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Arab spring and stock market crises: evidence from the countries in the MENA region

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This paper seeks to identify market crises in a context of political instability using the two methods generally reported in literature: the window method and the C-Max method. More specifically, it studies the impact of political uncertainty (during and after the revolution) on stock market crisis for MENA countries and compares between the results provided by the two used detection methods, since, as mentioned by Boucher (2004), the two identification methods can provide results that may substantially differ if the volatility of the index is increasingly high. We find that Arab spring has affected the stock market activity. In fact, after the revolution, in almost all MENA countries considered in our sample, an important crisis begins, and the index has not recovered its initial level to this day. Besides, our results show that the two methods used in our paper identify almost the same crises.

Keywords: Arab spring, stock market crises, MENA countries

INTRODUCTION

The significant increase in stock market crises in recent decades has attracted the attention of many researchers to the detection of these crises which has gained importance mainly with the political instability that prevailed in several countries. According to Boucher C. (2004), the terms of market crisis or crash refer to two different meanings not exclusive of each other. The first corresponds to the bursting of a speculative bubble, itself defined as a significant and persistent gap in the price of a security or an index relative to its fundamental value. The crisis is characterized by a phase of adjustment and return to fundamental equilibrium price. The second meaning refers to price dynamics followed by stock prices. The crisis is defined as a rapid and / or large-scale price down.

Literature concerned with the detection of market crises generally mention two methods of detecting crises: the window method developed by Mishkin (2002) which identifies a crisis from an absolute variation of an index, and the C-Max method developed by Patel and Sarkar (1998) which identifies a crisis in relation to the historical volatility of an index. Boucher (2004) found that the two

identification methods provide results that may substantially differ if the volatility of the index is increasingly high.

Since the beginning of 2011, revolutions took place in Tunisia and Egypt; they have resulted in governmental changes. Besides, in some other Arab countries, there have been major or minor uprisings and governmental changes but no revolutions took place.

Disturbances may perhaps slow down the economic growth since investors may worry about the instable political situation. Roe, Mark J. & Jordan I. Siegel, (2009) argues that "Primary institutions of investor protection, such as courts, legal rules, and regulators, cannot function well in unstable political environments and this instability may be a critical channel connecting political instability to financial backwardness". These political events can so increase the volatility of stock market indexes. Although the Arab Spring began in 2011, studies on the stock market activity of countries affected by the political change are still rare.

Our paper is related to the literature on political instability and its impact on stock market activity. It seeks to identify market crises in a context of political instability using the two methods generally reported in literature: the window method and the C-Max method. More specifically, it studies the impact of political uncertainty (during and after the revolution) on stock market crisis for MENA countries and compares between the results provided by the two used detection methods, since, as mentioned by Boucher (2004), the two identification methods can provide results that may substantially differ if the volatility of the index is increasingly high.

This paper will be organized as follows: a literature review focused on political uncertainty and market stability will be presented in the following section. The data and methodology used are described in the third section. We then present, in the fourth section, the identified stock market crises for MENA countries using the two detection methods namely the method of windows and C-max method. A comparison of identified crises using the two identification methods will be conducted namely between the periods before and after the revolution.

Literature review:Political uncertainty and market instability

Several studies consider that political and civil unrest are causing changes in stock market activity. Indeed, Karolyi (2006), Leon et al. (2000) argue that political uncertainty is closely related to market volatility. Lobo (1999) examines markets in the mid-term elections in the United States in 1998 after a political scandal was revealed and found that there was a lot of insecurity among investors.

Brookset al. (1997) conducted a study in South Africa after a major policy change and found that the volatility of the stock market is closely linked to political instability. Alexakis and Petrakis (1991) studied the effects of political factors on the behavior of the Greek stock market. It was found that political change has negative effects on stock prices. Chan and Wei (1996) studied the financial market in Hong Kong and showed correlation between new policies and returns. Perotti and Oijen (2001) studied the emerging markets and found that political shocks have a negative effect on stock returns.

Jackson (2008) studied the global economy after events of September 11, 2001, and shows that the impact of the attack struck the entire global economy. Chesney et al. (2011) extensive study of the effects of 77 terrorist attacks occurred in 25 countries on the global economy confirms that the majority of the events have had a negative effect on financial markets.

Seifried Sebastian and Zunft Claudia (2013)"analyze the implications of the Arab Spring for the domestic equity markets by having a closer look at past, present and possible future market movements. They seek to find out if democracy goes along with trust in the respective domestic equity markets". They found that "the Arab Spring activities went along with immediate trust in the domestic equities markets". Results show also that "investors may expect the potential of Arab Spring equity markets to be high".

