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Stock exchange industry in UAE

An assessment of potential merger between Dubai financial market and Abu Dhabi securities exchange

Andrea Paltrinieri
Business Administration Department, University of Verona, Verona, Italy

Abstract

Purpose – The purpose of this paper is to give an overview of UAE Stock Exchange industry. In particular this paper aims to assess a potential merger between Dubai Financial Markets-Nasdaq-Dubai and Abu Dhabi Securities Exchange, evaluating risks, rewards, policy and business implications.
Design/methodology/approach – The paper presents a theoretical framework and a literature review of M&As in financial sector. It then carries out a case study on a potential merger between the UAE Stock Exchanges and a discussion on the implications for the actors involved.
Findings – The contraction both in market capitalization and in trading value in the three UAE Stock Exchanges caused by subprime financial crisis and market fragmentation could be a key factors in implementing a merger between them. Because of high-fixed costs and trading platform, a single consolidated stock exchange may benefit from significant economies of scale, particularly network effects, and economies of scope.
Practical implications – This paper could be useful to Security and Commodity Authority, in order to support a merger between Dubai and Abu Dhabi Stock Exchange. Given that UAE capital market regulator has tried to improve efficiency in UAE stock market over the last years, a merger between UAE Stock Exchanges could have positive effects on overall efficiency.
Originality/value – It is the first paper that analyze UAE Stock Exchange industry. It is the first study that focusses on a potential merger between emerging markets' stock exchanges. It is one of the first contributions that relates stock exchanges belonging to emerging and developed countries.

Keywords United Arab Emirates, Market capitalization, Abu Dhabi Securities Exchange, Dubai Financial Markets, Stock exchange mergers, Trading value
Paper type Research paper

1. Introduction

In recent years the stock exchange industry has undergone rapid and profound transformations due to globalization (Lee, 2002; Armanious, 2007), technological and regulatory innovations and changes in the major stock exchanges' governance. Technological developments (Macey and O'Hara, 1997; Hasan *et al.*, 2002; Lee, 2002), and regulatory innovations (Market in Financial Instruments Directive, 2004/39 EEC), by reducing communications and transaction costs, and favoring remote access by trading parties, have broken down barriers to entry and allowed new actors, that is multilateral trading facilities, to deliver trading services traditionally considered the core business of stock exchanges. In relation to the changes in the governance (Otchere, 2006; Otchere and Abou-Zied 2008), public stock exchanges have gradually shifted toward for-profit models, or the demutualization process[1] (Aggarwal, 2002; Aggarwal and Dahiya, 2006),

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and have focussed on objectives such as cost effectiveness and profitability, in particular since some of them opted for self-listing in order to manage more efficiently the dynamics of value creation (Krishnamurti *et al.*, 2003; Fleckner, 2006).

Collectively, these changes have fostered greater competition in the sector. In a more competitive environment, it is difficult to increase profit simply by pursuing internal growth strategies: the entry of new competitors prevents exchanges from growing faster than the sector as a whole and eroding the market share of their competitors. In recent years, external growth has been the strategy pursued by a number of leading international exchanges, in the form of alliances, networks, joint ventures and mergers. Indeed, in 2007 the process of stock exchange consolidation culminated in three important cross-border mergers (Nyse Euronext, Borsa Italiana-London Stock Exchange (LSE) and Nasdaq-Omx) prior to the onset of the subprime financial crisis (ASSB, 2007).

Note that a number of industry sectors, including the financial sector, generally record a slow down in consolidation during crises. In the banking sector, for example, between 2008 and 2009 mergers and acquisitions diminished both in number and in value and involved minor players (European Central Bank, 2010). Also in the stock exchange industry the pace of consolidation slowed, but the unique structure of the sector, with high-fixed costs and related benefits from economies of scale (Domowitz and Steil, 1999), may explain the smaller decline in stock exchange consolidation activity during the financial crisis (in 2008 Nyse Euronext acquired a 5 percent stake in Mcx, India's most important commodity exchange, and a 25 percent stake in the Qatar Stock Exchange) and the new wave of takeover announcements from October 2010 onwards for a combined value of $45 billion (Sukumar and Schatzker, 2012).

Note furthermore that most of these takeover announcements were not followed by actual mergers, for reasons unrelated to the financial crisis: antitrust measures (Deutsche Boerse's proposed takeover of Nyse Euronext), lack of shareholder support (LSE's attempted acquisition of TMX Group) and government opposition (Singapore Exchange's bid to takeover ASX). But one of them resulted in an acquisition (in December 2012 Intercontinental Exchange agreed to acquire Nyse Euronext for $8.2 billion).

In one of the previous takeover bid, an emerging market stock exchange (Singapore) attempted to takeover a developed country exchange (Australia), possibly heralding a new trend in stock exchange consolidation. Claessens *et al.* (2000) reported that emerging market exchanges (particularly in Eastern Europe) failed to participate in the consolidation in progress in international markets. In fact, excluding a consolidation between Estonia, Lithuania and Latvia, that formed the Baltic Market owned by Nasdaq-OMX Group, up to subprime financial crisis there have been no major mergers among other stock exchanges. So developing country exchanges appear to favor internal growth, that may well represent the more favorable option (Claessens *et al.*, 2002), or, at least, prefer other form of integration, such as linkages or alliances (Meera *et al.*, 2009).

The Arab emerging market exchanges have also pursued internal growth strategies rather than growth through cross-border consolidation (Kabir and Suk-Yu, 2007). The main obstacle to consolidation in Arab countries is the weak, fragmented regulatory framework, together with macroeconomic instability and a lack of international institutional investors.

In particular, the Middle East-North Africa (MENA) area has these features and all of which raise doubts as to the future survival of the region's exchanges. Within the MENA region, the United Arab Emirates (UAE) are of specific interest for two

reasons: first, consolidation between UAE exchanges (Dubai Financial Market (DFM)-Abu Dhabi Securities Exchange (ADX)-Nasdaq-Dubai (ND)) is already in progress, as DFM acquired 100 percent of ND (Khan, 2010); second, Dubai Stock Exchange, through Borse Dubai, holds major stakes in a number of developed country stock exchanges, such as LSE-Borsa Italiana and Nasdaq-OMX Group.

