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Islamic finance and market segmentation: Implications for the cost of capital

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1. Introduction

ABSTRACT

This paper considers the impact of full Islamic shari'ya compliance on developing stock exchanges in their effective provision of development capital. Evidence from a unique study focussing on the Sudan telecommunications company and its listings on the Khartoum as well as Arabian Gulf stock exchanges reveals that costs of capital are considerably higher in the former than latter markets. While there are firm governance benefits arising from Islamic finance monitoring costs are substantial and the banking system is better placed to administer financing arrangements. Larger firms are better placed to circumvent this segmentation through cross-listing on regional exchanges.

Islamic finance is a fast-growing sector of the global banking industry, and is based on a range of distinctive financial products that are compliant with *shari'ya* law. There are many banks that supply Islamic financial products and services around the world, including well-known institutions such as Citigroup, Société Générale, HSBC and Lloyds TSB. But there are very few countries whose financial systems are explicitly and exclusively based on Islamic financial principles: Pakistan, Iran and Sudan are the only countries with fully-compliant banking systems, while only Iran and Sudan have fully-compliant stock markets (Pryor, 2007). This paper considers the impact of this compliance on the cost of equity capital for domestic firms, focusing on the experience of the Sudan Telecommunications Company. Most of the literature on Islamic finance largely focuses on either contrasting the structure and design of financial products with those in the West (Abdouli, 1991; Kamali, 2007) or on the Islamic banking system (Aggarwal & Yousef, 2000; Lewis & Algaoud, 2001). Further, the literature on the role and regulation of stock markets within Islamic economies focuses largely on the normative prescriptions of Islamic finance as a discipline – see El-Din and El-Din (2002) and Naughton and Naughton (2000) for extended discussions.

In particular, we argue that *shari'ya* compliance may lead to market segmentation in developing economies and thus to higher costs of equity capital, and we show that cross-listing may provide access to more cost effective finance.

The paper is structured as follows. Section 2 describes the main features of some of the distinctive products used in the Islamic financial system, and then compares the main principles and practices of Islamic finance with those undertaken in

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the West. In Section 3, we note the importance (or perhaps lack of) in many countries within the Middle East and North Africa (MENA) region, and outline some of the key features of the Khartoum Stock Exchange in the Sudan. We then discuss in Section 4 some of the methodological issues involved in estimating the cost of equity in Islamic financial markets, before using the dividend capitalisation method to estimate in Section 5 the cost of Sudatel stock listed on the Khartoum and the Abu Dhabi Stock Exchanges. We also examine the comparative abilities of the two major Sudatel listings to attract foreign portfolio investors. Section 6 concludes.

2. Islamic finance

Islam represents a system of beliefs based on the interpretation of passages from the Qu'ran and various Had'ith and Sunnah, which are short texts concerning customs of the Muslim community and relating experiences of the prophet Mohammed (Pryor, 2007). These forms the basis of Shari'ya law, which permeates all areas of the wider Islamic system, including economics, finance, law, politics and government as integral component parts, and which have common values of Islamic social justice (Asutey, 2007). However while the political economy aspects of the Islamic system encompasses all components of a social system the central belief of Islamic economics is that individuals are merely the trustees of wealth and capital owned by God (Asutey, 2007; Chapra, 1993). As Islamic economics is only one part of the wider system where individuals have common values and adhere to Shari'ya principles the ethical behavioural norms of Islam are fully integrated with economic motives. Thus, ethical actions of the individual within this system are not voluntary but rather defined as part of the revealed knowledge derived from the teachings of the Qu'ran. Shari'ya law is thus the binding set of principles that govern the economic, social, ethical and religious aspects of Islamic society (Iqbal, 1997). The Islamic financial system is itself founded and regulated on the same shari'ya principles as the overall economy and society (Iqbal, 1997). These dictate the nature of contracts traded, the design of institutions to support the market, and the regulation of participants' behaviour. Individuals within an Islamic financial system will be subject to behavioural norms, which give rise to very different assumptions to those that form the basis of regulation in western markets. This section describes the most commonly used products, and then compares the main principles and practices of Islamic finance with those undertaken in the West.

2.1. Islamic financial products

A critical feature of the Islamic financial system is that the proliferation of financial products and legal definitions of the firm, or partnership, are subject to validation by the various schools of Islamic jurisprudence (Mannan, 1993). While these are generally in agreement over common products such as *mudarabah*, *musharaka*, *murabaha* and *ijara*, as well as the less common *mugawla* and *salam*, there is considerable consternation over more recently developed products that bear a strong resemblance to western debt instruments. The prohibition of interest (*riba*), which is the major distinguishing features of Islamic finance, is controversial because of differing interpretations by the various schools of Islamic jurisprudence of the translation from the *Qu'ran* of the definition of usury (Noorzoy, 1982). Kuran (1995) also notes that the original prohibition of *riba* was due to the ancient "pre-Islamic Arabian practice of doubling the debt of a borrower unable to make restitution on schedule, including both the principal and accumulated interest". As this tended to push defaulters into enslavement it was the source of real tension and its ban was effectively a form of bankruptcy protection, reflecting the concept of social justice in Islam (Kuran, 1995). However, despite the ban on *riba*, or any products offering a fixed schedule of repayments, few countries have been able to prevent the use of debt-based instruments entirely (Pryor, 2007) because of the global nature of international finance (Aggarwal & Yousef, 2000) and the dominance of western financial principles within the system (Asad, 2008).

Central to Islamic financial product design is partnership and risk-sharing, which is commonly referred to as the profitand-loss-sharing (PLS) paradigm (Aggarwal & Yousef, 2000; Presley & Sessions, 1994). The exact division of responsibilities, and the levels of risk and reward allocated to each partner, is defined in the contract. This contract is enforced by the common ethical standards and social values within the *shari'ya* system, which ensures mutual compliance by all parties in the transaction.