The paper of Ameen Al Shugaa and Mansur Masih (2014) "sheds light on the economic impacts of political uncertainty caused by the civil uprisings that swept across the Arab World". Authors "examine the impact of the Arab Spring on the volatility of stock markets in eight countries in the Middle East and North Africa (MENA) region: Egypt, Lebanon, Jordon, United Arab Emirate, Qatar, Bahrain, Oman and Kuwait". They found that "the discrepancies between the volatile stock markets of countries directly impacted by the Arab Spring and the countries that were not directly impacted indicate that international investors may still enjoy portfolio diversification and investment in MENA markets".

However, most previous studies in this area focus mainly on political events such as elections, wars and terrorist attacks, few studies have been conducted on the impact of political uncertainty resulting from civil unrest, such as the Arab Spring, on the occurrence, the intensity and duration of crisis on financial markets. In this study we try to answer these important questions.

DATA AND METHODOLOGY

Data

Our choice focused on the MENA region seen that since

Table 1. Data

Market Index	Country	Period
TUNINDEX	Tunisia	December 31 1997 - December 1st 2013
EGX30	Egypt	June 20, 2004 - December 1st 2013
MASI	Morocco	January 04 2003 - December 1st 2013
DFM	Dubai (United Arab of Emirates)	December 31 2003 - December 1st 2013
ASE	Jordan	January 03 1999 - December 1st 2013
BSI	Lebanon	January 01 2000 - December 1st 2013

the late 1990s, several countries in the MENA region are engaged in the process of political reform and financial sector liberalization. National stock markets of these countries are replacing gradually the traditional banking system as a source of investment and foreign direct investment (Naceur et al., (2008)). These countries may hence be subject to stock market crashes seen that stock markets have recently been liberalized and the occurrence of speculative bubbles is possible.

Depending on data availability, our study focused on the following countries: Tunisia, Egypt, Morocco, United Arab of Emirates, Jordan and Lebanon. The following table shows the market indices, the MENA countries included in our sample as well as the period of study.

- Revolutions took place in Tunisia and Egypt; they have resulted in governmental changes.

As mentioned by Seifried and Zunft (2011), **the Tunisian index** has made losses since the beginning of the uprisings, but the losses did not occur immediately after the start of the revolts in December 2010. Enormous declines in equity prices are persistent since January 2011, especially when the Tunisian interim government was in danger to break down (February and March 2011). Consequently, the Tunis Stock Exchange was closed for more than two weeks. **The Egyptian market** index has been in a bearish trend since the beginning of the revolution. "The losses in Cairo on January 26, 2011 and January 27, 2011 amounted to about 12bn. USD" (Seifried and Zunft (2011)). Consequently, the Egyptian Stock Exchange was closed for two months.

- In some other Arab countries, there have been major or minor uprisings and governmental changes but no revolutions took place. In Morocco, the governmental changes refer to concessions of the Moroccan king to make reforms concerning the constitutional body, (Seifried and Zunft(2011)). In the United Arab Emirates "The popular demands for change and reform that are currently sweeping the Arab world appear to have reached the United Arab Emirates, where a group of

Emirati activists and intellectuals have sent a petition to the president of the seven-sheikhdom federation, urging him to allow direct elections and grant legislative powers to the parliament" (see Sandels, A. (2011)). Finally, the ongoing conflict in Syria is an important source of instability for Lebanon and Jordan.

METHODOLOGY

The method of windows

According to Mishkin and White (2002), each crisis is characterized by its depth and speed. The depth of the crisis is measured by the decline in the index. The speed of the crisis means measuring the time taken by the index to achieve this decline. This is why we seek declines on windows of one day, five days, a month, quarter and one year.

A fall over 20% is so used to identify market crashes on different time windows (one day, five days, one month, one quarter and one year).

The C-MAX method

Patel and Sarkar (1998) define a variable called C-MAX$_t$ which compares the current value of the index with its maximum value on the preceding T periods (24 months in our case):

C-MAX$_t$ = x_t / max [x$\in$ (x_{t-j}/ j = 0,1, ..., T)],

Where x_t is the level of the stock index at time t.

This method captures the crises from extreme levels reached by a stock market index over a given time. We identify a market crisis when C-MAX$_t$ ratio exceeds a critical level of 1.5 times the standard deviation below its average level over the whole sample.

