

THE ROLE OF THE STOCK MARKET IN THE PROVISION OF ISLAMIC DEVELOPMENT FINANCE: EVIDENCE FROM SUDAN

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This study provides a unique case study into the impact of stock exchange financing within the fully shari'ya compliant Islamic economy of Sudan. The evidence suggests that while Islamic financial instruments have considerable potential in facilitating development finance through their emphasis on partnership this is better achieved through the banking system rather than the Khartoum stock exchange. Larger firms able to cross list elsewhere are likely to accrue considerable benefits from lower costs of equity and ability to attract investors although governance preferences are likely to be towards block shareholders through listing in regional MENA markets.

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1 INTRODUCTION

Islamic finance has only achieved prominence both in practice and in the literature relatively recently (Mannan, 2003) with the first Islamic banks being established in Kuwait and Egypt during the 1960s and 1970's and the Islamic Development Bank in 1975 (Rowey et al., 2006). While there is a considerable literature relating to the principles of Islamic economics that concerning Islamic finance largely focuses on either contrasting the structure and design of Islamic finance products with their contemporary Western counterparts (for example Kamali (2007) or Abdoulli (1991)) or on the Islamic banking system (Aggarwal and Yousef (2000); Lewis and Algaoud (2001)). The literature that does exist concerning the role and regulation of stock markets within an Islamic economy 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 an extended discussion).

This study intends to explore the role of the stock exchange as a source of finance and its implications in providing a source of development finance through a case study of the Sudanese stock market and its role in providing finance to the Sudan Telecommunications Company in its regional expansion. Consequently this paper addresses two research questions. The first relates to the ability of the Khartoum stock exchange, an Islamic shari'ya compliant stock market, in providing cost effective finance within a developing context. The second relates to the financing options available to firms within a developing Islamic economy using the Sudan Telecommunications company as the focus of study.

The paper is structured as follows. Section 2 explores the theoretical background behind Islamic economics and finance as a sub-discipline before introducing the principle factors governing regulation and product design in an Islamic context. Section 3 reviews the prominent Middle East and North African (MENA) regional stock exchanges before

focussing on the institutions defining of the Khartoum stock market (KSE). Section 4 studies the role of the KSE in the financing strategy of the Sudan Telecommunications Company, a prominent example of a Multinational enterprise from a developing Islamic economy. Section 5 provides a review of the impediments to an effective Islamic compliant stock exchange in a developing country drawing on the experience of Sudan. The final section concludes with policy implications.

2 THEORETICAL BACKGROUND TO ISLAMIC FINANCIAL MARKETS

2.1 Underlying principles of Islamic Economics

The relatively recent emergence of Islamic economic institutions in the MENA region is largely due to the reassertion of Islamic values and thinking as a defensive reaction to the global dominance of Western and Marxist economic principles (Kuran, 1995). These systems rose to prominence largely through colonial conquest and the immediate aftermath of post-colonial independence when many countries aligned themselves to the capitalist or socialist orders of the Cold War (Chapra, 1992).

Islam represents a system of beliefs based on the interpretation of passages from within 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 form the basis of Shari'ya law which permeates all areas of the wider Islamic system, which includes economics, finance, law, politics and government as integral component parts, and have common values of Islamic social justice (Asutey, 2007). However as Pryor (2007) notes Muslim policy makers are faced by considerable dilemmas over the sometimes contradictory interpretation of these doctrinal sources by the various schools of Muslim jurisprudence (Pryor (2007); El-Din and El-Din (2002)). Uncertainties also arise through omissions in canonical texts where considerable controversy can arise through the emphasis placed on the interpretation of Qu'ran scripts by rival schools of jurisprudence (Pryor, 2007).

However while the political economy worldview of the Islamic system encompasses all the component parts of a social system the central belief to the Islamic economics paradigm is that individuals are merely the trustees of wealth and capital owned by God (Chapra (1992) and Asutey (2007)). 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. As such the ethical actions of the individual within this system are not voluntary but rather ontologically defined as part of the revealed knowledge ultimately 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 an Islamic society (Iqbal, 1997). As such the Islamic order through its ethical economic principles can be viewed as providing “the economic system with its basis and objectives on one hand, and with its axioms and principles on the other” (Kahf, 1989). This is operationalised through a set of axioms and principles derived from the Islamic order with the objective of rationalising and verifying knowledge (Asutey, 2007), which is a common feature of all paradigms (Kuhn, 1962). These provide the basis for epistemological, institutional and functional development of knowledge and the wider economy.

Following Asutey (2007) eight foundational principles or axioms, namely Tawhid, Al-‘adl wa’l-ihsan, Ikhtiyar, Fard, Rububiyyah, Tazkiyah, Khalifah, Maqasid al-Shari’ya which are outlined in Appendix 1, provide the framework for the Islamic moral economy. These also provide the basis for behavioural norms and an institutional framework for Islamic economics. Consequently wealthier sections of society should experience a Fard, or moral responsibility, to honour the principle of zakah (or zakat tax) which provides for the poorer sections of society due to unequal wealth distributions (Asutey, 2007). The principles of Rububiyyah and Tazkiyah together with the mutual divine accountability of an individual require the responsible use of “rightful earnings by keeping the moral purposes of individuals and society in view” (Asutey, 2007). This provides the decision framework for activities deemed either morally acceptable, halal, unacceptable, haram. It also serves as a basis to regulate the two basic categories of behavioural norms governing Islamic society: those associated with production and consumption (Kuran, 1986). The norms associated with the former category infer that while the individual within the Islamic system has freedom of choice and action they are morally bound in not earning more than their efforts justify. While this promotes the notion of fair wages and the charging of reasonable prices equating to production and transport costs, it is also associated with the prohibition of speculative activities (Gharar), monopolization, or the undertaking of activities involving excessive uncertainty such as gambling (Qimar) (Kuran (1986); Naughton and Naughton (2000). Behavioural norms associated with consumption prohibit an individuals allocation of resources on haram activities such as alcohol consumption, pornography, or adultery, while encouraging moderation in consumption, attributed to a lowering in aggregate demand and decrease in demand-pull inflationary pressures (Kuran, 1986). Finally they enforce the principle of zakah in order to facilitate the equitable distribution of wealth across society (Kuran, 1986). While many of these behavioural norms are also common to the frameworks of economic schools of thought within other religions, such as Christian and Buddhist faiths

(Schumacher, 1999), proponents of Islamic economics draw on the significant differences with neo-classical economics. As such the neoclassical concept of a myopic, self-interested individual concerned with utility maximisation through rational decisions in a market framework is alien within the ethical Islamic framework concerning an individuals interest within the context of social justice of the society as a whole (Asutey, 2007).

The combination of these axioms, principles and behavioural norms provide the basis for Islamic normative prescriptions governing the institutional design and permissible activities within Islamic economics its sub-discipline of Islamic finance.

2.2 Islamic Finance

The Islamic financial system is founded and regulated on the same shari'ya principles as the rest of the overall economy and society (Iqbal, 1997). These dictate the nature of contracts traded, design of institutions to support market, and regulate the behaviour of the participants. Equally individuals within an Islamic financial system will be subject to behavioural norms, themselves founded from uniquely Islamic axioms, which gives rise to very different assumptions from those of neoclassical economics in regulating such markets. Consequently it is also necessary to reconsider standard Western valuation models owing to their inapplicability due to the lack of validity of their core assumptions. This section proceeds by reviewing the optimal regulation of the Islamic stock exchange before considering the products and then finally the valuation techniques.