The *mudarabah* contract is a partnership between the entrepreneur (*mudarib*) and at least one investor (*rabb al-mal*) (Abdouli, 1991; Aggarwal & Yousef, 2000) where the latter provides the sole source of capital. This is considered by many schools of Islamic jurisprudence to be the equivalent of common equity in western financial markets (Mannan, 1993). However, the difference arises because the *mudarabah* contract implies a closer partnership than the more distant legally defined link between principal (investor) and agent (manager) in western finance. In the event of a loss associated with a *mudarabah* contract, the investor earns no return and equally the entrepreneur receives no compensation for effort. If the project is successful then the gains are split between the parties according to the pre-transaction negotiated conditions of the contract. This is closer to limited liability partnerships common to western markets than a share instrument and has the further distinction of being restricted or unrestricted depending on the nature of pre-agreed restrictions on the use of funds by the entrepreneur (Aggarwal & Yousef, 2000). One consequence of the emphasis on partnership and risk-sharing in *mudarabah* contracts and Islamic commercial jurisprudence is that the modern Middle Eastern business environment is dominated by small and family-owned firms while larger companies are either foreign Multinational Enterprises (MNEs), foreign joint ventures, or privatised state owned enterprises (Kuran, 2004). However, Badr El-Din (2003) notes there is a general perception in Sudan that *mudarabah* contracts are risky and consequently there is some reluctance to enter this type

of partnership unless there is considerable confidence and existing trust between potential partners. This suggests that larger block shareholders dominate the Sudanese share market in order to mitigate concerns over contract risk (Kolk & van Tulder, 2010).

In contrast, the *musharaka* contract involves a partnership where both partners, that is, entrepreneur and investor jointly provide the capital and manage the venture (Aggarwal & Yousef, 2000; Al-Suweilem, 1998). Losses are in proportion to the individual capital contributions of the two parties while profits are negotiated freely (Aggarwal & Yousef, 2000; Al-Suweilem, 1998). These contracts are more akin to a traditional equity stake with rights of control (Aggarwal & Yousef, 2000) and have been proposed as the optimal contract in developing the fledgling Islamic venture capital and private equity markets where a degree of capital provision together with some influence and control over incumbent management is necessary (Al-Suweilem, 1998; Khan & BenDjilali, 2003). Government *shihama* certificates, a variant of the *musharaka* contract, were introduced by the Bank of Sudan in 2001 through KSE auctions as a source of short-term financing (KSE Annual Report, 2004).

An additional contract, *murabaha*, involves the resale of working capital or means of production after adding a specified profit margin, for which the minimum margin is determined by the central bank (Badr El-Din, 2003). Commonly, the entrepreneur makes an application to the bank or investment partner to finance the purchase of raw materials for production. Invoices for the materials accompany the application and the bank then buys the materials before reselling them back to the entrepreneur at their purchase price plus an agreed margin that includes administrative costs incurred and a profit margin for the bank (Aggarwal & Yousef, 2000; Badr El-Din, 2003). The more complicated structure of these instruments and the greater need for more active involvement of the investor means that these are better administered by banks than stock markets. This explains their dominance in the provision of microcredit by the banking sector rather than the stock exchange (Aggarwal & Yousef, 2000; Badr El-Din, 2003). The shari'ya compliant Islamic financial system does confer considerable benefits in the financing of smaller-scale industry by these principles of social justice. This also acts as a protection against bankruptcy, which is important in smaller, riskier ventures, and suggests an emphasis on development by partnership rather than imposing the need for collateral and creditworthiness that is common in western financial systems. However, the major constraints to this type of financing are the selection of an appropriate guarantee for *murabaha* that is suitable for small, often poorly-capitalised, entrepreneurs and the costs of surveillance and monitoring of projects following funding (Badr El-Din, 2003). These extremely high monitoring costs have caused all the major banks in Sudan to locate branches in industrially developed areas (Badr El-Din, 2003), which has caused development to be highly regionally concentrated.

Ijara, or lease, finance has undergone considerable recent growth and development. This is arranged by the banking sector and is a partnership where the bank as the investor buys and then leases out equipment required by the entrepreneur for a pre-agreed rent. The equipment remains an asset of the bank, which will recover both the capital cost plus a profit margin paid by entrepreneur (Rowey, July, & Fevre, 2006). *Ijara* contracts are typically used in the financing arrangements of large firms for high value industrial equipment such as aircraft, as with Sudan Airways and Emirates Airlines (Al Zawya, 2009). However, *ijara* contracts are similar to hire-purchase agreements in western markets and there are concerns over the fixed schedule of payments that suggest debt-type instrument, which are obviously prohibited (Aggarwal & Yousef, 2000).

Two less common contracts are *mugawla* and *salam*. These are commonly negotiated through the banking system. *Mugawla* financing involves a contract between the party undertaking a work-related function and the provider of capital or materials for the project. The price of the work under contract and the terms of payment must be specified at the outset, and payment may be made in advance, after completing the work, or in instalments as the work progresses. *Salam* financing is common in the agricultural sector where a contract is made between the supplier of inputs and the financial institution acting on behalf of the ultimate buyer. The key objective of this contract is to fix a price for the delivery of goods at a fixed future date (Mannan, 1993).

2.2. Comparison of Islamic and western finance principles and practices

There is a considerable contrast between the nature of the share markets in Western and Islamic economic systems. The products traded on an Islamic stock exchange must conform to the concept of partnership where business risks are borne equally by all partners. Because of the prohibition of interest (*riba*) the Islamic stock market can be defined as a share market with transactions undertaken solely in ownership contracts (Naughton & Naughton, 2000).