The aim of this paper, therefore, is twofold: first of all, as a case study, this paper aims to give an overview of UAE Stock Exchange industry. I consider the period 2007-2011, in order to verify the impact of subprime financial crisis and market fragmentation on performance of the three UAE Stock Exchanges.

Furthermore, this study aims to assess a potential merger between DFM-ND and ADX, evaluating risks, rewards, policy and business implications.

The paper makes three original contributions to the related literature. First, it gives an overview the stock exchanges operating in a country belonging to a subset of emerging markets ("frontier markets")[2], typically characterized by a lack informative, poor liquidity and market capitalization compared to the major stock exchanges of the emerging countries (OECD, 2012). It is the first paper that analyze UAE Stock Exchange industry. Second, it is the first study that focusses on a potential merger between emerging markets' stock exchanges. Finally, this paper tries to link stock exchanges belonging to emerging and developed countries.

This paper is organized as follows: the Section 2 deals with the stock exchange value chain. The Section 3 presents a theoretical framework and a literature review on M&A aspects in financial institution. The Section 4 focusses on methodology and data. The Section 5 carries out UAE case study. The Section 6 examines policy and business implication, and the final section concludes the paper.

2. The stock exchange value chain

Stock exchanges are a special category of firm that delivers listing, trading and settlement services (Di Noia, 2001)[3]. In analytical terms, the first part of the production cycle is dedicated to listing services; following the origination stage, financial instruments are listed. After placement of shares in investors' portfolios, stock exchanges deliver trading services, traditionally perceived as their core business, in the form of pre-trading services, including data-dissemination or pre-trade transparency, collection and transfer of orders from different operators to trading platforms, and trading services. In the latter, buy and sell offers come together in the order matching and order execution processes. Indeed price discovery is generally considered to be the basic function of financial markets, as well as the factor that distinguishes direct from indirect circuits (Schwartz, 1988).

Once trades have been executed, exchanges must be in a position to provide data-dissemination or post-trade transparency services as well as post-trading services such as clearing, settlement and custody.

Analysis of the stock exchange value chain reveals at least three business models adopted by stock exchanges, listed below in increasing order of complexity (Polato and Floreani, 2008):

(1) a narrow model in which the focus is on the provision of core trading services (typically seen in multilateral trading facilities);

(2) a broad model in which trading services are offered alongside listing services, but without post-trading services (typically of the Anglo-Saxon exchanges such as Nyse, Nasdaq and LSE); and

(3) a global model, adopted by exchanges that offer listing, trading and post-trading services (typical of the European Stock Exchanges such as Deutsche Bourse); this model may also include data-dissemination services and trading platforms that sell on to third parties to ensure maximum diversification.

Let us now examine the main sources of revenue for stock exchanges, effectively firms that produce a broad range of products and services:

- listing revenues, that accrue from stock market listing services;
- trading revenues from trading in financial instruments (cash trading revenues and derivatives trading revenues); and
- services revenues from post-trading activities, data-dissemination and IT services.

Analysis of revenue distribution of World Federation of Exchange (WFE) (2010) members over a ten-year period (1999-2009) reveals that an increasing share of income was generated by trading services as, over the period, there has been an explosion of the number of trades and of the total value of share trading. Conversely listing revenues and services revenue have decreased their importance in overall revenue distribution (see Table I).

Analysis of the stock exchange value chain highlights a number of unique aspects relating to the production process:

- the presence of significant economies of scale owing to the high-fixed costs of trading platforms, and significant network externalities that foster a process of market consolidation culminating in a state of natural monopoly; and
- the existence of economies of scope from diversification through the use of shared trading platforms.

3. M&As in financial institution: theoretical framework and literature review

There are several theories that provide support to merger and acquisitions in financial system, but, probably, no single approach could fully explain the motives behind consolidation (Steiner, 1975). Trautwein (1990) classifies those theories into three main groups and seven subgroups.

First of all, he argues that merger could be seen as rational choice in order to achieve financial, operational and managerial synergies (efficiency theory) or to pursue bidder shareholders' interests (raider theory). But managers could also undertake mergers in order to maximize their own utility instead of their shareholders' value (empire-building theory) or because they get better information than stock market on target's value

	1999	2004	2009
% *Revenues*			
Listing revenues	16	13	6
Trading revenues	42	42	54
Services revenues	28	40	32
Financial income	10	5	3
Other	4	0	5

Source: World Federation of Exchange (2010)

Table I. World federation of exchanges (WFE) members: total revenues breakdown (1999-2009)

(valuation theory, Holderness and Sheehan, 1985). They could also achieve market power (monopoly theory), through wealth transfers from customers, pursuing collusive synergies or competitor interrelationship (Porter, 1985).

Another theory may explain merger as a strategic decision process outcome (process theory): Power (1983) provides evidence that acquisition is not a completely rational decision, as individuals get restricted computational skills (Simon, 1957). Gort's disturbance theory considers merger as macroeconomic phenomenon: economic disturbances change expectations and increase uncertainty degree of individuals, inducing merger waves.

Trautwein (1990) believes that valuation, empire-building and process theory best explain motives behind M&A, nevertheless, I would also like to cite resource-based view theory (Wernerfelt, 1984): according to his view, a firm is a broad set of resources that it possesses and could pursue strategic alliances in order to get other firms' valuable resources (Das and Teng, 2000).

Several authors bring this theory to explain M&As in financial sector, especially in banks (Altunbas and Ibanez, 2004). Here the consolidation process has drawn widespread attention by academic. There is an extensive literature investigating the reasons behind M&As in banking sector, such as technological, financial innovation (Berger *et al.*, 1999; DeYoung, 2007) and deregulation (Group of Ten, 2001), but there are also motives unrelated to profit maximization: on the one hand managers tend to maximize their own utility (Hadlock *et al.*, 1999), as we saw before with empire-building theory, and, on the other hand, they try to obtain the status for bank of "too-big-too-fail" (DeYoung *et al.*, 2009).