(i) Islamic Regulation

The literature concerning Islamic regulation is largely normative and prescriptive (Metwally (1984); El-Din and El-Din (2002)) which is largely a symptom of a general lack of fully shari'ya compliant financial systems and stock markets globally (Pryor, 2007). The only fully shari'ya compliant banking systems being in Pakistan, Iran and Sudan with only the latter two having fully compliant stock markets (Pryor, 2007). Organised securities markets are largely necessitated by a need for risk diversification within an economy and to facilitate the redistribution of wealth and investment from investors to development projects (Metwally, 1984). However in an Islamic financial system regulation must be shari'ya compliant and activities adhere to the normative prescriptions ultimately derived from Islam's fundamental axioms and principles (Asutey (2007); Naughton and Naughton (2000)).

The products traded on an Islamic stock exchange must conform to the concept of partnership where business risks are borne equally by all partners. Owing to the prohibition

of interest, or *riba*, the Islamic stock market can be defined as a share market with transactions undertaken solely in ownership contracts (Naughton and Naughton, 2000). However there is considerable contrast between the nature of the share market between Western and Islamic economic systems. First the Islamic financial market has a number of distinct products that constitute the description of shares all of which are based on the principles of partnership between entrepreneur and provider of capital and will be described in greater detail in the following section. Secondly the common share, or equity, differs between Western and Islamic definitions in principal due to the way the contract handles asymmetric information between the capital issuer and provider. The Islamic system views the equity contract, defined as ordinary shares with voting rights, as a form of *Mudarabah*, defined in Appendix 2, where a contract is initiated between at least two partners with one providing all the capital and the other the management of the business. However where in the Western system the risk of asymmetric information is mitigated through extensive legal contracting between parties the premise in its Islamic counterpart is a common adherence to Islamic social values reinforced by *shari'ya* compliance. As such the prohibition of speculation (*gharrar*) and any form of gambling (*qimar*), i.e. 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 which is also reflected in common shared Islamic ethical values (Mannan (1993); Naughton and Naughton (2000)).

However the prohibition of practices such as selective information disclosure (*jahalah*) and speculation or gambling has considerable inferences both on the institutional design of the stock market as well as propositions concerning regulatory disclosure, accounting and auditing and the informational content of prices (Naughton and Naughton, 2000). The normative prescriptions placed on the institutional design of the stock market cause the Islamic stock market to be very different from its contemporary western counterpart. The prohibition of selective levels of information disclosure and possession which act to disadvantage some investors to the benefit of others (*jahalah*) infers strong-form efficiency (Fama, 1970) with share prices reflecting all available information in both public and private domains (Naughton and Naughton (2000); El-Din and El-Din (2002)). 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 and 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 operations¹. Equally the

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

listings of many markets, especially in developing countries, are made up from a proliferation of smaller firms. These would encounter considerable difficulty in meeting the fixed costs associated with frequent information disclosure requirements causing the stock market to be a less attractive venue for raising finance in contrast to the banking system. Although El-Din (1996) proposes government assistance for smaller companies in meeting financial obligations arising from costly information disclosures this is questionable as markets would no longer be free-standing and could only operate under subsidy.

The Islamic shari'ya compliant stock market is fundamentally different from its western counterpart in terms of the institutional design promoting the concepts of information and allocation 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 persisting within the market. In developed western financial markets arbitrageurs often use short sales, defined as borrowing stock in order to execute a trading strategy and make a profit. Often their actions are speculative in nature and necessitated by the need to exploit differences in price thereby increasing information efficiencies and reducing overall transactions costs. However in an Islamic market short-selling is considered to be unacceptable (Naughton and Naughton, 2000) as is gambling and speculation (El-Din and El-Din, 2002). As the securities traded represent partnerships that infer an equal burden of risk and reward on both capital issuers and investors then both the notions of information disclosure and efficiency can be viewed in the light of the close cooperation needed by both parties involved in the investment. Concerns regarding asymmetric information are thus mitigated through the common adherence to shari'ya principles of all parties involved in the investment partnership. As such regulation relating to information disclosure as well as information efficiency occurs through ethical considerations enforced through prescriptive behavioural norms in shari'ya compliance.

Regulation in Islamic financial systems commonly follows the self-regulatory model which is particularly prevalent in Islamic banking systems (El-Din and El-Din, 2002). While El-Din and El-Din (2002) extend the validity of the self-regulatory model to the concept of the Islamic stock market there is evidence from one of the two fully shari'ya compliant markets, that of Sudan, that this model is followed (KSE annual report, 2004). A commercially trained and independent shari'ya council acts alongside the stock exchange itself in advising on the permissibility of instruments and activities on the exchange and endorsing regulations (KSE annual report, 2004).

(ii) Islamic financial products

A critical feature of the Islamic financial system is that the permissibility of the proliferation of financial products and legal definitions of the firm, or partnership, are subject to validation by the various different 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*, defined in Appendix 2, there is considerable consternation over many more recently developed products that bear significant resemblance to western debt instruments. The prohibition of interest or *riba*, which is one of the most common distinguishing features of Islamic finance, is the subject of controversy due to differing interpretations by the various schools of Islamic jurisprudence of the translation from the Qu'ran of the associated term of usury (Noorzoy, 1982). Kuran (1995) also notes that the original outlawing 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 had the tendency to push defaulters into enslavement it was the source of acute tensions within society and its ban constituted a form of bankruptcy protection in line with the concept of social justice prevalent in Islam (Kuran, 1995). However despite the popularly interpreted ban on interest, or any products offering a fixed schedule of repayments, few countries have been able to fully prevent the use of debt-based instruments (Pryor, 2007) in part due to the interconnected nature of the international financial system (Aggarwal and Yousef, 2000) and the dominance of western financial principles (Asad, 2008).

The central tenet of Islamic financial product design is that of partnership between both the capital issuer and investor. This is reflected in the expectation that both parties are actively involved in the operation of the business and share in the risks involved, which is also commonly referred to as the profit-and-loss-sharing (PLS) paradigm (Presley and Sessions (1994); Aggarwal and Yousef (2000)). The exact division of responsibilities, together with levels of risk and reward attributable to the partners is defined in the *shari'ya* compliant contract. This in turn is enforced by adherence of all partners to common ethical standards and social values inferred within the *shari'ya* system which can be construed as being a form of social capital linking all parties involved in the transaction.

Mudarabah and *Musharaka* contracts are the oldest type of contract and have been attributed with facilitating trade and enabling diversification of risk since ninth century Arabia (Aggarwal and Yousef, 2000). These contracts have also played a historical role in

facilitating long distance trade in commodities such as gum arabic, ivory and minerals that involved camel caravans between the Sudan and Egypt (Tignor, 1987).

The mudarabah contract commonly involves a partnership between the entrepreneur (manager) and at least one investor (capital provider) (Aggarwal and Yousef, 2000) where the latter provides the sole source of capital which facilitates the comparison by many schools of Islamic jurisprudence between this and the role of common equity, or ordinary shares, in contemporary western financial markets (Mannan, 1993). The distinction arises through the Mudarabah contract inferring a closer partnership than in the more distant legally defined relationship between principal (investor) and agent (manager) envisaged in equity contract within western finance. As such mudarabah contracts are also closer in structure to limited liability partnerships common to western markets (Aggarwal and Yousef, 2000) and there are two sub types restricted and unrestricted, with the distinction being on the nature of pre-agreed restrictions concerning the use of funds by the entrepreneur. One consequence of the strong emphasis on partnership and risk sharing enshrined 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 that in practice there is a general perception in Sudan that mudarabah contracts are risky and consequently there is a general reluctance in entering this type of partnership unless there is considerable confidence and existing trust between potential partners. This would imply that larger block shareholders would dominate the Sudanese share market in order to mitigate concerns over contract risk.