As mentioned by Boujelben et al. (2010), "the beginning of a crisis is the month when the index reaches

Table 2. Detected crisis for Tunisian stock market using windows method

One month	One quarter	One year
February 2011	February, March, April and May 2011	January and February 2003
	December 2008	December 2008
		May - September 2011

Table 3. Detected crisis for Egyptian stock market using windows method

One day	5 days	One month	One quarter	One year
Dec 2005	June 2005	June 2005	Sept 2005	2006
April 2006	April 2006	March - June 2006	July 2006	2008
July 2008	Nov 2008	August- Dec 2008	Nov- Dec 2008	2009
Feb 2011	Feb 2011	Jan- Feb - July 2009	Feb - June 2009	2011
			July 2010	2012
			April May June August Nov Dec 2011	
			June 2012	

its historical maximum prior to the month when the crash is triggered. The date of trough is the month when the price index reaches its minimum level during the crisis. The date of recovery is the first month when the index reaches the pre-crash maximum level after the crash is triggered. Price decline to trough is the variation of the stock price index between the beginning of a crisis and the date of trough".

Crisis detection

Crisis detection using the method of windows: Results

Mishkin and White (2002) used a 20 percent drop in the market to define a stock market crash. The explication is the following: "October 1929 and October 1987 are universally agreed to be stock market crashes, On October 28 and 29, 1929, the Dow Jones declined 12.8 and 11.7 percent; and on October 19, 1987, the Dow Jones fell 22.6 percent, they both fell slightly over 20 percent" (Mishkin and White (2002)).

The depth of the crash, measured by the fall in the market, is one characteristic of a crash. Speed is another important feature because the effects of the crash on the market depend of the duration of the crash. This is why we look at declines over windows of one day, five days, one month, one trimester and one year.

Tunisia

No rapid crash was detected for Tunindex on one day or

5 day window, even for the period before and after the revolution of January 14, 2011. There was a gradual decline since the beginning of the month, for a window of 5 days, this decline reached 13% on January 13 2011. After the revolution date, the stock market has stopped functioning for two weeks, and then restarted its activity with a trend of gradual and not rapid decline. At one month, we identify crash in February 2011, and at three months, we identify crashes for February, march, April and May 2011, resulting from the gradual decline of each day. Besides, at three months, we identify crash for December 2008, which also can be explained by the gradual decline of the Tunisian stock market index since the beginning of the year 2008 due to subprime crisis.

For one year, there are three major crashes:
- At the beginning of the 2003 year (January and February) which result from a gradual decline of the Tunisian index after the events of September 11, 2001.
- At the 2008 year, resulting from the subprime crisis.
- And at the 2011 year (for the months May, June, July, August and September) after the revolution of January.

Egypt

On the window of one day for the EGX30, we identify four crashes in December 2005, April 2006, July 2008 and February 2011. At five days, we detected crashes in June 2005, April 2006, November 2008 and February 2011. The rapid declines of the indices are explained in 2005 and2006 by the privatization policies implemented between2004 and 2009. It appears that the reaction of

Table4. Detected crisis for Morocco stock market
using windows method

One month	One quarter	One year
June 2006	January 2001	2000
October 2008	Oct 2004	2001
	May- Sept 2006	2002
	Oct-Nov 2008	2008-2009
		2011-2012-2013

Table 5. Detected crisis for Dubai stock market using windows method

Five days	One month	One quarter	One year
October - November 2008	July 2005	Sept2008-march 2009	2006
	February- March- May 2006	Feb- march 2009	2007
	January 2009	Jan-Feb 2010 - june2010	2008
	July 2009	March 2011	2009
			2010
	Dec 2009		2011

the Egyptian financial market was rapid and dramatic face the financial crisis of 2008in the United States and the revolution in 2011.

These effects lasted and this drop detected on windows of one and five days was also detected on the windows of one month, three months and one year. The Arab Spring affects negatively the Egyptian financial market since late 2010 until today.

Morocco

There is no rapid crisis for the MASI on the windows of one and five days. On the windows of one month, we identify two crises: the MASI decline gradually in June2006 and October2008. The crisis of2006, due to the deterioration of the trade balance, caused agradual decline in stock market indices. The financial crisis which began in the USA in 2008 caused a fall in indices.

At three months, we identify crashes in January 2001, May and September 2006, October and November 2008. One possible explanation for the 2001 fall is the dot-com bubble (The fall of the bubble took place during 1999–2001). The crisis of 2006 was due to the beginning of the second step in the process of financial sector reforms. Indeed, these reforms can be classified into two major steps. The first stage started from July 6 1993 and the second stage began in late 2005 and early 2006.

In addition to the crisis of 2001 and 2008 that lasted over a window of 12 months, the revolution in

neighboring countries (Tunisia and Lybia) caused a slow degradation of the index since 2011.In fact, Morocco has also experienced some governmental changes and this general uprising of 2011hasnegativeeffectson the financial market. However, these effects are less rapid than those in the case of 2006 and 2008 crisis.