Another strand of literature examines M&A effects on bank economic and financial performance (for a full review see DeYoung *et al.*, 2009). In particular most of the US studies, applying event study methodology, show that banks' mergers tend to improve target firms' stock market performance, creating shareholder value only for target shareholders (Berger *et al.*, 1999), instead European studies demonstrate significant stock market gains also for the bidder (Cybo-Ottone and Murgia, 2000). Recent literature also suggests that both North American and European bank mergers are efficiency improving (DeYoung *et al.*, 2009), both in terms of cost efficiency (Kwan and Wilcox, 2002) and revenue efficiency (Cornett *et al.*, 2006). Furthermore, the more geographical and strategic relatedness, the more banks have better efficiency and revenue performance (Amihud *et al.*, 2002).

In stock exchange industry, instead, despite the recent wave of cross-border mergers (see Table II for a list of mergers), there has been a little research on M&A aspects. Much of the literature focusses on the reasons behind M&As and on the impact of performance indicator such as trading value and volume, trading fees and bid-ask spreads.

Economies of scale and scope have been described in the literature as key determinants of stock exchange consolidation. It is well known that economies of scale are seen on both the demand and the supply side (Hasan and Malkamaki, 2001). There is a vast literature on demand side economies or network effects given that stock exchanges are two-side markets, typically with two categories of user: dealers and issuers (Economides, 1993; Domowitz, 1996; Di Noia, 2001). Issuers tend to list on exchanges with a high number of listed companies (direct network effects), but also benefit from the greater liquidity of markets with a high number of investors, thereby reducing the cost of capital for the listing company (indirect network effects). Dealers tend to trade on markets with a high number of dealers to ensure greater market breadth and depth, a higher probability of closing deals, lower bid-ask spreads and

Bidder	Target	Year
OMX	Copenhagen SE	2004
Australian Stock Exchange	Sydney FE	2006
NYSE	Archipelago	2006
ICE	NYBOT	2006
Chicago Mercantile Exchange	CBOT	2007
London Stock Exchange	Borsa Italiana	2007
NYSE Group	Euronext	2007
NASDAQ	OMX	2007
Bats	Chi-X	2011
InterContinental Exchange	NYSE Euronext	2012
Tokyo Stock Exchange	Osaka Stock Exchange	2013

Note: Data are collected from single stock exchange press release and Bloomberg

Table II.
List of major M&As in stock exchange industry

transaction costs. They also tend to opt for markets with a high number of listed companies, to ensure greater portfolio diversification (Economides, 1993).

Supply side economies of scale relate to the typical structure of the stock exchange industry, with high-fixed costs relating to information technology: where stock exchange consolidation results in the use of a single trading platform, average unit costs tend to decline as volumes grow (Steil, 2002).

Economies of scope derive from the supply of complementary services on a single trading platform. Over the years, as clients have progressively turned to new entrants for trading services (Macey and O'Hara, 1997), stock exchanges have been forced to broaden their range of complementary services (clearing, settlement and data dissemination) to build and maintain customer relations.

In addition to economic determinants of consolidation, another key factor explains transatlantic M&A activity: differences in market regulation that offer scope for regulatory arbitrage. Indeed, the merger operations carried out by Nyse and Nasdaq represented attempts to integrate with exchanges where a less stringent regulatory framework imposed fewer restrictions during the listing process. Indeed, the federal model that allows consolidation of trading platforms, while maintaining a presence in local markets with regulatory autonomy, is one that has inspired most stock exchanges consolidation (ASSB, 2007).

Once the determinants of stock exchange consolidation have been identified, the next step is to consider the impact of consolidation on the exchanges themselves, principally in terms of a reduction in the number of peripheral markets, an increase in trading volumes and a decrease in bid-ask spreads and trading fees. The early literature was concerned with the consolidation of regional US exchanges between 1940 and 1960 (Arnold *et al.*, 1999)[4]: the mergers coincided with a significant rise in trading volumes in absolute terms (particularly for the Midwest and Philadelphia-Baltimore exchanges) from the month before to the month after completion. Over an extended time horizon including the four years before and after consolidation, the authors demonstrated how the increase in trading volumes penalized neighboring markets, where they sharply declined. The study also analyzed bid-ask spreads in the month before and the month after the operation: post-merger bid-ask spreads effectively fell due to higher trading volumes and greater liquidity.

Pagano and Padilla (2005) investigated the impact on trading fees and market liquidity of the merger between the Paris, Brussels, Amsterdam and Lisbon exchanges

(Euronext): Paris and Amsterdam recorded significant decreases in trading fees, even net of increased trading volumes, highlighting the beneficial effects for traders in terms of lower post-merger trading costs. Analysis of Euronext reveals a marked increase in trading volumes (around 40 percent) while bid-ask spreads decreased significantly (around 21 percent), evidence that network effects increased liquidity at the exchanges involved in the merger operation.

Nielsson (2009) also showed how the creation of Euronext had a positive impact on the market liquidity of large firms whose shares were traded and on firms with a significant share of revenues from abroad, while for smaller firms and those operating mainly on domestic markets no significant increase in liquidity was recorded.

In terms of value creation in stock exchange consolidation, Serifsoy (2007) showed how stock exchanges that diversified through vertical integration with exchanges specializing in post-trading activities tended to be less efficient than horizontally integrated exchanges with a focus on the cash market. Hasan *et al.* (2010) also supported this view, highlighting how stock exchange mergers created greater shareholder value than joint ventures, and how cross-border mergers generated more wealth than their domestic equivalents, given the growing number of investors attracted by foreign investment opportunities for reasons of portfolio diversification and synergies.

But, until now, to my knowledge, there have been no studies that have investigated M&As in frontier and emerging markets: hence the choice to bridge this gap with this case study.

4. Methodology and data sources

This paper aims to shed some light on UAE stock exchange industry and consolidation process, therefore I carry out a case study analysis, or in-depth study, for the period 2007-2011. I selected this geographical area due to several reasons: first of all, subprime financial crisis and the subsequent real estate bubble burst have heavily affected UAE economy over the recent years, causing nearly a default of Dubai World, a Sovereign Owned Enterprise, subsequently saved by Abu Dhabi.

Furthermore I would like to verify the impact of such crisis and market fragmentation on the main stock exchange performance indicators of both DFMs and ADX: if there has been a collapse of these indicators, it becomes necessary to consolidate, in order to benefit from economies of scale and scope and attract a higher number of institutional investors. Three stock exchanges in a such small area are probably unreasonable.