In contrast the musharaka contract involves a partnership where both partners (i.e. entrepreneur and investor) jointly provide the capital and manage the venture (Aggarwal and Yousef, 2000). These contracts are more akin to a traditional equity stake with rights of control (Aggarwal and Yousef, 2000) and have been proposed as being the optimal contract structure for use in developing the fledgling Islamic venture capital and private equity where a degree of capital provision together with some influence and control over incumbent management is necessary (Al-Suwailem (1998) and Khan and BenDjilali (2003)).

Murabaha contracts involve the resale of a 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). While these contracts are not actively traded on the Sudanese stock exchange they overwhelmingly dominate in the banking sectors provision of development finance and microcredit in a business environment dominated by small family-

owned enterprises (Badr El-Din, 2003). Commonly the entrepreneur makes an application to the bank (or investment partner) for the financing of a purchase of raw materials for production. Invoices for the materials commonly accompany the application and the bank (investment partner) subsequently 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 (Badr El-Din, 2003). The shari'ya compliant Islamic financial system does confer considerable benefits in the financing of smaller scale industry through its adherence to principles of social justice. These infer improved bankruptcy protection, a necessity in smaller and higher risk ventures, and an emphasis on development through partnership rather than insistence on collateral and creditworthiness common in the western financial systems. However the major constraints involved in this type of financing are the selection of an appropriate guarantee for murabaha that is suitable for small often poorly capitalised entrepreneurs and the extensive costs involved in the surveillance and monitoring of projects following funding (Badr El-Din, 2003). These almost prohibitively high monitoring costs has caused all the major banks in Sudan to locate branches within industrially developed areas (Badr El-Din, 2003) which has caused development to be highly concentrated and only within existing centres in Sudan.

Ijara, or lease, finance has undergone considerable recent growth and development. This is commonly arranged through the banking sector and is centred on a partnership where the bank (investor) buys and leases out equipment required by the entrepreneur for a pre-agreed rental fee. The ownership of the equipment remains with the bank (investor) which will seek to recover both the capital cost of equipment plus a profit margin from the rent due to be paid by entrepreneur (Rowey et al., 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). In combination with government sukuk they have formed the basis of the sukuk-al-ijara market, otherwise known as the international Islamic bond market (Rowey et al., 2006). While this market has rapidly grown from its inception in 2001 the sovereign sukuk have been proposed as a potential equivalent of the risk-free interest rate used to represent the time value for money in contemporary western finance.

(iii) Valuation in Islamic finance

Share valuation in an Islamic context involves revisiting the foundational principles of valuation theory in the context of the prohibition of interest (riba) and the PLS paradigm with

its 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 in order to arrive at a Net Present Value (NPV) for the firm (Siddiqui, 2005). However the calculation of the expected rate of profit is a complex issue given the divergent views over the concept of the time value of money between Islamic and western finance (Obaidullah, 2006). The very notion of profit and loss sharing and partnership inherent in Islamic contracts infers that an element of risk is bourn by all partners involved in the transaction. Consequently the basis of risk and return and equity portfolio investment (Markowitz (1959))² is largely acceptable in Islamic finance (Obaidullah, 2006) whereas the concept of a risk free asset is not (Siddiqui, 2005). These unresolved issues create considerable difficulties in the application of the capital asset pricing model (CAPM) which is one of the most common pricing models used for valuation. The model was first proposed by Sharpe (1964) and Lintner (1965) and in its simplest form, estimated in a time series regression, relates the excess returns of a stock to those of the market,

$$(R_{s,t} - r_f) = \alpha_i + \beta_{iM,t}(R_{M,t} - r_f) + \varepsilon_{i,t} \quad (1)$$

where $(R_{s,t} - r_f)$ and $(R_{M,t} - r_f)$ represent the excess returns of stock s and of the market portfolio M over the risk free rate r_f . The intercept, more commonly known as Jensen alpha is α and the sensitivity between returns of stock s and market portfolio M is $\beta_{iM,t}$.

However while the inapplicability of a risk-free rate within the Islamic context could prove to be a barrier in applying portfolio investment theory the very recent emergence of shari'ya compliant Islamic asset-backed debt securities, or sukuks, has offered a new route for overcoming this constraint. Instruments such as the sukuk-al-ijara bear little risk on the investor as the residual risk with the related Islamic ijara instrument is transferred to a sovereign entity as a third party that contractually absorbs this risk. This results in the sukuk functioning in a similar manner to government treasury bills and opens the possibility for it to be used as a risk-free rate in conventional valuation models such as the capital asset pricing model (CAPM) (Obaidullah, 2006). However while there has been considerable growth and development in the Islamic sukuk market amongst developed and the larger developing countries such as Malaysia and Indonesia as well as the Arabian Gulf region this market is still in its infancy in North Africa and Sudan limiting opportunities to use this instrument as a proxy for the risk-free rate. An additional obstacle to successful valuation is the lack of viable Islamic benchmarks to proxy market returns. This is a particularly acute issue in

² Harvey (1994) provides a full derivation of mathematical principles behind portfolio theory that are used in this study

developing markets such as Sudan where the range of companies listed is small in relation to the overall economy, the markets are often dominated in size and activity by a few firms, and consequently despite being fully shari'ya compliant the actual market returns are ill-able to proxy the market returns in the CAPM valuation model. The CAPM is commonly used in providing the cost of equity capital or discount rate used in Net Present Value (NPV) valuation techniques.

One alternative method that avoids some of these issues is that of the Payback Period (PB). This measures the length of time for an investment to recover its initial outlay, or cost, and is represented in (2),

$$\text{Payback Period} = \frac{\text{Investment Cost}}{\text{Annual Cash Inflow}} \quad (2)$$

However while the application of this simple method may present less consternation in Islamic finance as there are no questionable assumptions concerning time value for money and opportunity costs, it does not take into account other risks affecting the value of an investment such as inflation and business risks.

Another common method that is frequently used in Sudanese valuation is that of the Internal Rate of Return (IRR) (Eljelly and Abuldris, 2001). This assumes that the forecasted cash flows over the known lifespan of the project are known and calculates the expected rate of return from equating these to a net present value of zero in order to calculate the minimum “hurdle” rate of profitability for the project. The IRR is shown in (3),

$$NPV = \sum_{n=0}^N \frac{C_n}{(1+r)^n} = 0 \quad (3)$$

where n is the number of periods, commonly monthly or annual, C_n is the cash flow per period, and r is the internal rate of return. The value of r is typically calculated either by polynomial expansion or more commonly by graphical methods relating a number of NPV outcomes against a sequence of possible IRR values. The major failing of the IRR method is that it does not take into account rates of reinvestment of cash flows back into project. Consequently a derivative of the simple IRR method, the modified internal rate of return, alleviates this issue.

The use of dividend capitalization models (see for example Gordon and Shapiro (1956))³ provides one alternative in overcoming the unresolved issues concerning risk-free rates of interest or yield and the unavailability of suitable benchmarks in conventional valuation models. Since Islamic finance provides for dividend payments, or the distribution

³ See Brealey, Myers and Allen (2008) for a detailed analysis.

of profits, within the expected returns of shares (Mannan, 1993) valuation models using dividends promote a viable alternative to the unresolved issues involved in these use of Islamic debt or benchmarks for valuation. The dividend capitalization method is outlined below in (4),

$$k_s = \frac{D_{t+1}}{P_t} + g \quad (4)$$

where k_s is cost of equity capital, D_{t+1} is next years (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 consternation in the literature regarding the calculation of the growth rate the most common formula used is,

$$g = (1 - \rho)RoE \quad (5)$$

where $(1 - \rho)$ corresponds to the proportion of the firms retained earnings and RoE corresponds to the balance sheet item return on equity.