Dubai

There is no rapid crisis detected for the Dubai Financial index on the windows of one day. On the windows of five days, we identify two rapid crashes in October 2008 and November 2008, resulting probably from the global financial crisis. At one month, we identify gradual decline in July 2005, February, March and May 2006. In fact, during 2004 and 2005, there were significant increases in the volume of shares traded and the share prices of many companies. However, towards the end of 2005 and through the first few months of 2006 the bubble burst and share values dropped by around 60% on DFM.

The impact of the subprime crisis appears to be durable. Indeed, in addition to rapid declines in October and November 2008 on a window of five days, we have also identified crashes on the windows of one month and three months. The effect of the Arab Spring was not fast; it was only detected on the windows of one quarter and one year, which proves that popular uprisings in Arab countries during 2011havecausedgradualdecreasesof the indices until today.

Table 6. Detected crisis for Jordanian stock market using windows method

One month	One quarter	One year
March 2006	March 2006	November 2008 - November 2009
October 2008	October 2008 - January 2009	May 2010 – Feb2012
	February 2011	May- JuneandDecember 2012

Table 7. Detected crisis for Lebanon stock market using windows method

One day	5days	One month	One quarter	One year
January 2008	January 2008	August 2006	August 2006	April - October 2001
		December2008-January 2009	October, November and December 2008	September 2006 – March 2007
				November 2008 - May 2009
				October 2011

Jordan

No rapid crash was detected for Jordan Index on one day or 5 days windows. For one month window, we identify crashes in March 2006 and October 2008. These effects lasted and this drop detected on windows of a day, 5 days was also detected on the windows of one month, three months and one year. Besides, for three months window, we identify crashes in February 2011.The crash of 2008/2009 might me due to a progressive decline related to subprime crises. Jordan was not immediately affected by the economic crisis of 2008 but only slowed down at the end of 2008 and the beginning of 2009. The crash identified in February 2011 might be due to political problems in the Arab countries, including Jordan.

For one year window, declines were identified for May, June and December 2012 proving that the effects of political disturbances of 2011 are long-lasting.

Lebanon

One rapid crash was detected for Lebanon Index on one day and 5 day window at the beginning of 2008. It appears that Lebanon was immediately affected by the economic crisis of 2008. For one month window, we identify crashes in August 2006, December 2008, and January 2009. For three months window, we identify crashes in August 2006 resulting from the 2006 Lebanon war with Israel. Besides, we identify crash in October, November and December 2008. After being immediately affected by the economic crisis of 2008, Lebanon Index slowed down at the end of 2008.

For one year window, three lasting declines were identified for the period from April to October of 2001 year after the events of September 2001, for the period from September 2006 to March 2007 after the war with Israel and for the period from November 2008 to May 2009 after the economic crisis of 2008. Another crisis was identified for October 2011 due to the political instability in the neighbor countries.

Crisis detection using the C-max method: Results

For every crisis, we indicate the start of the crisis, the date of trough, the date of recovery and finally the amplitude of the crisis. The beginning of the crisis is the month where the index reached its peak on T periods prior to the date where the critical level C-max is exceeded. The trough is the date when the index reached its minimum level during the crisis. Recovery duration is the time required for the index to find its maximum level reached before the crash. Finally, the amplitude is the variation of the index between the beginning of the crisis and the trough (price decline to trough).

Results of crisis detection using the C-max method are consistent with those found by the method of the windows. Indeed, the two crises detection methods have identified almost the same crashes.
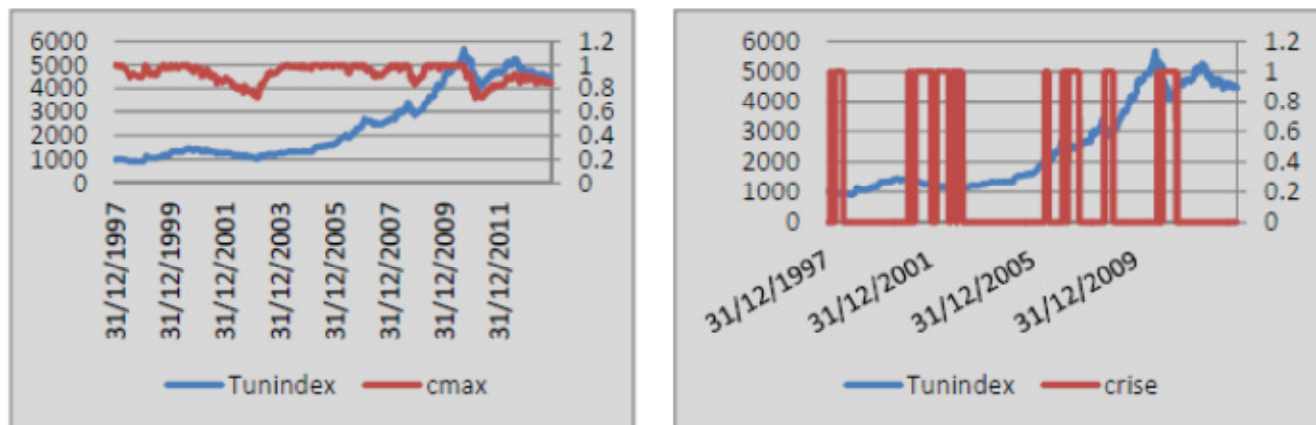
Tunisia