Finally, as Dubai Stock Exchange holds major stakes in different developed country stock exchanges, I would like to discuss some issues that could be fully addressed in future researches. For example relationship between developed and developing markets, characterized by cross-holdings, or corporate governance issues, especially noticeable in the case of shareholder activism.

To conduct this case study for the period 2007-2011, I collected public data from WFE, Arab Monetary Fund, DFM Annual Reports and web site, ADX and ND web sites. I choose this time period, on the one hand, in order to verify the effects of subprime financial crisis on UAE Stock Exchange industry and, on the other hand, in order to take into account the demutualization process followed by self-listing of DFM and its consolidation with ND in 2009.

In relation to the sources, WFE every year provides an Annual Report with information on market capitalization, trading value and trading volume of all Members; but as ADX and DFM belong respectively to the categories of Affiliates and Correspondents[5], I had to

collect data on other sources. As UAE are members of the Arab Monetary Fund, first of all I checked on this web site: here I gather information of stock exchange performance indicators, such as trading value and market capitalization of all markets belonging to this institution. Since not all the reports are in English language, I compare data obtained from Arab Monetary Fund web site to those provided from each stock exchange web site. Furthermore, in the case of comparison among several stock exchanges, I adjusted all data provided in local currencies in US dollar, with the mean exchange rate for the period. When I found differences, I opted for Arab Monetary Fund data.

During analysis of DFM stock exchange, I gather all data on economic and financial performance on its Annual Reports and web site, as the degree of disclosure, after self-listing process, has been much improved. Otherwise, in the case of ADX and ND, there were no Annual Reports, but only quarterly statistics or scattered data on the web site. I am aware that disclosure degree decreases moving from WFE to Arab Monetary Fund, up to ND web site, and this could lead to a biased analysis, but I try to check different sources in order to minimize this risk.

After getting data, I carry out the case study in different steps: I initially compare performance indicators of UAE Stock Exchanges, such as trading value and market capitalization, with those of other major members of WFE and Arab members of Arab Monetary Fund. I show that both DFM and ADX have reported a collapse of trading value and market capitalization, much more than other stock exchanges.

Then, I go deep inside on economic and financial indicators of DFM, ADX and ND to illustrate the need for merger.

Finally I evaluate risks and rewards of an hypothetical merger and the implication for the Western Stock Exchanges.

5. A case study of the UAE

The UAE are a federation of seven Arab states[6] with an aggregate population of 4.4 million inhabitants and three stock exchanges, originally controlled by the governments of Dubai and Abu Dhabi, and based on public exchange business model: DFM, established in 2000, ND, initially known as Dubai International Financial Exchange, established in 2005, and ADX, set up in 2000. Considering the limited size and population of the UAE, the existence of three stock exchanges may well limit each market in terms of liquidity, order flows from international institutional investors and new listing requests from local and international firms. This situation mirrors that of the regional US exchanges in the 1960s, and is further complicated by the presence of more than one regulatory authority: DFM and ADX are regulated by Securities and Commodities Authority, while ND is supervised by Dubai Financial Services Authority.

The UAE Stock Exchanges have pursued diverse development objectives. While ADX has maintained its status as a public exchange, the Dubai Stock Exchanges have undergone a number of structural changes. The various events can be summarized in chronological order:

(1) At the end of 2005, DFM initiated a process of demutalization followed by self-listing. The transformation into a for-profit public company was achieved by selling 20 percent of DFM shares to the public.

(2) In 2007 the Government of Dubai set up Borse Dubai, a holding company through which to manage the two Dubai exchanges and to acquire greater stakes in other leading international exchanges, the ultimate aim being to create a global capital market hub (see Figure 1).

(3) In December 2009 DFM acquired 100 percent of ND, following consolidation of the market operations of the two exchanges (see Figure 2 for DFM Organizational Chart).

Though the common goal of Abu Dhabi and Dubai is to become the financial hub of the Persian Gulf and to set up a leading UAE Stock Exchange to act as a bridge between east and west, the two states have pursued rather different strategies. ADX has opted for internal growth strategies and has marketed itself overseas to attract international investors; DFM has sought to emulate the major international financial markets, completing the various steps of demutualization and self-listing, and then its first major consolidation operation in the form of a merger with ND.

If the events described above are considered within a global context, what emerges is the limited market capitalization and trading value of UAE exchanges compared both to the major WFE members and to the Arab Stock Exchanges (Al-Khazali *et al.*, 2010). This was particularly true in the period following the subprime financial crisis (see Table III). Indeed, it is interesting to observe that:

- In 2007 DFM and ADX had a market capitalization of $138 and $120 billion, respectively, significantly lower than the major international exchanges and the emerging market exchanges, but nevertheless comparable to the principal Arab exchanges (Qatar Stock Exchange $95 billion, Kuwait Stock Exchange $135 billion). The sole exception was the Saudi Stock Market with a market capitalization of $ 519 billion. The same was true of trading value that in 2007 stood at $103 billion for DFM and $48 billion for ADX.
- In 2009 DFM and ADX were adversely affected by the financial crisis and by stiffer competition at a regional and international level from other stock exchanges. The year 2009 brought a significant increase in market capitalization and a corresponding decrease in trading value at a global level. For example, Nasdaq-OMX recorded an increase in market capitalization of 44 percent with respect to 2008 and a decrease in trading value of 43 percent. The Arab exchanges followed similar trends: Saudi Stock Market recorded a 29 percent increase in market capitalization with respect to 2008 and a 35 percent decrease in trading value. ADX recorded a 16 percent increase in market capitalization over 2008, in contrast with a 70 percent fall in trading value, and slipped back in the Arab rankings. Conversely, DFM was one of the few global exchanges to record a decrease both in market capitalization (−8 percent year on year) and in trading value (−43 percent).