Eljelly and Abuldris (2001) find considerable evidence of the common use of these methods to calculate a discount factor or cost of equity within capital budgeting techniques in Sudan. The findings suggest that private companies tend to adopt Payback Period, Net Present Value or Internal Rate of Return techniques while state owned enterprises commonly only use the first two methods. This study uses the dividend capitalization method of Gordon and Shapiro (1956) in order to estimate the cost of equity as it largely avoid the questionability of the other methods despite their reported common usage.

2.3 Implications for corporate governance

The considerable differences in the institutional structure and products traded within the shari'ya compliant Islamic financial system in contrast to western financial systems give rise to significant inferences on the managerial governance of firms. Relationships between entrepreneurs (agents) and investors (principals), otherwise known as agency issues, are heavily influenced by the concepts of partnership and mutual sharing of risks and responsibilities prevailing within the Islamic system. Equally the lack of debt-based instruments and the very different structure of conventional equity, as mudarabah contracts, infer that corporate governance in an Islamic context is very different from that in a contemporary western system.

Corporate governance is not the discourse between principals (owners) and agents (managers) and the improvement in design of control mechanisms to mitigate the agency problems so familiar to the contemporary western literature. Instead in an Islamic context it

seeks to develop corporate stewardship through *amana* (trust) and the closely related concept of *umma* (solidarity amongst Muslims) which is reflective of shared values “that wealth belongs to God and man is, individually and collectively, custodian of wealth” (Ali, 1999). Organisational culture of a corporate entity can be conceptualised as the collective programming of the mind which distinguishes the members of one organisation from others (Hofstede, 1994). Furthermore this can be viewed in two distinct ways. The first views organisational culture as part of a superior whole in which culture is one of several variables, such as technology, planning etc, that shape an organisation and the behaviours of its members. The second views the organisation itself as a culture and can be referred to as a social construct with systems of shared meanings and patterns of symbolic discourse (Lewis and Algaoud, 2001). Consequently corporate culture in an Islamic organisation should be one in which Islamic values are reflected in all facets of group and individual behaviour. As such a collective morality and spirituality is established to reinforce behavioural norms within an Islamic context and define its unique approach to corporate governance and stewardship prescriptions. There is also some empirical evidence (see Presley and Sessions (1994)) concerning the improvement to surveillance, monitoring and project outcome or compensation arising from the use of *mudrabah* contracts as opposed to conventional debt-based financing. This is in direct contrast to the considerable literature in western finance concerning the benefits of using debt in resolving agency problems. However the longer term partnership nature of *mudrabah* contracts supports the presence of large block-shareholders as opposed to smaller shareholders who are likely to be more interested in short-term gains as opposed to longer term lower-return yet socially beneficial projects (Mannan, 1993). This further delineates the very different nature of incentive compatibility and organisational efficiency in the Islamic partnership system in contrast to the western system where the short-termism of profit-maximising shareholders acts to exert pressure on managers.

3 THE STOCK MARKET AS A SOURCE OF DEVELOPMENT FINANCE

3.1 Characteristics of regional MENA markets

The structure and regulation of securities markets across the wider MENA region is generally reflective of the colonial legacy in terms of the orientation of legal systems and ranges of financial products. There are clear divisions between markets following French civil code as opposed to those adhering to English common law (La Porta et al., 2008) while the only exceptions are Iran and Sudan adhering to Islamic *shari'ya* law. Many of the MENA markets do however have segments dedicated to the issuance and trading of Islamic products although

these are freely traded alongside debt-based instruments as is the case in countries such as Turkey, Egypt and Saudi Arabia (Aggarwal and Yousef, 2000). The evidence in Table 1 shows that a lack of trading activity, as indicated by very low turnover ratios of less than 10%, is a major concern across the region. This is even despite the considerable size of individual markets with the Saudi Arabian Tadawul stock exchange having a market capitalization of US\$ 157,306.44m which alone is over 43% of MENA markets total capitalization. In contrast the North African exchange together account for just under 12% of regional capitalization while the Sudanese exchange accounts for a mere 0.21%. However while the little activity there is in MENA exchange is concentrated between Saudi Arabia and Kuwait, with all other exchanges having a turnover ratio of less than 5%, there is a more even distribution of market capitalization to GDP. This provides an indication of relative importance or size of the role that the stock market has in relation to rest of economy. Four exchanges, namely those of Kuwait, Doha (Qatar), and the smaller Amman (Jordan) and Bahrain exchanges have market capitalization to GDP ratios in excess of 100%. The evidence concerning the low levels of activity, small size, and relatively low levels of size in relation to aggregate economy do indicate that the banking sector plays a more active role in finance across the MENA region.

Table 1

3.2 The Khartoum Stock Exchange (KSE)

The Khartoum stock exchange (KSE) was established in 1994 with the assistance of the Common Market for Eastern and Southern Africa (CoMESA)⁴. The market is fully Islamic shari'ya compliant with regulation following the self-regulatory model administered through both 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 one hour from 10-00am to 11-00am with buy and sell orders being relayed to floor-based representatives of registered brokers for execution. The over-the-counter (OTC) market trades outside exchange trading hours and between licensed brokerage companies.

The evidence in Table 2 shows the KSE has grown considerably since inception from 34 listed firms in 1995 to 51 in 2006 with this growth being matched by similar increases in activity, defined as the number of traded shares, and market capitalisation. The OTC market is administered by the KSE legal affairs department and involves inter-family and inheritance

⁴ 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

transactions which are complex due to the complicated nature of Islamic law involved in terminating a mudarabah partnership agreement (known as equity in western finance) following the death of a partner. As such the increases in the OTC market can be attributed to an increasing understanding and popularity amongst domestic population for the stock exchange and its products. This is further elaborated in the substantial increases in the ratio of market capitalization of OTC market to that of the aggregate secondary market. However the increases in the traded value are more modest starting from a meagre US\$ 3.50m in 1995, rising to a peak of US\$ 178.04m in 2004, before falling to a final value of US\$ 51.46m in 2006. Equally the ratios of market capitalization to GDP and market capitalization to money plus quasi-money, acting as a proxy for the size of banking system, are very low indicating that the KSE has only a small role within the economy which is itself negligible compared to the role of the banking sector.

Table 2

Since inception the KSE has undergone significant innovation with the 1999 splitting of the secondary market into organized and parallel markets with the latter adopting less stringent disclosure requirements in order to play a more active role in the development financing of smaller firms. Additional formal markets also exist for exchange traded funds (sukuks) and Government shihama (musharaka) certificates (KSE Annual Report, 2004). The KSE has also benefitted from active promotion by the government of Sudan with the introduction of government shihama (a form of musharaka) certificates in 2001, which increased domestic awareness of exchange based investment products (KSE Annual Report, 2004). This caused substantial increases in traded volume and value as well as in OTC trading volumes.

The KSE has a small and highly concentrated local brokerage industry, as is evident from Table 3, where one company alone, the Financial Investment Bank, accounts for over 85% of aggregate capitalisation. This entity itself was established through the tacit assistance of the government to facilitate the listing of the Sudan Telecommunications Company (Sudatel) as part of an IMF recommended privatization program. The brokerage industry is also subject to the regulatory licensing requirement that firms must be located around Khartoum (KSE website, 2007) inferring that the stock exchange is very limited in being able to access a wider pool of potential investors from across the country.

Table 3

The evidence from Table 4 suggests that the KSE equity market is highly skewed with only two firms, Sudatel and Sudanese Free Zones & Markets, accounting for over 87% of the aggregate market capitalization. Sudatel alone dominates the KSE by accounting for over 62% of the aggregate market capitalization and over 83% of traded value. Further evidence of Sudatel's dominant position in the small market can be seen from Figure 1, which contrasts the evolution of the Arab Monetary Fund (AMF) aggregate market index to the price index of Sudatel and annual trading volumes with a common base date of second quarter 2004.