First, Islamic financial markets have a number of distinct products that are based on the principles of partnership between the entrepreneur and the provider of capital, as noted in the previous section. Secondly the common share, or equity, differs between Western and Islamic definitions in principal due to the way the contract addresses asymmetric information between the capital issuer and provider. The Islamic system views the equity contract, that is ordinary shares with voting rights, as a form of *mudarabah*, where a contract is initiated between at least two partners with one providing all the capital and the other the management of the business. Whereas in the Western system the risk of asymmetric information is mitigated by extensive legal contracting between parties, adherence to Islamic social values is reinforced by *shari'ya* compliance in Islamic economies. Thus, the prohibition of speculation (*gharrar*) and any form of gambling (*qimar*), including the manipulation of share prices for personal gain, together with the practices acting to informationally disadvantage any party (*jahalah*) are part of the *shari'ya* code regulating markets. These practices reflected common shared Islamic ethical values (Mannan, 1993; Naughton & Naughton, 2000). The normative prescriptions placed on the institutional design result in Islamic stock markets being very different from those in the West. For example, the prohibition of practices such as selective information disclosure (*jahalah*) and speculation or gambling has considerable inference both on the institutional design of the stock market and the rules on disclosure, accounting and auditing, which in turn affect the informational content of prices (Naughton & Naughton, 2000). The Western rules on disclosure of information and ownership, which act to disadvantage some investors to the benefit of others (*jahalah*) is not allowed and disclosure in Islamic markets leads to strong-form efficiency (Fama, 1970) where share prices reflect all available information in both public and private domains (El-Din & El-Din, 2002; Naughton & Naughton, 2000). While this serves to outlaw practices such as insider trading between "informed" and "uninformed" investors (Rock, 1986), its effectiveness in practice is controversial (El-Din & El-Din, 2002). The concept of strong-form efficiency in practice is not supported by the literature, as firms often seek to retain at least some confidential information regarding their operations.¹ Furthermore, the listings on many markets, especially in developing countries, are made up largely of smaller firms. These would face considerable difficulty in meeting the fixed costs associated with frequent information disclosure requirements. El-Din (1996) proposes government assistance for smaller companies in meeting the financial obligations arising from costly information disclosures, but this is questionable as markets would then operate under a system of state subsidies and not be independent.

Another fundamental difference relates to the institutional concepts of information and allocative efficiency. The Western model seeks to use the presence of arbitrage traders, who profit from price differences between the same security traded in different locations thereby acting to close pricing and information gaps in the market. Financial markets arbitrageurs often use short sales, that is borrow stock in order to execute a trading strategy and make a profit. Often their actions are speculative and used to exploit differences in price, thus increasing information efficiencies and reducing overall transactions costs. However, in an Islamic market short-selling is considered to be unacceptable (Naughton & Naughton, 2000) as is gambling and speculation (El-Din & El-Din, 2002). As the securities traded represent partnerships that imply an equal burden of risk and reward on both capital issuers and investors, the notions of information disclosure and efficiency must be considered in the context of a close cooperation by both parties. Concerns regarding asymmetric information are thus mitigated through the adherence of all parties to *shari'ya* principles, and therefore information efficiency is promoted by the prescriptive behavioural norms in *shari'ya* compliance.

Islamic financial systems commonly follow the self-regulatory model, particularly in Islamic banking systems (El-Din & El-Din, 2002; Metwally, 1984). There is also evidence of self-regulation in the Khartoum Stock Exchange, where a commercially-trained and independent *shari'ya* council acts alongside the Stock Exchange in advising on acceptable financial instruments and activities on the exchange and also endorse regulations (KSE Annual Report, 2004).

3. Business financing in Sudan

Relationship-based bank finance is the dominant source of business funding in the MENA region, and particularly in Sudan where the sector has channelled the revenues from windfall gains from oil production in the south. Table 1 shows an increase in bank financing from US\$20 million in 1998 to US\$4,860 million in 2006. *Murabaha* contracts are the most common form of finance, accounting for over 39% of funding over the period, while *musharaka* contracts accounted for between 20% and 30%. *Mudaraba* and *salam* contractual arrangements were considerably less common, and each accounted for less than 6% of banking sector funding in most years. Other more specialised forms of contractual arrangements (including *ijara* and *mugawla* contracts) together accounted for the remaining 12–20%. In contrast, the amount of funds raised from new equity issues in Sudan was a mere \$109 million in 2006.

3.1. The MENA stock markets

Sudan is not atypical, and the stock markets in most of the MENA countries are small and show little trading activity. The structure and regulation of securities markets across the MENA region tends to reflect the colonial legacy in terms of the legal systems and ranges of financial products. While many regional markets do have segments dedicated to Islamic products these are traded alongside western instruments, including debt, in countries such as Turkey, Egypt and Saudi Arabia (Aggarwal & Yousef, 2000). Table 2 shows that a lack of trading activity, indicated by turnover ratios of less than 10%, is a major concern across the region. This is despite the considerable size of individual markets, for example, the Saudi Arabian Tadawul stock exchange has a market capitalization of US\$ 157bn, which is over 43% of the total MENA markets. In contrast the North African exchanges together account for just under 12% of capitalization and the Sudanese exchange a mere 0.21%. Although most of the activity on the MENA Stock Exchanges is concentrated in Saudi Arabia and Kuwait, there is a more even distribution of market capitalization to GDP. Four exchanges, Kuwait, Doha (Qatar), Amman (Jordan) and Bahrain, have market capitalization to GDP ratios greater than 100%.