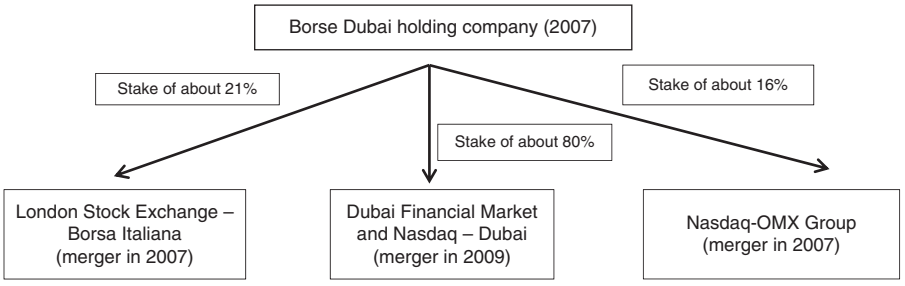
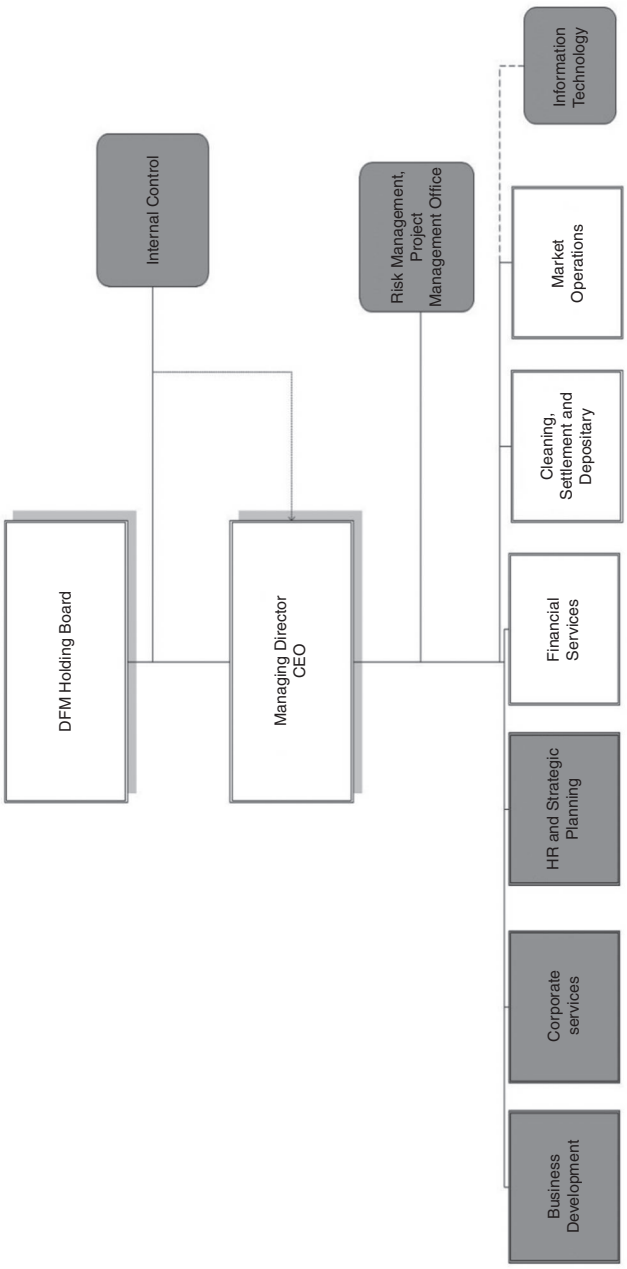


Figure 1.
Ownership structure Borse Dubai-Dubai financial market-Nasdaq Dubai

Source: Data are collected from http:// borsedubai.com (accessed September 9, 2013)



Source: Data are collected from http://dfm.ae (accessed September 9, 2013)

Figure 2.
Organizational chart Dubai financial market

Nyse Euronext (USA)	2007	2008	2009	2010	2011
Trading value[a]	–[c]	27,650	17,521	17,796	18,027
% change[b]		–	−36.6	+1.6	+1.3
Market capitalization	15,651	9,209	11,838	13,394	11,796
% change		−41.2	+28.5	+13.2	−11.9
Nasdaq-OMX					
Trading value[a]	17,048	23,842	13,608	12,659	12,724
% change		+39.9	−42.9	−7.0	+0.5
Market capitalization	4,013	2,249	3,239	3,889	3,845
% change		−44.0	+44.0	+20.1	−1.1
Bombay SE					
Trading value[a]	–[c]	248	262	258	146
% change			+5.6	−1.4	−43.3
Market capitalization	1,819	647	1,306	1,632	1,007
% change		−64.4	+101.9	+24.9	−38.3
Saudi Stock Market					
Trading value	682	523	337	200	293
% change		−23.3	−35.5	−40.0	+46.0
Market capitalization	519	246	319	353	339
% change		−52.5	+29.3	+11.0	−4.0
Kuwait Stock Exchange					
Trading value	131	133	104	30.4	24.5
% change		+2.1	−22.3	−70.7	−19.4
Market capitalization	135	70.2	93.8	114	86.3
% change		−48.2	+33.7	+21.4	−24.2
Egyption Exchange					
Trading value	64.8	88.0	81.2	43.6	43.7
% change		+35.8	−7.7	−46.3	+0.3
Market capitalization	139	85.9	91.1	84.1	48.7
% change		−38.1	+6.0	−7.6	−42.1
Qatar Stock Exchange					
Trading value	29.9	48.2	25.3	18.1	22.9
% change		+61.1	−47.5	−29.0	27.0
Market capitalization	95.5	76.6	87.9	124	126
% change		−19.8	+14.8	+42.0	+2.0
ADX					
Trading value	47.8	63.0	18.9	9.1	6.9
% change		+31.9	−70.0	−52.0	−23.0
Market capitalization	120	68.8	80.2	77.1	71.3
% change		−42.7	+16.6	−4.0	−7.5
DFM					
Trading value	103	82.9	47.2	18.9	8.8
% change		−19.7	−43.1	−59.0	−53.0
Market capitalization	138	63.1	58.1	54.7	49.0
% change		−54.3	−7.9	−5.9	−10.0
Tunis Stock Exchange					
Trading value	0.73	1.69	1.36	1.53	1.17
% change		+132	−19.4	+12.5	−23.5
Market capitalization	5.34	6.30	9.24	10.6	9.65
% change		+18.1	+46.5	+14.8	−9.0

Notes: [a]Nyse Euronext (USA), Nasdaq-OMX and Bombay SE trading value is computed through electronic book order trades; [b]the percentage changes are computed over the previous year; [c]data are not available through electronic book order trades, in 2007 Nyse Euronext (USA)'s trading value was $29,114 billion, Bombay SE's trading value was $344 billion
Source: Data are collected from World Federation of Exchanges; Arab Monetary Fund; Stock Exchanges Annual Report