The highly skewed nature of the KSE with only a handful of firms accounting for the majority of capitalization and activity largely reflects the wider Sudanese business environment which is made up from a proliferation of small family-owned and managed firms and a small number of very large former state owned enterprises (Tignor, 1987). The situation in the tiny funds (sukuk) market is similar to that of the secondary market in being overwhelmingly dominated by the Second Sudatel Dollar Fund accounting for over 93% of traded value in the funds segment, which itself accounted for a mere 0.62% of the overall KSE traded value. In contrast to the equity market the shihama (a form of government musharaka contract) market collectively accounts for 25.40% of the capitalization of the entire KSE and has a more even distribution of traded value between listed instruments.

Tables 4 and 5

Figure 1

The evidence in Table 5 indicates that the ownership of listed firms is dominated by a small number of block-shareholders who have sizeable equity stakes. The presence of large block-shareholders is also confirmed by the generally very low free float percentages, defined as the proportion of shares out of the total issued that are freely available for the public. The presence of larger block-shareholders is largely expected owing partly to the domestic Sudanese perception of mudarabah (equity) instruments as highly risky (Badr El-Din, 2003). Equally there is a fear of loss of control in smaller family-owned firms together with the genuine fear of potential investors from expropriation following investment in smaller firms and a lack of protection from the regulatory authority despite shari'ya compliance (Badr El-Din, 2003). Finally the presence of block-shareholders is anticipated from the normative prescriptions of Islamic finance itself where significant emphasis is placed on longer term partnerships (Naughton and Naughton, 2000).

There is also strong evidence of sovereign involvement in the equity market, either through direct ownership or indirectly through a variety of ministries and regional

development agencies. There is also strong evidence of sovereign involvement in the equity market, either through direct ownership or indirectly through a variety of ministries and regional development agencies. In common with the pattern of corporate ownership, the little sovereign ownership that exists is overwhelmingly dominated by Sudan and Saudi Arabia with the latter to be the only other country to have significant involvement in the market.

3.3 Competition from the banking sector for provision of funds

The Sudanese banking sector has traditionally acted as the source of funds for industrial growth and economic development and is also Shari'ya compliant. The banking system channels the revenues from recent windfall gains from oil production in the south. Relationship-based bank finance is the dominant source of business funding in Sudan. Table 7 shows an increase 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, while musharaka contracts can account for between 20% and 30% of funding resources. Mudarabah and salam contractual arrangements are considerably less common, and each generally accounts for up to 6% of banking sector funding. Finally, other more specialised forms of contractual arrangements (including ijara and mugawla contracts) together account for the residual 12-20%. Financing by murabaha contracts had the biggest increase in absolute terms between 1998 and 2006, although the relative proportions provided by each contract type remained relatively constant.

Table 8

The literature on the role of a stock market within an Islamic shari'ya compliant financial system has been largely focussed on the normative prescriptions of Islamic finance as a discipline due to a paucity of examples of fully compliant shari'ya compliant markets. The limited range of types of contract that can easily be traded on a stock exchange together with the considerable monitoring costs implicit in some, such as murabahah, would indicate that the banking system is better placed to deal with these issues. Equally a general perception of riskiness in mudarabah contracts and the prevalence of Islamic social values emphasising partnership decreases the attractiveness of the KSE as an investment venue.

The demand for stock exchange products is extremely limited with an almost exclusive focus on the few comparatively wealthy industrialised areas of the country such as Khartoum and Port Sudan. Extreme poverty is prevalent in Sudan with over 20 million out of a total population of 34 million people living on less than 1US\$ per day in 2002 (Rural

Poverty, 2008). The affects of over 20 years armed conflict and the loss of over 1.5 million lives in outlying regions together with one of the worlds highest illiteracy rates with 11 out of 16 provinces having illiteracy rates under 50% in 2003 (UN Sudan Millennium Goals, 2004) has limited the potential demand for stock exchange products in favour of the banking sector and micro-credit initiatives. Equally the basic assumptions in Islamic finance regarding universal availability of information and strong-form efficiency of prices, reflecting all private and publicly available information, is extremely tenuous in the developing context. Ali (2007) notes that there is a “lack of the basic production of audited financial statements amongst the majority of the 285 registered firms in Sudan’s formal economy” as well as minimal recognition or implementation of internationally recognised accounting standards. The under-developed nature of the exchange institutions together with its limited reach in terms of both poverty alleviating products and geographic location means that the banking sector will continue to dominate the financial sector in Sudan.

4 THE EQUITY FINANCING OPTIONS FOR LARGER KSE LISTED FIRMS

Larger more internationally orientated firms seeking to compete in regional product markets do face significant constraints concerning the viability of industrial projects arising from their ability to source cost effective finance. While this is a common issue facing any firms engaging in international production it is especially acute for firms from developing countries where financial markets are underdeveloped and costs of capital, known as the expected rate of profit in Islamic markets, are often very high. While the Khartoum stock exchange has three firms that are cross listed, only one, the Sudan Telecommunications Company (Sudatel) has a primary listing on the domestic exchange. As Sudatel is also engaged in product expansion in the highly competitive Maghreb and Sub-Saharan African telecommunications markets it provides an interesting focus to examine the issues facing firms that are both shari’ya compliant in their financing and originate from Islamic markets.

4.1 The benefits of cross listing for firms

The immediate benefits for KSE listed firms that are able to cross list on other regional and international exchanges is that they are able to overcome the segmentation that forms an effective barrier preventing access to cost effective finance. The sources of segmentation in Sudan are the combination of the market being fully shari’ya compliant while also being largely underdeveloped. The former infers a lack of comparability of institutions and products with regional or international markets following western-orientated financial

systems. The latter is common to many developing countries with transactions costs arising from uncertainties relating to regulation, illiquidity, and informational efficiency.

The evidence from the first panel in Table 7 relating to the regional cross listings of Sudatel between Bahrain and Abu Dhabi reveals that the size of the Abu Dhabi listing is almost double that of Khartoum for much of its history. Similarly both the turnover ratio, a measure of trading activity or liquidity, and the traded value of the Abu Dhabi listing is considerably greater than that of the Khartoum. These figures reveal that the secondary listing on the Abu Dhabi exchange is more frequently traded, having higher liquidity, and consequently has provided Sudatel with a more cost effective source of finance than the domestic Khartoum primary listing. The Bahrain listing is in contrast to Abu Dhabi with levels of market capitalization considerably lower, approximately 10% of the Khartoum level, and with no traded value or any turnover ratio. This listing is likely motivated by the need to attract high net worth individuals from the Arabian Gulf emirate, who would be interested in a longer term Islamic compliant partnerships.

Table 7

The estimates of the cost of equity between the Khartoum primary and Abu Dhabi secondary listing are provided in the second panel of Table 7. The Gordon and Shapiro (1956) dividend capitalization method was used in order to avoid obvious difficulties associated with the selection of an appropriate benchmark or risk-free rate in the use of asset pricing models such as the CAPM. The results show a clear reduction in the cost of equity in the Abu Dhabi listing in contrast to that of Khartoum which justifies the secondary listing as enabling the company to compete with regional competitors on a more cost effective basis.

4.2 The role of cross listings in attracting foreign investors

The comparative ability of each of the two major listings of Sudatel, between Khartoum and Abu Dhabi, in attracting foreign investors is studied through an application of mean-variance portfolio theory first proposed by Markowitz (1959).

Table 8 summarises the descriptive statistics and correlations for the Khartoum and Abu Dhabi listings of Sudatel as well as a range of benchmark equity indices from major regional financial markets, namely Saudi Arabia, Oman, Egypt, Bahrain, Kenya, Morocco and also the Morgan Stanley Capital International Index (MSCI).⁵

Table 8

⁵ 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.