The Khartoum Stock Exchange is very small, both in absolute and in relative terms. Total market capitalisation in 2005 was only US\$747 m, less than 4% of GDP. In contrast, the market capitalisations of the Bahrain and Abu Dhabi exchanges were US\$9700 m and US\$30,363 m respectively: 13 and 406 times larger than that of Khartoum.

¹ Onour (2002) found little evidence of weak, semi-strong, or strong-form efficiency using Khartoum Stock Exchange data.

Table 1			
Bank financing	in	Sudan,	1998-2006

Mode of financing	1998	1999	2000	2001	2002	2003	2004	2005	2006
Murabaha	54.37%	49.12%	33.74%	39.53%	35.92%	44.64%	38.52%	43.29%	53.37%
Musharaka	21.11%	30.80%	42.88%	30.97%	27.88%	23.22%	31.99%	30.82%	20.38%
Murdaraba	5.97%	4.07%	3.51%	6.25%	4.63%	5.71%	5.74%	4.20%	5.25%
Salam	6.61%	5.02%	3.35%	4.99%	3.32%	4.80%	2.95%	2.09%	1.28%
Others ^a	11.94%	10.99%	16.52%	18.26%	28.26%	21.63%	20.80%	19.60%	19.72%
Total (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total (US\$m)	20.41	285.86	393.74	559.95	787.89	1082.83	1706.25	3014.43	4861.51

Source: Bank of Sudan, Annual Reports (1999-2006).

Note: ^aThe 'other' category includes the ijara and mugawla modes of financing.

Table 2

Trading statistics on selected Middle East and North Africa (MENA) Stock Exchanges, 2005.

Market	Established	Market capitalisation (current US\$ mil)	Market capitalisation as % of GDP	Stocks traded, turnover ratio (%)
Panel 1: Individual country statistics				
Saudi Stock Market	2002	157,306.44	73.35	10.08
Kuwait Stock Exchange	1962	59,528.01	142.58	10.55
Abu Dhabi Securities Market	2000	30,362.51	37.85	0.46
Egypt (Alexandria/Cairo)	1888/1903	27,847.48	39.26	1.81
Doha Securities Market	1997	26,702.11	130.73	1.36
Dubai Financial Market	2000	14,284.23	17.81	1.95
Bourse de Casablanca	1929	13,050.18	29.48	4.31
Amman Stock Exchange	1999	10,962.98	110.19	3.55
Bahrain Stock Exchange	1989	9701.77	100.99	0.27
Muscat Securities Market	1988	7246.23	33.56	1.49
Iraq Stock Exchange	2004	2686.94	3.06	0.48
Bourse de Tunis	1969	2439.55	9.07	1.03
Khartoum Stock Exchange ^a	1995	746.56	3.92	1.31
Algeria Stock Exchange	2003	143.64	0.22	0.01
Beirut Stock Exchange	1920	0.99	0.01	0.60
Panel 2: Regional statistics				
Middle East and North Africa	100.00%	363,009.62		
Gulf Region (incl. Saudi Arabia)	84.06%	305,131.30		
Saudi Arabia	43.33%	157,306.44		
North Africa (Algeria, Egypt, Morocco, Tunisia)	11.98%	43,481.24		
Khartoum Stock Exchange	0.21%	746.56		

Source: Compiled by the authors from national stock exchange websites and the Arab Monetary Fund.

Note: (1) Although the Saudi stock market had existed in an informal capacity since early 1990s, the Tadawul stock exchange was only established in 2007. Bold values highlights Sudan amongst all the other country data.

3.2. The Khartoum Stock Exchange

In this section, we detail the history of the Khartoum Stock Exchange (KSE) in Sudan, and highlight the dominant position of the Sudan Telecommunications Company (Sudatel). The KSE was established in 1994, helped by the Common Market for Eastern and Southern Africa (CoMESA).² The market is fully *shari'ya* compliant following the self-regulatory model, with regulation administered jointly by the central bank (Bank of Sudan) and the Shari'ya Council (KSE website, 2007). Trading is conducted manually by continuous auction from Saturday to Thursday for 1 h from 10-00 am to 11-00 am with buy and sell orders relayed to floor-based representatives of registered brokers. There is also an over-the-counter (OTC) market which carries out inter-family and inheritance transactions,³ and which is administered by the KSE legal affairs department.

Table 3 shows that the KSE⁴ has grown steadily since inception, from 34 listed firms in 1995 to 51 in 2006. This growth is matched by corresponding increases in the number of traded shares (up from 11.7 m to 5032 m) and market capitalisation (up from \$44 m to \$3563 m). The ratios of market capitalization to GDP, and of market capitalization to money plus quasi-

² The member states are: Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe.

³ Such transactions are complex due to the complicated nature of Islamic law involved in terminating a mudarabah partnership agreement following the death of one of the partners. The OTC market operates outside exchange trading hours and between licensed brokerage companies.

⁴ The KSE has a small and highly concentrated local brokerage industry. A single company (the Financial Investment Bank) accounts for over 85% of total capitalisation. This was established with assistance from the government to facilitate the listing of the Sudatel, as part of an IMF-recommended privatization. The brokerage industry is required by regulation to be located around Khartoum (KSE website, 2007), suggesting limited access by potential investors from across the country.

Table 3						
Descriptive	statistics	for the	Khartoum	Stock	Exchange,	1995–2006.