Table III.
Developed and emerging stock exchanges trading value and market capitalization (2007-2011, in $ billion)

- In 2010 all global markets recorded an increase in market capitalization. In terms of trading value the situation was less clearly defined: WFE members recorded positive variations in most cases (with the exception of Nasdaq-OMX and Shanghai Stock Exchange) while Arab exchanges posted negative variations (Qatar Stock Exchange −29 percent, Saudi Stock Market −40 percent). DFM and ADX reported a drop in market capitalization of −5.9 and −4 percent, respectively, and a dramatic decrease in trading value of −59 and −52 percent, respectively.
- In 2011 there was a global decrease in market capitalization and a general increase in trading value. In terms of market capitalization, while Saudi Stock Market recorded a less significant decrease (−4 percent), DFM and ADX fell by −10 and −7.5 percent, respectively. As regards trading value, significant increases were achieved by a number of Arab exchanges (+46 percent Saudi Stock Market, +27 percent Qatar Stock Exchange), but DFM and ADX both reported dramatic decreases (−53 and −23 percent, respectively).

Further analysis of results for DFM (see Table IV), ADX (see Table V) and ND (see Table VI) for the period 2007-2011 reveals steady decreases in all economic and financial performance indicators.

For DFM, from 2007 onwards profit plummeted from 972 to 78.9 million dirham (AED)[7] in 2010, turning into a loss of −6.9 million AED in 2011. The steady decline in profit was due to a fall in revenues (from 1,137 million AED in 2007 to 176.5 million AED in 2011). The decrease in trading revenues was not offset by higher investment revenues: trading revenues accounted for 75 percent of total revenues in 2009, 59 percent in 2010 and 40 percent in 2011. At the same time investment revenues and *Shari'ah* compliant investments increased steadily (around 18 percent in 2009, 28 percent in 2010 and 30 percent in 2011)[8] while the share of other Administrative Revenues – including post-trading commissions and data-dissemination services,

DFM	2007	2008	2009	2010	2011
Net profit (in dirhams million)	972.0	855.0	346.6	78.9	−6.9
% change[a]	+21.9	−12.0	−59.0	−77.2	−109
Earnings per share	0.18	0.08	0.04	0.01	−0.001
Total revenues (in dirhams million)	1,137	1,013	502.9	260.5	176.5
% change		−10.9	−50.0	−48.2	−32.0
ROE	15.0%	6.8%	4.3%	0.93%	−0.09%
P/E	34.4	15.6	47.0	151.0	–
Share prices in dirham (December 31)	6.20	1.25	1.88	1.51	0.84
% change		−79.8	+50.4	−19.7	−44.0
Trading value (in dirhams billion)	379	305	174	69.7	32.1
% change	+9.0	−19.5	−43.1	−59.8	−54.0
Trading volumes (in shares billion)	105	77.0	111	38.4	25.2
% change	+166	−27.3	+44.7	−65.3	−34.5
Market capitalization (in dirhams billion)	500	231	213	199	180
% change	+60.5	−53.6	−7.9	−6.6	−9.5
Listed companies	55	65	67	65	62
DFM local index	5,932.0	1,636.3	1,803.6	1,630.5	1,353.4
% change	+43.7	−72.4	+10.2	−9.6	−17.0

Note: [a]The percentage changes are computed over the previous year
Source: Dubai Financial Market Annual Reports (2007-2011); Arab Monetary Fund

Table IV.
Dubai financial market performance (2007-2011)

ADX	2007	2008	2009	2010	2011
Trading value (in dirhams billion)	175	232	68.9	33.0	25.3
% change[a]		+32.4	−70.3	−52.0	−23.0
Trading volumes (in shares billion)	52.1	50.0	36.6	17.4	19.1
% change		−4.0	−26.9	−52.0	9.8
Market capitalization (in dirhams billion)	443	253	295	283	262
% change		−43.0	+16.5	−3.9	−7.5
Listed companies	64	65	67	64	67
ADX Local index	4,551.8	2,390.0	2,743.6	2,711.1	2,402.3
% change		−47.5	+14.8	−1.1	−11.4

Note: [a]The percentage changes are computed over the previous year
Source: Abu Dhabi Securities Exchange Annual Reports (2007-2011); Arab Monetary Fund

Table V.
Abu Dhabi Securities Exchange performance (2007-2011)

Nasdaq-Dubai	2007	2008	2009	2010	2011
Trading value (in $ billion)	1.45	1.75	1.08	1.31	0.68
% change[a]		+20.7	−38.3	+21.3	−48.1
Trading volumes (in shares billion)	1.10	2.39	3.1	2.62	0.6
% change		+117.3	+29.7	−15.4	−77.1
Listed companies	13	20	16	26	19

Note: [a]The percentage changes are computed over the previous year
Source: Nasdaq-Dubai Annual Review (2007-2011)

Table VI.
Nasdaq-Dubai performance (2007-2011)

etc. – rose from 7 percent in 2009 to 23 percent in 2011. Indeed, the significant share of investment revenues deriving from *Shari'ah* compliant investments may well be the feature that distinguishes the Middle Eastern Stock Exchanges development model from the Western models examined above.

To analyze the reasons for the fall in DFM trading revenues from 2007 to 2011 it is useful to consider trading values and trading volumes. The first indicator declined from 379 billion AED in 2007 to 32 billion AED in 2011, a cumulative decrease of 92 percent, the second from 105 billion shares to 25 billion, a cumulative decrease of 76 percent. The drop in trading value was influenced by decreases in the share prices of listed companies, as well as an actual decline in trading; aggregate market capitalization fell from 500 billion AED in 2007 to 180 billion AED in 2011 (a cumulative loss of 64 percent).

A further contributing factor to the net loss in 2011 was the merger between DFM and ND[9]. Net of the impact of ND merger on aggregate income statement of the two exchanges, DFM would have posted a profit of 8.9 million AED. From 2009 to 2011, DFM-ND consolidation had caused, on the cost side, an increase in affiliate companies expenses (i.e. costs relating to ND consolidation process) from 0 AED in 2009 to 27 million AED in 2011.