Figure 1: Dynamics of the CMAX indicator with the Tunindex indices over the period 1998–2013

Table 8. Identified crisis for Tunisian stock market

The beginning of a crisis	The date of trough	Duration of the crash	The date of recovery	Duration of the recovery	Amplitude (%)
06/02/1998	22/07/1998	5 months and 2 weeks	03/02/1999	1 year	-10.76
13/09/2000	18/03/2003	18 months	08/04/2004	3 years and 7 months	-30.27
05/06/2006	19/07/2006	1 month and 2 weeks	04/09/2006	3 months	-7.665
09/02/2007	30/07/2007	5 months and 3 weeks	31/03/2008	1 year, one month and 3 weeks	-9.15
09/09/2008	12/12/2008	3 months	01/06/2009	9 months	-17.017
30/09/2010	25/02/2011	5 months	Not yet	_	-28.56

Egypt
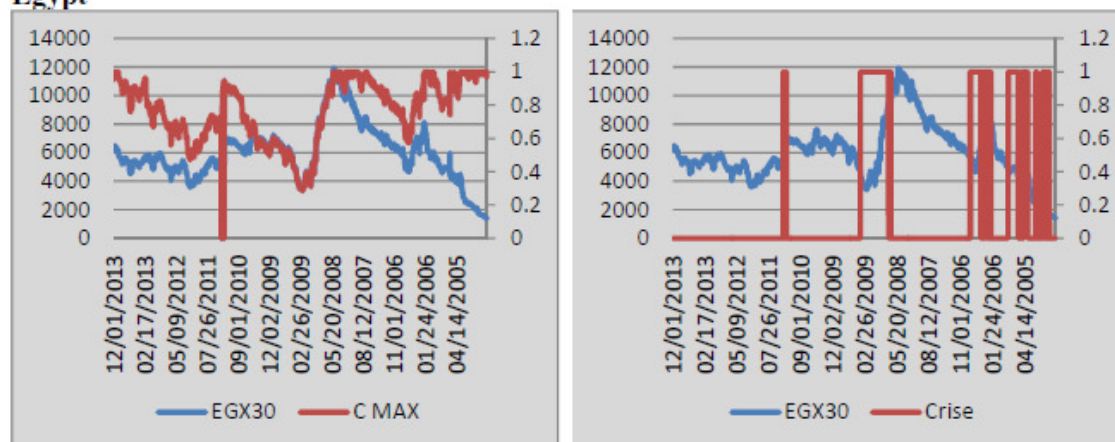
Figure 2: Dynamics of the CMAX indicator with the EGX30 indices over the period 2004–2013

Before the revolution of 14 January 2011, the most important crisis in Tunisia was the crisis of 2000. This crisis has been more severe than the previous ones, both in terms of the extent of price decline and the duration of the crises. The beginning of the crisis was in September 2000, the month in which the Tunindex achieved its

Table 9. Identified crisis for Egyptian stock market

The beginning of a crisis(peak)	The date of trough	Duration ofcrash	The date of recovery	Duration of recovery	Price decline to trough (%)
13/03/2005	30/03/2005	17 days	05/05/2005	1 month and 3 weeks	-16.30
11/06/2005	13/06/2005	2days	07/11/2005	5 months	-26.02
01/02/2006	27/06/2006	5 months	05/07/2007	1 year and 5 months	-42.83
05/05/2008			Not yet	_	
27/04/2010			Not yet	_	