DATA	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Primary market												
Funds raised	65.16	5.27	2.06	13.75	23.52	38.29	30.15	157.85	62.97	109.06	-	-
Secondary market												
Listed companies	34	40	41	42	43	44	44	46	47	48	49	51
Shares traded (m)	115.73	24.91	164.82	11.67	198.57	14.17	8,768.89	4,060.24	9,745.46	2,185.99	142.88	5,032.22
Market cap (US\$m)	44	32	139	111	237	392	457	593	741.22	2,058.42	3,241.64	3,563.49
Traded value (US\$m)	3.50	0.68	3.33	1.00	6.20	23.01	64.02	95.00	93.76	178.04	24.51	51.46
OTC market transactions												
Number of shares (m)	0.49	2.06	2.33	3.39	3.99	3.58	226.96	351.36	167.25	791.92	-	-
Traded value (US\$m)	0.003	0.007	0.023	0.069	0.287	0.618	7.758	1.059	4.047	3.926	-	-
Ratios (%)												
Market cap./GDP	0.60%	0.35%	1.19%	1.32%	2.22%	3.40%	3.56%	4.02%	4.34%	6.96%	12.01%	10.48%
Market cap./money + quasi-money	0.00%	0.01%	0.02%	0.08%	0.03%	0.04%	0.47%	0.05%	0.14%	10.28%	38.46%	45.95%
Traded value/market cap.	7.98%	2.14%	2.39%	0.90%	2.86%	5.86%	14.01%	15.97%	12.65%	12.13%	0.75%	1.44%

Source: Compiled by the authors from the Arab Monetary Fund, Bank of Sudan Annual Reports, and the Khartoum Stock Exchange website. *Note*: (1) Values for 2005, 2006 obtained from Al Zawya database (Dubai).

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Market	Company	Listing date	Days traded	Value traded (US\$ bn)	Market capitalization (US\$ bn)
Organized	Sudatel (Sudan Telecom. Co. Ltd.)	1997	224	97,165.30	946,482.92
	Nile Cement Company	1996	11	15,485.23	2819.643
	Sudanese French Bank	1994	15	1125.59	11,815.37
	Saudi Sudanese Bank	1994	15	935.87	11,455.78
	Sudanese Islamic Bank	1994	56	564.89	7571.69
	Gum Arabic Company	1994	79	548.75	8662.56
	Total (22 listed organized market firms)	-	-	116,338.54	-
Parallel	Sudanese Free Zones & Markets	2002	44	15,066.43	381,620.07
	Al Rowad Financial Services Co. Ltd.	2002	3	174.32	38.97
	Multi Media Company Limited	2001	2	135.21	254.38
	Total (29 listed parallel firms)	-	-	15,388.31	-
Total	Parallel and Organised (51 listed companies)	-	-		1,510,614.99
Funds	Total (7 listed funds)	-	-	1100.30	-
Shihama	Total (34 listed Shihama certificates)	-	-	45,215.14	-
	Organized Market Segment	-	-	116,338.54	-
	Parallel Market Segment	-	-	15,388.31	-
	Funds Segment	-	-	1100.30	-
	Shihama Market Segment	-	-	45,215.14	-

Source: Khartoum Stock Exchange Annual Report (Arabic), 2004.

Note: (1) End of year Bank of Sudan SDD-US\$ exchange rate used.

money, are very low: these figures confirm again the small role of the KSE in the Sudan economy, and the domination of the banking sector.

The KSE consists of four segments; an organized market segment, a parallel market, a funds segment, and a shihama market segment. The organized and parallel segments have, since 1999, been the two divisions of the secondary market, with the less stringent disclosure requirements of the latter allowing the parallel market to play a more active role in the financing of smaller firms. Twenty two firms were listed on the organised market in 2004, and a further 29 were listed on the parallel market. Additional formal markets also exist for exchange-traded funds (*sukuks*) and government *shihama* (a form of musharaka) certificates (KSE Annual Report, 2004). These innovations have caused substantial increases in traded volumes and values.

Table 4 shows that both the organised and the parallel markets are highly skewed. Two firms (Sudatel and Sudanese Free Zones & Markets) accounting for over 87% of the total market capitalization. Sudatel alone dominates the KSE with over 62% of market capitalization and over 83% of the traded value, while Sudanese Free Zones & Markets accounts for 25% of market capitalisation. The highly skewed nature of the KSE reflects the wider business environment in Sudan, which is composed of many small family-owned and managed firms and a few large former State-owned enterprises (Tignor, 1987) such as the Sudan Telecommunications company, or Sudatel (see Hearn, Strange, & Piesse, 2009 for a detailed discussion of Sudatel's financial structure). The funds (*sukuk*) market had seven funds in 2004, but was dominated by the Second Sudatel Dollar Fund which accounted for over 93% of traded value in the segment but a mere 0.62% of the overall KSE traded value. In contrast, the *shihama* market segment accounted for 25.40% of the capitalization of the KSE, and had a more even distribution of traded value between the 34 listed certificates.

Many of the listed firms are controlled by block-shareholders who have large equity stakes – see Appendix A. The presence of these large block-shareholders is reflected in the generally very low free float percentages, that is the proportion of shares freely available for the public. The dominance of these block-shareholders contributes to the domestic perception that *mudarabah* (equity) instruments as highly risky (Badr El-Din, 2003). There is a fear of expropriation by the majority investors, particularly because of the lack of protection for minority interest from the regulatory authority notwithstanding *shari'ya* compliance (Badr El-Din, 2003). The presence of the block-shareholders also supports the perception that emphasis is placed on longer-term partnerships (Naughton & Naughton, 2000). There is also evidence of sovereign involvement in the equity market, either from direct ownership or indirectly through a variety of ministries and regional development agencies.