Furthermore, the benefits of consolidation were yet to be fully realized: the use of a single trading platform (DFM X-Stream) and a single trading account allowing investors to trade on both exchanges. On the revenue side, ND did not contribute to aggregate revenue: analysis of available data highlights a 48 percent decline in ND's trading value between 2010 and 2011, a 77 percent decrease in trading volume and a fall in the number of listed companies.

Analysis of ADX results highlights the same underlying trend: between 2007 and 2011 trading value plummeted by 86 percent, trading volume by 64 percent and market capitalization by 41 percent.

The data described above confirm that market fragmentation in UAE is a factor that limits both liquidity and trading values and volumes. Furthermore subprime financial crisis heavily affected both DFM and ADX performance, much more than other Arab competitor: we saw the collapse not only of financial indicators such as trading values or market capitalization in DFM and ADX, but also of economic indicators such as revenues and ROE in DFM.

These aspects may give additional thrust to the process of consolidation and lead to the creation of a single stock exchange from the merger of DFM-ND and ADX.

First of all consolidation would enable the two exchanges to gain market position against other Arab exchanges (see Table VII) in terms of market capitalization, and to rank third behind Saudi Stock Market and Qatar Stock Exchange, the main competitor.

But there are also factors that may hinder this process, such as:

- An asymmetric model of governance: DFM has completed the process of demutualization and self-listing, while ADX capital is wholly owned by the government of Abu Dhabi.
- The creation of hierarchies within the consolidated exchange. Given that the Abu Dhabi government and the UAE central bank recently intervened to bail out Dubai World, they may take on a leadership role with respect to Dubai, reflecting their greater economic weight.
- The choice of business model. Although DFM and ADX are regulated by the same authority, the fact that ND is regulated by a different authority would make a federal model of governance more appropriate.

6. Discussions, policy and business implications

In the previous section I examined the UAE Stock Exchanges' performance over the period 2007-2011, and I got evidence that subprime financial crisis and market fragmentation in UAE caused a collapse in all stock exchanges' performance indicators (trading value, trading volume and market capitalization). Furthermore DFM, the only self-listed stock exchange in the area, shows a plunge in revenues and profits, that turned into loss in 2011. This resulted in a tumble of DFM share prices and of overall market capitalization.

Probably such conditions have revived a merger proposal between DFM-ND and ADX.

There would be a lot of implications arising from these results, that likely lead to a merger, not only for UAE Stock Exchange industry, but also for business and market regulator in the Gulf State.

OIC Stock Exchanges	Market capitalization (in $ billion)	Trading value (in $ billion)
Saudi Stock Market	339	293
Qatar Stock Exchange	126	23
ADX-DFM-ND	120	16
Kuwait Stock Exchange	87	25
Egyptian Exchange	49	44

Source: Author own calculations based on the data extracted from Abu Dhabi Securities Exchange and Dubai Financial Market Annual Reports (2011) and Arab Monetary Fund

Table VII. Ranking by market capitalization of Arab major Stock Exchanges in the hypothesis of ADX-DFM-ND merger

In terms of policy implication, this paper could be useful to Security and Commodity Authority, in order to support a merger between Dubai and Abu Dhabi Stock Exchange. Given that UAE capital market regulator has tried to improve efficiency in UAE stock market over the last years, a merger between UAE Stock Exchanges could have positive effects on overall efficiency.

First of all, it could deepen equity market in UAE: as I describe above, network effects would increase number of listings, number of investors, combined volumes and liquidity beyond the sum of the two stock exchanges. As there are no common listings, the number of listed companies could exceed 150 on one large regional stock exchange. Furthermore there could be a return to Initial Public Offerings, since more companies would be driven to list their shares in a more international environment. A single stock exchange could bring beneficial effects in terms of trading and market liquidity: more international institutional investors would be attracted in order to buy shares and more foreign direct investment would flow to the Gulf State. This would be consistent with the growth potential of Arab world's second biggest economy and with recent upgrade provided by index provider Morgan Stanley Capital International. Indeed, the upgrading to emerging market from frontier market status (June 2013) would require a more important and concentrated stock market in UAE. Furthermore, growth in trading and new liquidity flows deriving from the entry of new investors could also reduce trading costs that on Western exchanges stand at around one tenth of the cost of the UAE exchanges[10]. All these factors tend to improve stock market efficiency and liquidity.

This paper could also be useful to UAE Central Bank in order to evaluate stock exchanges' performance indicators in UAE, such as trading values and liquidity. As UAE Central Bank highlights in Financial Stability Forum (September 2012), "thin trading values create a liquidity risk for stock markets participants: investors attach a higher liquidity risk premium to stock valuation, limiting the attractiveness of the stock market as a source of capital for companies."

In the event of a merger supported by this study, liquidity risk linked to thin trading values for DFM and ADX would certainly be reduced and the single stock exchange could become a real source of economic strength and a fine investment in the financial infrastructure of the country.

From this potential merger, we could get also political and business implications. Until now Dubai and Abu Dhabi have been competitor in several sectors, but they have also cooperated in many ways. On the one hand we could consider the rivalry present in the airline industry or in the development of International Financial Centers; on the other hand Abu Dhabi bailed out Dubai World with $10 billion loan during subprime financial crisis and, recently, there has been a merger in another business sector, between the two States aluminum producers (Dubai Aluminium and Emirates Aluminium merged in New entity, Emirates Global Aluminium). A merger between stock exchanges could foster a new wave of mergers among UAE firms and could prompt a major cooperation between the two Emirates in order to establish the most important financial hub in Middle East.

We could also have implications for overall stock exchange industry: assuming that Borse Dubai was involved in that consolidation, for example as the holding company of the new single UAE Stock Exchange, this merger could affect some of the Western exchanges in which Borse Dubai has a controlling stake. Nicolini (2008) underlined how the stakes held by Middle Eastern companies in a number of European exchanges merit-specific attention on account of their global reach. Chesini (2010) also observed

how the acquisition by UAE exchanges of significant stakes in the European exchanges has given rise to global aggregations.

The new UAE Stock Exchange, by virtue of its stake in Nasdaq-OMX, could well have an interest in the Scandinavian exchange's cutting edge technology. Or in the case of the stake in Borsa Italiana-LSE, it could be interested in gaining a foothold certain market segments, such as the Alternative Investment Market that would be an excellent point of contact with the newly developing Middle Eastern companies. It is also important to underline that the creation of a large pool of liquidity in the UAE, facilitated by cross-membership mechanisms, could reduce trading volumes on the Western exchanges.