The evidence in Table 8 reveals that the mean-variance characteristics of both Sudatel listings are poor in contrast to the regional benchmarks. Both stocks have low mean returns and very high standard deviations in relation to rest of sample. However the correlations in the second panel of Table 8 reveal that the Abu Dhabi asset has mostly negative correlations with other regional benchmarks in contrast to the mostly low positive correlations of its Khartoum counterpart. This would indicate the Abu Dhabi stock offers regional portfolio managers improved opportunity to diversify risk.

The comparative benefits to investors arising from including either of the two listings in regional portfolios is further examined through the use of minimum variance portfolios which avoid unresolved issues between Islamic and western finance concerning utility maximisation. Five portfolios were constructed. The first two are centred on the Khartoum and Abu Dhabi listings in addition to the inclusion of all regional benchmarks. The last three focus on the Khartoum listing in addition to firstly Morocco and Egypt, then Egypt and Kenya, and finally Saudi Arabia and Oman.

The evidence from the first panel in Table 9 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 in contrast to the Khartoum listing. The risk-return ratio, which is a modified version of the Sharpe ratio in relating a portfolios annualised return to its standard deviation, provides further evidence of the benefits to investors from including the Abu Dhabi (1.5289) asset as opposed to the Khartoum entity (1.3437). The results from the study of the diversification benefits attributable to the primary Khartoum listing are given in the second panel of Table 9. The combination of the Khartoum asset alongside Saudi Arabian and Omani benchmark equity indices does give rise to the lowest portfolio mean in contrast to the other combinations but this combination also has the lowest 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. The risk–reward ratio for the portfolio with Saudi Arabia and Oman is considerably higher (0.8999) than for either of the other two combinations, namely Egypt and Kenya (0.7694) and Morocco and Egypt (0.8042). These results do in part explain the significant presence of Saudi Arabian and Arabian Gulf investors in the Sudanese equity market as seen earlier in Table 5.

Table 9

The evidence does suggest that owing to the significant segmentation of the KSE cross listing on more liquid regional exchanges is an option for larger firms engaged in highly competitive international production. However the need for more cost effective finance, at a lower cost of equity, must be balanced by the requirement to be shar'iyah compliant and adhere to the shared social values of the Islamic financial system. 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. As such there will be a more prominent role 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.

6 CONCLUSIONS

This paper addresses the important issues in the literature 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 is addressed first through a study of the impact of the Khartoum stock exchange on the wider Sudanese economy and secondly through a review of 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.

One of the most significant difficulties in the study of the impact of stock exchange financing within a fully shari'ya compliant Islamic financial system in a developing context is the prevalence in the literature of normative prescriptive studies and a distinct lack of empirical work. Further difficulties at a contextual level concern the differing interpretations and understandings of Qu'ran and canonical texts by the various schools of Islamic jurisprudence. This is a potential source of conflicting policy in the rapidly evolving area of commercial innovation within stock exchange finance in a developing context. Equally unresolved issues reside with normative prescriptions of strong-informational efficiency with prices reflecting all publicly and privately available information. Although the notion of strong-form efficiency 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 especially the case where conservative business cultures dominated by small family owned firms such as that in Sudan seek to retain sensitive information. Equally the implementation of very stringent regulation would infer considerable costs on listed firms faced with costly compliance of auditing and

accounting measures which would dramatically reduce the competitive viability of stock exchange finance in contrast to bank finance. Further issues relate to the limited range of Islamic finance products that are easily traded and compatible with stock exchange operations. While there is evidence of improved corporate governance and monitoring arising from the use of mudarabah partnership-based instruments in contrast to debt contracts commonly associated with western financial markets, these contracts are also perceived to be risky with investors reluctant to invest. Finally the strong emphasis of partnership in an Islamic financial system and the consequent considerable post-transaction monitoring costs arising from shari'ya compliance infers that the relationship-based banking system is likely to dominate developing Islamic countries with stock markets having a minimal role in development. There is evidence that larger firms such as the Sudan Telecommunications company that are able to cross list on regional exchanges benefit from substantially reductions in costs of equity capital. However while cross listing represents a potentially more cost effective source of equity capital concerns over activities such as shareholder short-termism and speculation are likely to restrict the locations of cross listing to other Middle Eastern markets with a preference towards block-shareholders rather than diversified ownership.

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Table 1. Trading Statistics on Selected Middle East and North Africa 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	9,701.77	100.99	0.27
Muscat Securities Market	1988	7,246.23	33.56	1.49
Iraq Stock Exchange	2004	2,686.94	3.06	0.48
Bourse de Tunis	1969	2,439.55	9.07	1.03
*Khartoum Stock Exchange	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 authors from national stock exchange websites and Arab Monetary Fund.

Notes (1) The Khartoum stock exchange is highlighted with an asterisk.

(2) Data on Iraq is collected direct from exchange website.

(3) Although the Saudi stock market had existed in an informal capacity since early 1990's the Tadawul stock exchange was only established in 2007

Table 2: Descriptive Statistics - the Sudan Stock Exchange (US\$m), 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		
Funds raised from Rights and Bonus Issues	1.15	2.09	0.28	6.09	22.17	34.24	29.99	56.61	60.43	3.98		
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.	44	32	139	111	237	392	457	593	741.22	2,058.42	3,241.64	3,563.49
Value traded	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		
Overseas						0.000	0.748	0.517	3.301	0.372		
Inter-Family	0.001	0.003	0.020	0.064	0.246	0.476	6.908	0.339	0.468	3.479		
Inheritance	0.002	0.004	0.002	0.005	0.041	0.142	0.102	0.203	0.139	7.426		
Total	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 val./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%
OTC/Secondary Mkt.	0.42%	8.29%	1.41%	29.00%	2.01%	25.29%	2.59%	8.65%	1.72%	36.23%		
Savings rate/GDP	6.72%	2.99%	3.02%	2.66%	3.07%	3.42%	4.45%	5.23%	5.87%	6.68%	11.44%	9.70%
Life Expectancy at Birth (Yrs)	55.12	55.12	56.20	56.20	56.60	56.55	56.94	57.33	57.73	58.54	58.54	58.92
Literacy Rate	46.10%	46.10%	53.30%	53.30%	50.00%	34.60%	34.60%	34.60%	50.50%	50.50%	50.50%	50.50%

Source: Compiled by the authors from the Arab Monetary Fund, Bank of Sudan Annual Reports, and the Khartoum Stock Exchange website.

Notes: (1) Values for 2005, 2006 obtained from Al Zawya database (Dubai).

Table 3. Sudan Licensed Broker Capitalization (US\$ '000) - 2004

Broker	Capitalization (US\$ '000)	Market share (%)
Financial Investment Bank (Public Company)	3,976.62	85.54
Al-Ruad for Financial Services (Public Company)	139.18	2.99
Al-Muhajir for Financial	119.29	2.57
The National Company for Financial Transactions	39.77	0.86
Tarweeg Financial Investment Company Limited	39.77	0.85
Remaining Brokers (16)	334.04	7.19
Total	4,648.67	100.00

Source: Compiled by authors from Khartoum stock exchange annual report (Arabic), 2004.

Note: (1) Remaining Brokers are: Green Gold for Securities, Elkasheep for Securities, Securities Services Company Limited, Success Dealing Company Limited, Al-Araaf for Securities & Investment, International Company for Monetary Management, Al-Amin for Securities, Branto for Financial Services, Al-Mustashar for Securities, Eldarhim Financial Investment Company, Al Tardamon for Financial Services, Al Baraka for Financial Services, Al Mansour Financial Services, Crown for Financial Investment, Daw G for Financial Company, Gunoser Financial Investment Company.