Morocco
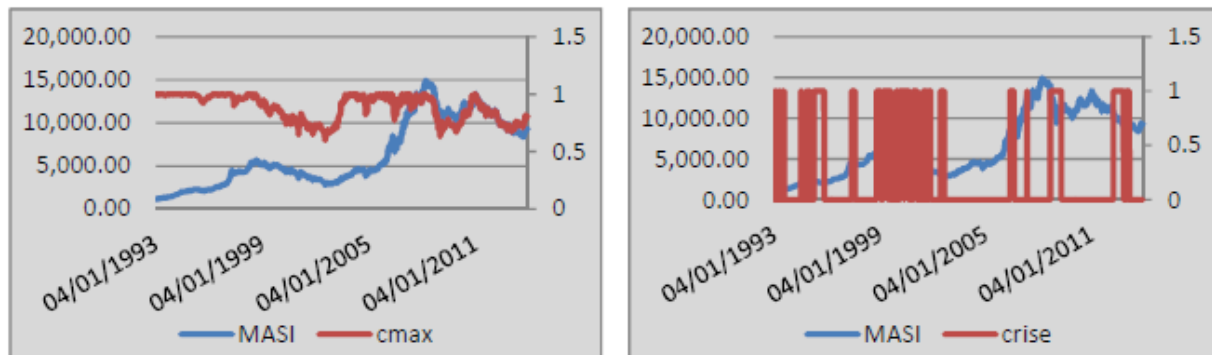
Figure 8: Dynamics of the CMAX indicator with the MASI indices over the period 1993–2013

Table 10. Identified crisis in Morocco stock market

The beginning of a crisis(peak)	The date of trough	Duration of crash	The date of recovery	Duration of recovery	Price decline to trough (%)
13/03/2008	28/08/2013			>5 years	-44.014
09/05/2006	13/06/2006	1 month 4 days	02/11/2006	6 months	-23.17
25/08/2000	22/07/2002	2 years	29/04/2004	3 years and 8months	-39.5
01/09/1998			05/01/2006		
23/04/1997	28/05/1997	1 month and 5 days	13/02/1998	10 months	-10.245
15/03/1995	01/09/1995	5 months and 15 days	08/03/1996	1 year	-7.96
19/12/1994	04/01/1995	1 year	13/01/1995	1 year	-0.837

historical maximum. The crisis reached a first trough 18 months later in March 2003.

Prices declined 30.27% relative to the previous historical maximum level, but they took longer to recover
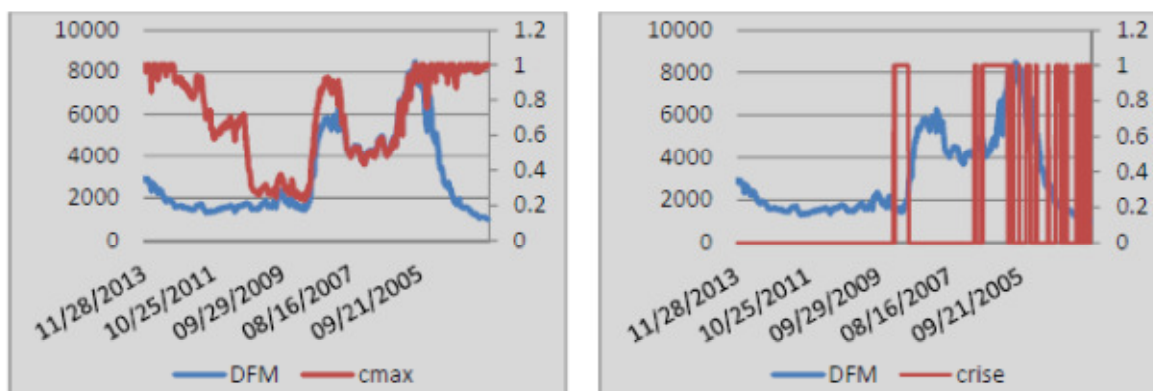
Dubai

Figure3: Dynamics of the CMAX indicator with the DFM indices over the period 2004–2013

Table 11: Identified crisis for Dubai

The beginning of a crisis	The date of trough		The date of recovery	Price decline to trough (%)
08/02/2004	16/03/2004		04/07/2004	-13.21
28/04/2005	10/05/2005		29/05/2005	-7.32
06/07/2005	1st trough	2nd trough	Not yet	-80.25
	17/12/06	05/09/13		

Beginning of the crisis	The first trough	the first maximum increase without recovery	The second trough
06/07/2005	17/12/2006	19/06/2008	05/09/2013

Jordan
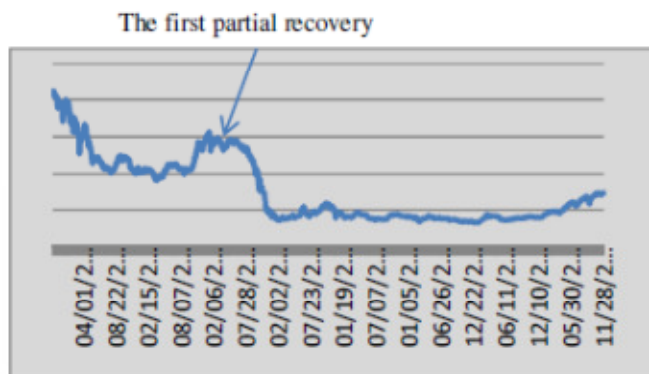
Figure 4: The crisis in 2005 and its partial recovery

about three years and seven months. This trough level was reached again in April 2004.