4. Data and methodology

The KSE has three firms that are cross-listed (Sudatel, Al Salam Bank, and Emirates & Sudan Bank), but only Sudatel has its primary listing in Khartoum. Sudatel also has secondary listings on the Abu Dhabi and Bahrain Stock Exchanges. In 2007, the market capitalisation of the stock listed in Abu Dhabi was almost double that listed in Khartoum, and both the traded value and the turnover ratio for Abu Dhabi were considerably greater – see Table 5. The Bahrain listing has much lower market capitalization, approximately 10% of the Khartoum level, with no trade value and a turnover ratio of zero. It appears that this latter listing was undertaken to attract high net worth individuals interested in a longer-term *shari'ya*-compliant partnership.

Descriptive statistics for Sudatel Listed Stock, 2003-07.

	2003	2004	2005	2006	2007
Market capitalisation	(US\$m)				
Khartoum	589.08	946.48	1743.01	1610.87	1551.18
Bahrain	-	-	131.25	130.36	130.36
Abu Dhabi	1123.30	1640.03	2653.04	2283.37	2388.76
Traded value (US\$m)					
Khartoum	-	97.165	-	126.16	131.45
Bahrain	-	-	0.00	0.00	0.00
Abu Dhabi	20.31	165.84	1106.21	442.99	503.59
Turnover ratio (%)					
Khartoum	-	10.26%	-	7.83%	8.47%
Bahrain	-	-	0.00%	0.00%	0.00%
Abu Dhabi	1.81%	10.11%	41.70%	19.40%	21.08%

Source: Compiled by the authors from the Arab Monetary Fund, Khartoum, Bahrain and Abu Dhabi Stock Exchange websites. *Note*: (1) The dividend capitalisation method assumes constant (mean) rate of growth rate of dividends of 6%.

4.1. Valuation models in Islamic finance

The estimation of the cost of equity capital in an Islamic financial system involves revisiting the foundational principles of valuation theory, so as to take account of the absence of interest and the emphasis on equity partnership. Consequently, the cost of capital in Islamic finance is expressed as an expected rate of profit, which is used to provide a discount rate for cash flows to calculate a Net Present Value (NPV) for the firm (Siddiqi, 2005). However, the expected rate of profit is itself a complex issue given the divergent views over the concept of the time value of money between Islamic and western finance (Obaidullah, 2006). The notion of profit and loss sharing and partnership inherent in Islamic contracts requires that an element of risk is borne by all partners and thus the portfolio investment model of Markowitz (1959) is largely acceptable in Islamic finance (Obaidullah, 2006). However, the concept of a risk-free asset is not (Siddiqi, 2005), and this effectively rules out standard valuation models such as the capital asset pricing model, although more recently the development of a sovereign *sukuk* (Islamic bond) market has caused a resurgence of interest in the use of the expected rate of profits on *sukuks* as a proxy for risk-free rates (Obaidullah, 2006).

While there is evidence that Sudanese firms use a number of different valuation techniques, such as Internal Rate of Return (IRR) and Payback Period (PB) (Eljelly & Abuldris, 2001), the use of dividend capitalization models (see for example Gordon & Shapiro, 1956) provides an alternative by overcoming the unresolved issues concerning risk-free rates of interest and the lack of suitable benchmarks for conventional valuation models. Since Islamic finance provides for dividend payments, or the distribution of profits, associated with equity ownership (Mannan, 1993) valuation models using dividends are a viable alternative. The dividend capitalization method is outlined below:

$$k_s = \frac{D_{t+1}}{P_t} + g \tag{1}$$

where k_s is cost of equity capital, D_{t+1} is the next year's (estimated or forecasted) dividend, P_t is the current stock price and g is the long run expected dividend growth rate. While there is considerable debate in the literature regarding the calculation of the growth rate the most common formula is:

$$g = (1 - \rho)RoE$$

(2)

where $(1-\rho)$ is the proportion of the retained earnings and *RoE* is the balance sheet return on equity.⁵

5. The cost of capital

The Khartoum market is highly illiquid, as evidenced by the figures on the turnover ratio and trading value reported above. This is due in part to the small size of the domestic market and to the low level of economic development, but also to the impact of *shari'ya* compliance which segments the market and raises the cost of capital. Segmentation occurs owing to the imperfect compatibility between shari'ya Mudarabah partnerships and conventional equity instruments as well as through the divergent nature of stringent regulation regarding information disclosure and conduct of market operations between shari'ya and western-focussed markets. We have estimated the cost of Sudatel equity on the Khartoum and Abu Dhabi Stock Exchange using the dividend capitalisation method, and assuming a constant rate of growth of dividends of 6% per annum.⁶ There are considerable fluctuations in the cost of equity from year to year but, when averaged over 2003–07, the cost of Sudatel equity on the less-segmented Abu Dhabi market is about half that of the comparable Sudatel stock listed on

⁵ See Brealey, Myers and Allen (2008) for a detailed analysis.

⁶ The dividend growth rate of 6% is estimated from the forecasted dividends obtained from annual reports.

Monthly equity returns, April 2003 to December 2008.

	Sudatel (Abu Dhabi)	Sudatel (Khartoum)	S&P Saudi Arabia	S&P Oman	S&P Egypt	S&P Bahrain	MSCI World	S&P Kenya	S&P Morocco
Descriptive statistics									
Mean	1.82%	2.29%	2.60%	3.25%	5.12%	2.34%	1.36%	3.26%	3.52%
Std. Dev.	16.32%	13.32%	9.53%	4.99%	9.10%	4.00%	2.72%	5.81%	7.75%
Correlations									
Sudatel (Khartoum)	0.34								
S&P Saudi Arabia	-0.15	-0.03							
S&P Oman	-0.28	-0.15	0.40						
S&P Egypt	-0.05	0.07	0.23	0.29					
S&P Bahrain	-0.09	0.03	0.23	0.27	0.39				
MSCI World	0.007	0.02	-0.02	0.04	0.11	-0.06			
S&P Kenya	-0.15	0.05	0.07	0.25	0.14	0.02	0.36		
S&P Morocco	-0.13	0.07	-0.10	0.02	0.02	-0.04	0.32	0.006	

Source: Compiled by authors from Datastream.

