Constitution of the Universiti Putra Malaysia [P.U(A)106] 15 March 1998. The Committee recommends that the candidate be awarded the Degree of Doctor of Philosophy.

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This thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as fulfillment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at University Putra Malaysia or any other institutions.

_______________________________
Meysam Safari

Date: 26 July 2012
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