Table 4. Khartoum Stock Exchange listed firms, 2004

Market	Company	Listing Date	Days Traded	Value Traded (US\$ Millions)	Cumulative proportion of traded value (%)	Market Capitalization (US\$ Millions)	Proportion of total Market Capitalization (%)
Organized	Sudatel (Sudan Telecom. Co. Ltd.)	1997	224	97,165,303.27	83.52	946,482,920.83	62.66
	Nile Cement Company	1996	11	15,485,218.38	96.83	2,819,637.43	0.19
	Sudanese French Bank	1994	15	1,125,597.85	97.79	11,815,371.00	0.78
	Saudi Sudanese Bank	1994	15	935,873.13	98.59	11,455,775.40	0.76
	Sudanese Islamic Bank	1994	56	564,886.61	99.09	7,571,693.82	0.50
	Gum Arabic Company	1994	79	548,757.26	99.56	8,662,560.84	0.57
Organized	Total (22 listed organized market firms):	---	---	116,338,538.66	100.00		---
Parallel	Sudanese Free Zones & Markets	2002	44	15,066,434.34	97.91	381,620,073.97	25.26
	Al Rowad Financial Services Co. Ltd.	2002	3	174,324.97	99.04	38,970.85	0.002
	Multi Media Company Limited	2001	2	135,204.99	99.91	254,384.22	0.17
Parallel	Total (29 listed parallel firms):	---	---	15,388,306.50	100.00		---
Total	Parallel and Organised (51 listed companies)	---	---		---	1,510,614,998.55	100.00
Funds	Second Sudatel Dollar Fund	---	23	1,030,489.72	93.66	---	---
	Development Fund	---	5	47,743.67	97.99	---	---
	Nile Fund	---	3	18,668.36	99.69	---	---
Funds	Total (7 listed funds):	---	---	1,100,302.00	100.00	---	---
Shihama	SHIHAMA 1\4\2003 Annual 200,000	---	35	6,635,379.18	14.68	---	---
	SHIHAMA 1\7\2004 Annual 200,000	---	10	5,504,598.16	26.85	---	---
	SHIHAMA 1\7\2003 Annual 200,000	---	60	4,535,173.25	36.88	---	---
	SHIHAMA 1\10\2003 Annual 200,000	---	13	4,023,473.97	45.78	---	---
	SHIHAMA 1\1\2004 Annual 100,000	---	58	3,552,160.17	53.63	---	---
Shihama	Total (34 listed Shihama certificates):	---	---	45,215,135.07	100.00	---	---
---	Organized Market Segment	---	---	116,338,538.66	65.34	---	---
---	Parallel Market Segment	---	---	15,388,306.50	8.64	---	---
---	Funds Segment	---	---	1,100,302.00	0.62	---	---
---	Shihama Market Segment	---	---	45,215,135.07	25.40	---	---

Source: Khartoum Stock Exchange annual report (Arabic), 2004

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

Table 5. Khartoum Stock Exchange shareholding, 2009

Stock	Government agencies		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 (Saudi Arabia)	---	0	0.00	---	---
Sudan Tea Co.	0	0.00	1 (Sudan)	---	0	0.00	---	---
Al Shamal Islamic Bank	1 (Sudan)	---	5 (Sudan (4); Saudi Arabia)	---	7 (Sudan (5); Saudi Arabia)	---	---	---
Al Salam Bank	0	0.00	5 (UAE (4); Saudi Arabia)	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); Kuwait)	5.13	5 (Sudan (3); Saudi Arabia)	44.68	---	---
Sudanese Free Zones & Mkts Co.	0	0.00	>2 (Saudi Arabia)	49.00	0	0.00	41.00	59.00
Sudanese Kuwaiti Road Tpt Co.	2 (Kuwait; Sudan)	---	>2 (Kuwait (>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; Egypt; Saudi Arabia)	82.97	0	0.00	82.97	17.03
Sudanese Islamic Bank	0	0.00	2 (Egypt; Saudi Arabia)	5.00	0	0.00	---	---
Sudatel Telecom Group	2 (Sudan; Saudi Arabia)	26.18	1 (UAE)	4.60	1 (Lebanon)	4.00	35.80	64.20
Omdurman National Bank	1 (Sudan)	2.43	7 (Sudan (6); Egypt)	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'mbrg; Switz; USA; France; Lebanon)	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); Saudi Arabia; Egypt; 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); Saudi Arabia)	70.00	6 (Sudan)	---	3 (Sudan (2); Saudi Arabia)	---	---	---
Gum Arabic Co.	1 (Sudan)	---	5 (Sudan (4); Abu Dhabi)	---	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 (Bahrain)	---	2 (Sudan)	---	1 (Sudan)	---	---	---
Faisal Islamic Bank of Sudan	0	0.00	1 (Egypt)	25.00	---	---	25.00	75.00

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

Notes: (1) Data unavailable for 17 stocks (out of total of 46 listings): El Nilein Insurance Co., Commercial Bakeries Co., Assalama Ins., Gadarfi Investment Bank, El Rowad Financial services Co., Foja International Ins. Co., Karmah Trading Co., White Nile Flour Mills, Multi-Media Co., Sudan Cinema Co., Al Hijra Exchange, Workers National Bank, Saudi Sudanese Bank, National Petroleum Co., Tagseet Co., Al Mohager Int'l Investment, Al Rayaam Press and Publishing Co.

Table 6: 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*	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	1,082.83	1,706.25	3,014.43	4,861.51

Source: Compiled by the authors from the Bank of Sudan Annual Reports (1999-2006)

Note: (1) The 'others' mode of financing includes the *ijara* and *mugawla* modes

Table 7: Descriptive statistics and costs of equity for listed Sudatel stock, 2003-2007

	2003	2004	2005	2006	2007
Panel 1: Listing statistics					
Market Capitalisation (US\$m)					
Khartoum	589.08	946.48	1,743.01	1,610.87	1,551.18
Bahrain	--	--	131.25	130.36	130.36
Abu Dhabi	1,123.30	1,640.03	2,653.04	2,283.37	2,388.76
Traded Value (US\$m)					
Khartoum	--	97.165	--	126.16	131.45
Bahrain	--	--	0.00	0.00	0.00
Abu Dhabi	20.31	165.84	1,106.21	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%
Panel 2: Cost of Equity estimates					
Listing					
Khartoum	24.89%	29.15%	26.46%	55.33%	13.07%
Abu Dhabi	24.89%	9.18%	9.00%	50.07%	13.36%

Source: Compiled by the authors from the Arab Monetary Fund, Khartoum, Bahrain and Abu Dhabi Stock Exchange websites

Notes: (1) The dividend capitalisation method assumes constant (mean) rate of growth rate of dividends of 6%

Table 8. Descriptive statistics – monthly equity returns (Saudi Rials), 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
Panel 1: Descriptive Statistics									
Observations	68	68	68	68	68	68	68	68	68
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%
Panel 2: Correlations									
Sudatel (Abu Dhabi)	100.00%								
Sudatel (Khartoum)	34.11%	100.00%							
S&P Saudi Arabia	-15.05%	-2.76%	100.00%						
S&P Oman	-27.68%	-14.94%	39.99%	100.00%					
S&P Egypt	-5.47%	7.45%	23.17%	28.82%	100.00%				
S&P Bahrain	-9.02%	3.42%	22.98%	27.18%	38.74%	100.00%			
MSCI World	0.65%	1.70%	-2.09%	4.05%	11.28%	-6.15%	100.00%		
S&P Kenya	-15.22%	5.30%	7.14%	25.30%	13.65%	2.44%	35.91%	100.00%	
S&P Morocco	-12.57%	6.98%	-10.74%	1.81%	1.95%	-4.18%	31.81%	0.62%	100.00%

Source: Compiled by authors from Datastream.

Notes: (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.