Borse Dubai could guide mergers between the exchanges in which holds stakes at a global level, choosing its most favored partners regardless of potential synergies. Until now, the government holding company has described itself as a long-term financial investor, without however making any claims about possible activism or passivism in future, but there could also be in the future issues related to governance mechanisms. Therefore this paper could be useful also to capital market regulators of developed stock exchanges: they must pay attention to cross-shareholdings and to the impact of potential activism undertaken by emerging markets stock exchanges.

7. Conclusions

This paper aims to give an overview of UAE Stock Exchange industry and to assess a potential merger between DFM-ND and ADX, evaluating risks, rewards, policy and business implications.

The results suggest that all three stock exchanges in UAE have heavily suffered from the combined effects of market fragmentation and subprime financial crisis during 2007-2011 period: trading values and trading volume collapsed, market capitalization drastically fell. Also DFM economic indicators such as revenues, profits and ROE have plunged over that period, resulting in a share price drop (given that DFM is a self-listed stock exchange).

These data may prompt the creation of a single stock exchange in UAE, supported by this paper: DFM took a first step with the acquisition of ND; the next step may well be a merger with ADX. Indeed, synergies between exchanges due to cost reductions from the use of a single trading platform, product diversification and network effects should foster consolidation, a process that should in turn attract liquidity, new international institutional investors and more listed companies.

A merger could also have several implications: it could strengthen the cooperation between Dubai and Abu Dhabi, but it could also foster a new wave of mergers in other industries in the Emirates.

Nevertheless, these benefits should be weighed against several problematic issues. The creation of a single UAE Stock Exchange could strengthen the position of the holding company Borse Dubai that has major stakes in Borsa Italiana-LSE and Nasdaq-OMX, with possible implications in terms of competitive governance. Whereas on the one hand the UAE intends to establish an international finance hub through a single stock exchange with higher trading value and market capitalization than rival Arab exchanges, on the other hand it might well switch from being a passive investor to an active one, with significant implications for the global industry and market regulators.

This paper open a new strand of research on emerging market stock exchanges, that needs to be further investigated. In particular future research could focus on cross-holdings among developed and developing stock exchanges, that may lead to corporate governance issues.

Notes

1. Demutualization is "the transformation of an exchange into a for-profit shareholders-owned company" (IOSCO Technical Committee, 2000).
2. Emerging markets refers to those nations facing a process of rapid growth and industrialization. Among these China and India are the most important, but they also comprise Brazil and Russia (i.e. why they are also known as BRIC countries). Some think the UAE, analyzed in this paper, belong to a subset of emerging markets, the "frontier markets", since they have lower market capitalization and liquidity than the other, more developed emerging markets. MSCI and Standard and Poor's join this approach in the construction of the respective indices. Instead FTSE, Dow Jones and the International Monetary Fund insert the UAE in the broader emerging market category. Also Maxfield (2009) explores the topic.
3. As is well known, in the literature stock exchanges have been studied using different approaches: as firms (Di Noia, 2001; Mulherin *et al.*, 1991), as markets, i.e. as a trading system (Domowitz, 1996), or as a "brokers-dealers" (Lee, 1998).
4. The analysis referred to the mergers of the Philadelphia and Baltimore Stock Exchanges in 1949, the St Louis, Cleveland and Minneapolis Exchanges ("Midwest") in 1949 and the San Francisco and Los Angeles industries in 1957 ("Pacific").
5. ADX and DFM are not members of the WFE, but belong respectively to the categories of Affiliates and Correspondents. WFE Affiliates are small markets, often newly created. WFE provides that "Affiliates status does not automatically imply an adherence to the WFE membership criteria, and unlike membership is not subject to peer review or vote by the general assembly." "The Correspondent category is managed by the WFE Board of Directors, and unlike membership is not subject to peer review or adherence to the WFE Membership Criteria. The exchanges participating as WFE Correspondents have access to all WFE information and meetings."
6. The UAE is a federation of seven emirates: Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah and Umm al-Quwain.
7. I consider an average exchange rate between dirham (AED) and Euro of 0.22.
8. In the DFM 2011 Annual Report we see that around 30 percent of revenues consists of Islamic, Shari'ah compliant investment deposits, largely due within three months, with a return rate of between 0.6 and 4.2 percent in 2009 (compared to the return rate of between 3 and 6.5 percent in 2010).
9. The Nasdaq-Dubai Stock Exchange, fully controlled until mid-2007 by the governmental holding company Bourse Dubai, was partly acquired by Nasdaq with a 33 percent holding during the "battle" engaged with the same holding company for the acquisition of the Swedish OMX Stock Exchange. Despite the Nasdaq holding and the strategic alliance developed by the two Stock Exchanges, the performance of the third UAE Stock Exchange did not improve. In this framework, DFM took the first step toward the creation of a single UAE Stock Exchange, launching a takeover bid for ND for $121 million immediately after the operative consolidation announcement between the two Stock Exchanges. The adopted model is the typical "federal model," because the ND still keeps its identity as a separate Stock Exchange from the DFM, with its own rules for listing admission and its regulatory authority, different from the DFM. There are not cross-listings or cross-membership, but ND will use the same post-trading platform of DFM, thus giving rise to a form of vertical consolidation.
10. The fee structure adopted by DFM is as follows:
    - A transaction fee of 75 dirhams (about €16.5), for each transaction that has an equivalent amount of less than 15,000 dirhams (€3,300); and
    - Alternatively, there is a 0.5 percent ad-valorem fee of the value of each transaction exceeding 15,000 dirhams.

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About the author

Dr Andrea Paltrinieri is a Research Scholar at the University of Verona and an Adjunct Professor in Financial Markets and Instruments at the University of Udine, Italy. Over the last years, his research has focussed on sovereign wealth funds and stock exchange industry. He presented this paper, as competitive paper, at the Academy of International Business Southeast, USA Chapter, in Fort Lauderdale (USA), on November 2012. Dr Andrea Paltrinieri can be contacted at: andrea.paltrinieri@univr.it