Note: (1) Data for Sudatel (Abu Dhabi and Khartoum listings) obtained from respective national securities exchanges. (2) Sudatel Abu Dhabi and Khartoum market series constructed following Standard & Poors index methods. (3) All series translated into Saudi Rials to facilitate comparison across wider MENA region.

the Khartoum market. The Abu Dhabi listing was clearly a strategy for Sudatel to escape the constraints of the limited Sudanese capital market, and access cost-effective finance to fund their proposed expansion in the highly-competitive Maghreb telecommunications markets.

We next examine the comparative abilities of the two major Sudatel listings to attract foreign portfolio investors (see Banalieva & Robertson, 2010 for wider discussion of multinational enterprises engaging in foreign cross listings), using an application of mean-variance portfolio theory – see Harvey (1994) for a detailed discussion. Descriptive statistics and correlations for the Khartoum and Abu Dhabi listings of Sudatel stock, and for a range of benchmark equity indices from major regional financial markets – namely Saudi Arabia, Oman, Egypt, Bahrain, Kenya and Morocco together with the Morgan Stanley Capital International index (MSCI)⁷ – are shown in Table 6. These monthly data over the period from April 2003 to December 2008 suggest that the mean-variance characteristics of the Sudatel stocks are poor in contrast to the regional benchmarks. Both stocks have low mean returns and very high standard deviations. Furthermore, the correlations in the second panel of the table show that there is minimal correlation between either of the two Sudatel assets and regional benchmarks while these values are also mostly negative in Abu Dhabi and positive in Khartoum, suggesting that the former offers regional portfolio managers some better opportunity to diversify risk.

Five equally weighted minimum variance portfolios were then constructed in line with Harvey (1994) and Jackson and Staunton (2003). The first two are centred on the Khartoum and Abu Dhabi listings plus the regional benchmarks. The last three focus on the Khartoum listing plus first Morocco and Egypt, then Egypt and Kenya, and finally Saudi Arabia and Oman. Table 7 summarises the key characteristics of each of these portfolios, notably the mean and standard deviation of the returns and the risk-return ratio.

The first panel provides further support for the dual listing in Abu Dhabi with improved mean return and standard deviation when included in a portfolio of regional assets compared with the Khartoum listing. The risk-return ratio, a modified version of the Sharpe ratio, shows the benefits to investors from including the Abu Dhabi (1.5289) asset compared to that in Khartoum (1.3437). The diversification benefits attributable to the Khartoum listing are in the second panel of Table 7. The combination of the Khartoum asset alongside the Saudi Arabian and Omani benchmark indices gives the lowest portfolio mean and standard deviation. Further evidence of the benefits to Saudi Arabian and Omani investors from including the Khartoum asset is shown from the risk-return ratios. This ratio for the portfolio with Saudi Arabia and Omani is higher (0.8999) than for either of the other two combinations, that is, Egypt and Kenya (0.7694) and Morocco and Egypt (0.8042).

The evidence suggests that large firms, such as Sudatel, engaged in highly competitive international production can escape from the segmentation imposed by an illiquid domestic market by cross-listing on more liquid regional exchanges. However, the need for more cost-effective finance must be balanced by the requirement to be *shari'ya* complaint. Consequently, firms adhering to the concept of partnership and an Islamic corporate governance system will be motivated by the need to avoid potentially harmful speculative effects and shareholder short-termism (Dietrich & Jindra, 2010). Thus, a more prominent role may be accorded to block shareholders in firms' financing strategies than in western-orientated financial systems. Shared social and religious values are likely to restrict the potential locations for cross listing to regional exchanges with sizeable *shari'ya* compliant Islamic financial instrument markets and with investors who have similar beliefs.

⁷ The MSCI market capitalisation weighted index is composed of companies representing the market structure of 22 developed market countries in North America, Europe, and the Asia/Pacific Region.

Portfolio characteristics for the Sudatel Khartoum and Abu Dhabi listings.

	Mean	Max	Min	Std. Dev.	Risk-return ratio
Panel 1: Portfolio containing all	markets and the follow	wing Sudatel listing			
Abu Dhabi	26.65%	51.81%	9.57%	4.61%	1.5289 ^a
Khartoum	25.31%	52.34%	6.81%	5.12%	1.3437
Panel 2: Portfolio with Sudatel (Khartoum) and the fol	lowing			
Morocco and Egypt	49.66%	77.74%	21.54%	14.82%	0.8042
Egypt and Kenya	51.04%	110.47%	14.43%	14.71%	0.7694
Saudi Arabia and Oman	41.98%	101.63%	-11.94%	12.22%	0.8999 ^a

Note: (1) Annual geometric means of monthly arbitrage premiums evaluated in Saudi Rials and in basis points. (2) All portfolio statistics are annualized. Risk-return ratio is the mean of the annualized mean divided by standard deviation. (3) ^aRepresents the best returns to risk portfolio performance. Bold values indicate the largest value (in panel 2).

6. Conclusions

This paper addresses the important questions regarding the ability of a fully *shari'ya*-compliant stock exchange within an Islamic financial system to provide an effective source of development capital. This paper assesses the impact of the Khartoum Stock Exchange on the Sudan economy and reviews the financing options available for larger firms within the fully *shari'ya*-compliant Sudanese financial system using the Sudan telecommunications company as a case study.