In contrast, we find three other crises less severe than the previous crises in terms of the degree of price decline. In June 2006, the Tunindex fell 7.665% below its historical maximum level during three months. A first trough was reached in July 2006. Some months later, a new trough level was jumped over in July 2007, the decline in prices reached 9.15%. In September 2008, we detect another crisis. It reached a trough of 17.017% three months later that is in December 2008. This might be due to the subprime crisis. These three successive
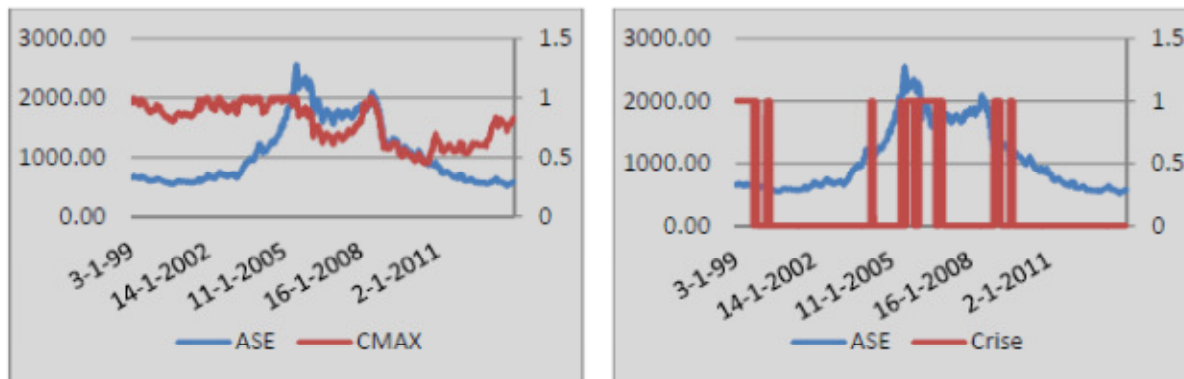
Figure 5: Dynamics of the CMAX indicator with the ASE indices over the period 1999–2013
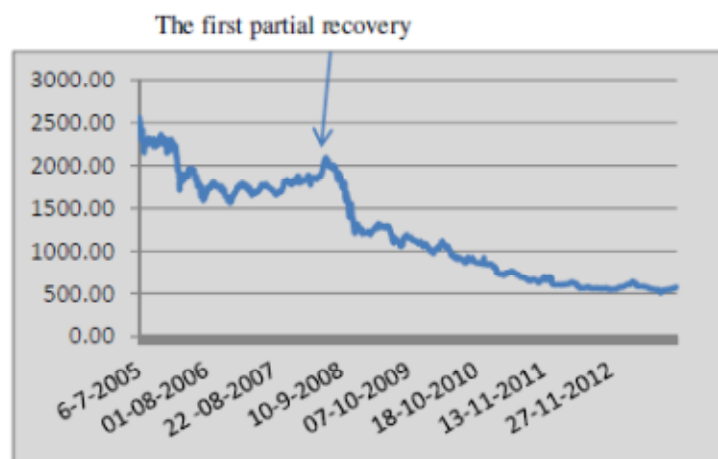
Figure 6: The crisis in 2005 and its partial recovery
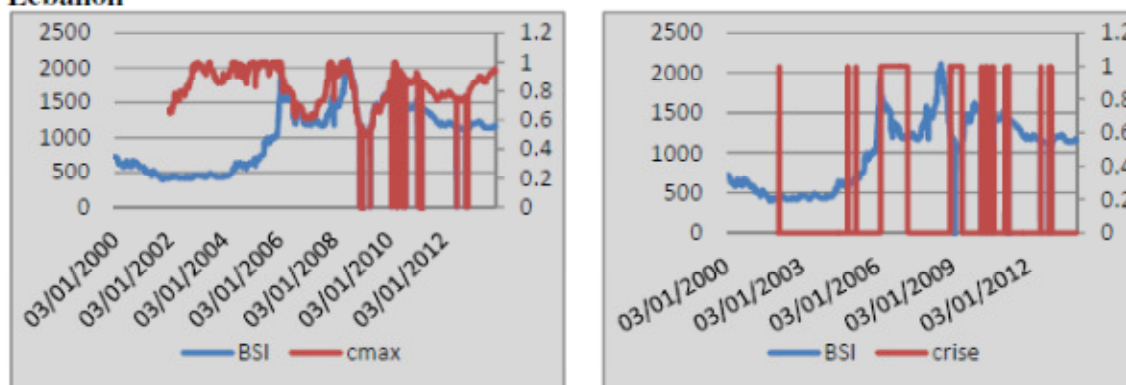
Figure7: Dynamics of the CMAX indicator with the BSI indices over the period 2004–2013

crises could be explained in part by the climate of lack of confidence by investors which has worsened since 2004. In fact, discretionary government intervention and the power of insiders have that weakened the business climate and any risk-taking by foreign investors. This is reinforced by bad debts of Tunisian public banks.