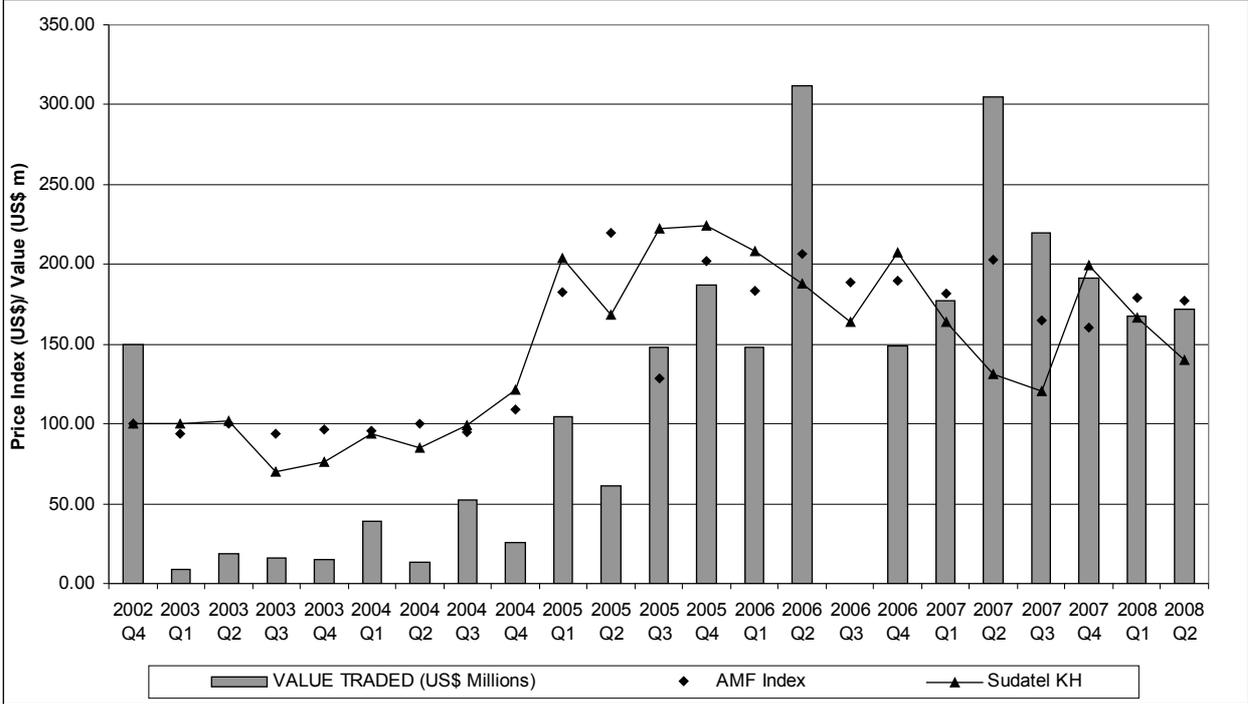
(3) All series translated into Saudi Rials to facilitate comparison across wider MENA region.

Table 9: Portfolio characteristics for Sudatel Khartoum and Abu Dhabi listings

	Mean	Max	Min	Std. Dev.	Risk-Return ratio
Panel 1: Portfolio containing all markets and the following Sudatel listing					
Abu Dhabi	26.65%	51.81%	9.57%	4.61%	1.5289*
Khartoum	25.31%	52.34%	6.81%	5.12%	1.3437
Panel 2: Portfolio with Sudatel (Khartoum) and the following					
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*

Notes: (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) * represent the best returns to risk portfolio performance

Figure 1. Khartoum stock exchange and Sudatel stock price indices and traded value (US\$m)



Source: Arab Monetary Fund (AMF) annual reports and KSE Annual Report 2004 (Arabic)

- Notes: (1) Sudatel stock price index generated from stock price returns series assuming a base level of 100 in 2002Q4
 (2) AMF (Khartoum) price index is generated using top 11 traded local stocks and is market capitalization weighted. It assumes a base of 100 in 2002Q4

Appendix 1: Definition of Foundational principles or axioms of Islamic system

Tawhid: relates to the Islamic worldview and envisages the equality of individuals before God as well as the perpetuity of the Islamic system of values through the afterlife which reinforces the concept of accountability

Al-‘adl wa’l-ihsan: implies that individuals are expected to establish social justice (*‘adl*) and promote beneficence (*ihsan*) which promotes the concepts of achieving an equitable distribution of wealth for both individual and society on an intra- and inter-generational basis.

Ikhtiyar: acknowledges individuals free-will though this is guided by the societal context of economic activity.

Fard: infers the behavioural responsibilities, or good citizenship, placed on individuals and wider society, which in turn is closely related to the axiom of *Tawhid*, the divine trusteeship given to individuals and society over assets.

Rububiyyah: implies the necessity of sustainable economic growth and development in terms of achieving harmony between various components of individuals and wider society economic and social life.

Tazkiyah: relates to individuals growing in harmony through every aspect of life with the result of prosperity in the present and afterlife.

Khalifah: relates to an individual’s accountability before God, inferring that the greater amount of social good achieved during a lifetime will be rewarded in the afterlife.

Maqasid al-Shari’ya: provides the legal rationale framework within which all Islamic economics activities should be conducted.

Appendix 2: Definition of Shariah-Compliant Financial Instruments

Mudarabah contracts involve a minimum of two parties with one being the investor (rabb al-mal) who entrusts capital to the entrepreneur or agent-manager (mudarib). In the event of a loss, the investor earns no return and correspondingly the entrepreneur receives no compensation for effort. If the project is successful then the gains are equally split between the parties according to a pre-transaction negotiated percentage formula. The principle of *mudarabah* contracts can also be extended to individuals placing deposits with banks and receiving a pre-specified return from the proceeds of these deposits thereby partially replacing the role of interest in providing time value for money (Kuran, 1986).

Musharaka contracts involve an investor and the entrepreneur in jointly supplying capital as well as exercise control and supply management expertise to the project. Losses are in proportion to the individual capital contributions of the two parties while profits are negotiated freely (Aggarwal and Yousef, 2000). Aggarwal and Yousef (2000) loosely contrast *mudarabah* instruments to a limited partnership and *musharaka* contracts to a traditional equity stake with additional rights of control. This can also be thought of as an equity stake with rights of control (Aggarwal and Yousef, 2000)

Murabaha contracts involve the investor (or bank) purchasing an asset (e.g. production equipment) on behalf of the entrepreneur. The investor resells the asset to the entrepreneur at a predetermined price that covers the original cost and an added, negotiated profit margin. Payment is made either by a future lump-sum cash redemption, or in instalments, and full ownership over the tangible assets resides with the investor until all outstanding payments have been made (Badr El-Din, 2003).

Mugawla financing involves a contract between the party undertaking a work-related function and the owner of the project providing the capital (including materials). 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 fungible goods and the financial institution acting on behalf of the ultimate buyer. The key objective of this contract is to fix a price for a delivery of goods at a fixed future date (Mannan, 1993).

Shihama certificates are a form of equity-based financial instrument, introduced by the Central Bank of Sudan in 1998. They are derivatives of *musharaka* contracts and are mainly used to generate finance for central government projects, with the government selling shares in companies that it (partially or completely) owns. *Shihama* certificates are profit-and-loss sharing agreements, but are redeemable on request even though the holders are theoretically permanent partners.

Ijara financing is commonly used in more specialist applications such as industrial leasing. Contracts are formed where the bank again purchases the tangible assets and allows the entrepreneur to use it for a fixed charge. Ownership of the asset either remains with the bank or is gradually transferred to the entrepreneur in a rent-to-own contract (Aggarwal and Yousef, 2000). Although the use of such instruments is permitted, there are concerns about whether such instruments, in providing a fixed return to the bank, are similar to debt contracts and are thus inconsistent with *shari'ya* principles.