There are a number of difficulties in a study of this sort. Firstly, there is little empirical work on the impact of stock exchange financing within a fully *shari'ya*-compliant Islamic financial system in a developing context. Then there are the conceptual problems that results from the differing interpretations and understandings of *Qu'ran* and canonical texts by the various schools of Islamic jurisprudence. This is a potential source of conflict in forming a policy response to the rapidly evolving area of commercial innovation within stock exchange finance. A major issue is the existence of strong-informational efficiency that follows from Islamic requirements for full disclosure of all publicly and privately available information, which contradicts finance theory in the west, although while this is based on common shared Islamic behavioural values and ethics the frequent lack of coherent regulation and appropriate enforcement mechanisms in developing countries infers that this assumption is at best tenuous. This is not simply a problem in the application of financial models but also in practice, as small family-owned firms seek to retain sensitive information or would find the costly compliance of auditing and accounting measures to be prohibitive.

Finally the evidence suggests that fully *shari'ya* compliant stock markets are segmented from global capital markets hindering their ability to attract investment capital and rendering them less able to compete with banking systems that are better able to administer and effectively monitor the distinctive partnership-orientated Islamic financial products. Consequently larger better capitalized firms such as Sudatel that are able to cross list on regional exchanges benefit considerably from substantially reduced costs of equity capital and ability to attract foreign investment capital through being able to offer investors improved portfolio risk diversification opportunities.

Stock	Government ager	ncies	Corporate		Individual		Blockholder	Free float
	Number	%	Number	%	Number	%	%	%
Blue Nile Insurance Co.	0	0.00	0	0.00	0	0.00	0.00	100.00
Blue Nile Mashreg Bank	0	0.00	1 (Sudan)	87.64	0	0.00	87.64	12.36
El Gharb Islamic Bank	0	0.00	1 (SAR)	-	0	0.00	-	-
Sudan Tea Co.	0	0.00	1 (Sudan)	-	0	0.00	-	-
Al Shamal Islamic Bank	1 (Sudan)	-	5 (Sudan (4): SAR)	-	7 (Sudan (5): SAR)	-	-	-
Al Salam Bank	0	0.00	5 (UAE (4); SAR)	35.50	2 (Sudan)	16.97	52.47	47.53
Animal Resources Bank	0	0.00	1 (Bahrain)	-	0	0.00	-	-
Sudanese Ins. and Reins. Co.	1 (Sudan)	-	3 (Sudan)	-	0	0.00	-	-
Tadamon Islamic Bank of Sudan	1 (Sudan)	-	3 (Sudan (2); KW)	5.13	5 (Sudan (3); SAR)	44.68	-	-
Sudanese Free Zones & Mkts Co.	0	0.00	>2 (SA)	49.00	0	0.00	41.00	59.00
Sudanese Kuwaiti Road Tpt Co.	2 (KW; Sudan)	-	>2 (KW (>1); Sudan (>1))	-	0	0.00	-	-
Juba Insurance Co.	5 (Sudan)	26.75	3 (Sudan)	45.00	0	0.00	71.75	28.25
Nile Cement Co.	1 (Sudan)	-	3 (UAE; EGY; SAR)	82.97	0	0.00	82.97	17.03
Sudanese Islamic Bank	0	0.00	2 (EGY; SAR)	5.00	0	0.00	-	-
Sudatel Telecom Group	2 (Sudan; SAR)	26.18	1 (UAE)	4.60	1 (LB)	4.00	35.80	64.20

Appendix A. Ownership of listed firms on the Khartoum Stock Exchange, 2	008
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Appendix A (Continued)

Stock	Government agencies Corporate		Corporate	Individual			Blockholder	Free float
	Number	%	Number	%	Number	%	%	%
Omdurman National Bank	1 (Sudan)	2.43	7 (Sudan (6); EGY)	93.30	0	0.00	95.73	4.27
National Reinsurance Co.	1 (Sudan)	56	2 (Sudan)	32.00	0	0.00	88.00	12.00
Sudan Oil seeds Co.	1 (Sudan)	58.00	0	0.00	0	0.00	58.00	32.00
Sudanese Animal Res. Co.	0	0.00	1 (Sudan)	-	0	0.00	-	-
Sudanese French Bank	1 (Sudan)	6.48	9 (Sudan (4); LUX; SW; USA; FR; LEB)	56.58	3 (Sudan)	14.55	95.06	4.94
Watania Cooperative Ins. Co.	0	0.00	3 (Sudan)	-	1 (Sudan)	-	-	-
Islamic Development Co.	1 (Sudan)	-	5 (Sudan (2); SAR; EGY; Qatar)	45.46	0	0.00	45.46	54.54
Ivory Bank	3 (Sudan)	70.00	2 (Sudan)	27.00	-	-	97.00	3.00
Export Development Bank	1 (Sudan)	21.85	2 (Sudan)	42.79	>1 (Sudan)	34.91	99.55	0.45
Financial Investment Bank	4 (Sudan (3); SAR)	70.00	6 (Sudan)	-	3 (Sudan (2); SAR)	-	-	-
Gum Arabic Co.	1 (Sudan)	-	5 (Sudan (4); UAE)	-	0	0.00	-	-
General Insurance Co.	0	0.00	0	0.00	1 (Sudan)	60.00	60.00	40.00
Farmer's Commercial Bank	1 (BH)	-	2 (Sudan)	-	1 (Sudan)	-	-	-
Faisal Islamic Bank of Sudan	0	0.00	1 (EGY)	25.00	_	-	25.00	75.00

Source: Compiled by authors from Al Zarwya database (Dubai).

Note: (1) KW represents Kuwait, SAR is Saudi Arabia, EGY is Egypt, UAE is United Arab Emirates, SW is Switzerland, USA is United States of America, FR is France, LB is Lebanon, BH is Bahrain. (2) Data unavailable for 17 stocks (out of total of 46 listings).

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