After the revolution, an important crisis begins in October 2010; a trough of 28.56% was reached at the

Table 12: Identified crisis for Lebanon Stock market

The beginning of a crisis	The date of trough	The date of recovery	Price decline to trough (%)
07/07/2008	25/03/2009	Not yet	-50.793
30/01/2006	06/08/2007	30/05/2008	-40.032
14/02/2005	21/02/2005	22/04/2005	-17.5

end of February. The index has not recovered its initial level to this day.

In Egypt, the crisis of February 2006is very important with a fall in prices -42.83% and duration of 1 year and 5 months. In 2005, we detected two crises: in June and in March with respective falls of 26.02% and 16.30%.

These high frequency crises can be explained by reforms undertaken by Egypt. In fact, since 2004, the scope and depth of reform have vastly expanded and took root. The Egyptian economy witnessed a clear transformation from the private sector friendly environment prevalent during the 1970s, 80's and 90's to a private sector trusting economic system (http://www.modernegypt.info/economy/economic-liberalization/).

Since May 2008, the EGX index fell 71.6% below its historical maximum level in one year. A first trough was reached in May 2009. A first partial recovery was recorded on April 2010, but this improvement did not last because of the revolution that began in January 2011. A second trough is so recorded on December 2011, the EGX index fell 52.83 % below its level of April 2010. Two years later, a second partial recovery was recorded.

In Morocco, the crisis of August 2000 was characterized by falling prices of -39.5% over two years. Level prices will be found before the crashagainreaches3years and 8months later in April 2004.In 2006, Morocco was ranked in the red zone because of his deteriorating trade balance of more than 1% of GDP (Helblinget al, 2008); which explains the crisis of May2006.This crisis lasted until November 2006withamplitude equal to-39.5%.The crises of1994, 1995, 1997 and 1998 are crises of a few months and whose amplitude is below 10%.

The most important crisis in Morocco is in 2008with a fall of 44,014%. The prices have not reaches their initial levels until such day. Indeed, the stock market could not find their recovery because of the political uncertainty of 2011.

The speculative bubble in 2005 led to the financial market in a bearish phase. The situation has intensified with the global financial crisis in 2008 and the popular uprising of the Arab countries in 2011.Since November 2005, the DFM index is in crisis, and the index did not record a recovery to the initial level. There is a partial recovery at the end of 2007 and the beginning of 2008,

followed by a downward phase as the following graph shows. These results are consistent with those found by the method of the windows. Indeed, on a one-year window, the method detected each year stock market crashes.

Like Dubai, the ASE index of Jordan is in crisis since July 2005, the index did not record a recovery to the initial level. There is a partial recovery at middle of 2008, followed by a downward period as the following graph shows. Since the subprime crisis, the stock market index has not regained its pre-crisis value. The effect of this crisis is so durable, which does not allow studying the impact of the Arab Spring on the activity of the stock market.

Three successive crises are recorded for Lebanon. The first began in February 2008 and last 2 months, with fall amplitude of 17.5%. The second began in February 2006 and lasts 2 years and 4 months and indices fall 40%. Finally, the longer crisis is beginning in July 2008, with amplitude of about 51 %. Indices did not recover until now.

CONCLUSION

This paper studies the impact of political uncertainty (during and after the revolution of the Arab spring) on stock market crisis for MENA countries and compares between the results provided by two used detection methods: the window method and the C-Max method. The two methods used in our paper identify almost the same crises.

As a result, we find first that the global financial crisis that exploded in 2008 in the United States and went beyond affecting the rest of the world has had an impact on the countries of the MENA region. Indeed, the stock markets were the first to suffer as a result of the collapse of foreign stock markets.

Besides, we find that Arab spring has affected the stock market activity. In fact, after the revolution, and in almost all MENA countries considered in our sample, an important crisis begins, and the index has not recovered its initial level to this day. These results are consistent with previous studies showing that political uncertainty contributes to financial instability. Among the stock markets studied, some experiencing rapid crisis and

other markets experiencing slow.

As an extension to this work, we can attempt to identify the causes of stock market and financial crashes. We can explain these crises by some monetary and financial indicators. Some studies are interested to different emerging countries such as Latin American, Asian, African and European countries. Different methods are implemented (signal approach, Principal Component Analysis, Logit/Probit regression).

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