

Income Smoothing Behavior at the Times of Political Crises

Ahmad N. OBAIDAT

Accounting Department, Business Faculty, Tafila Technical University, Jordan, P. O. Box 179, Tafila 66110, Jordan,
E-mail: a.obaidat@ttu.edu.jo, a_obaidat@yahoo.com

Abstract *This study aimed to investigate the effect of political crises on income smoothing behavior in non-financial firms listed on Amman Stock Exchange (ASE) during the period 2006-2015. Chi-Square, Correlation and Logistic Regression tests indicated that income smoothing practice exists, and is more likely in the periods of political crises. Results also indicated no effects of the firm size, return on assets (ROA) and financial leverage on income smoothing behavior, but it could not reveal an ultimate result concerning the effect of the firm sector.*

Key words Political crises, income smoothing, non-financial firms, ASE

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1. Introduction

As an information system, accounting aims to provide users with useful information to rationalize different decisions. This information is disseminated throughout the financial statement including the income statement which is considered by many users as one of the most important sources. According to Kangarlouei *et al.* (2012), users nowadays put lots of emphasis on the income figure as one of the most important factors in decision making. Likewise, Vladu (2013) pointed out that users nowadays tend to rely on income statement primarily to assess the success of firms. Also, Hessayri and Saihi (2015) asserted that accounting earnings are of major concern for shareholders as they reflect firms' performance. But due to the flexibility of accounting standards represented by the different treatment alternatives (e.g. depreciation methods) allowed by accounting standards (e.g. IFRS, GAAP) income has been subject to management influence to smooth it, which is considered by Matsuura (2008) as the most popular strategy among earnings management strategies. In this regard, Kangarlouei *et al.* (2012) concluded that the flexibility in accounting standards and principles, lead to incentives in managers to show a good picture of the firms. Prior to that Chong (2006) argued that income smoothing is considered almost irresistible for most firms.

Many researchers (e.g., Ashari *et al.* 1994, Aljifri 2007, Kangarlouei *et al.* 2012, Harnovinsah and Indriani 2015) recognized that Hepworth (1953) was the earlier contributor introducing the concept of income smoothing when he proposed that it was logical and rational for managers to attempt to smooth income by using certain accounting devices to reduce the firms income fluctuation over time with the intention to improve relations with creditors, investors, and employees. Since that, income smoothing has been interpreted and defined by many authors. For example Copeland (1968) stated that income smoothing is making earnings fluctuations less volatile by shifting earnings from peak years to less successful periods. Beidleman (1973) defined income smoothing as "the intentional dampening of fluctuations about some level of earnings that are currently considered to be normal for a firm". Ronen and Sadan (1975) defined income smoothing operationally as "the observed dampening of fluctuations about some level of income assumed to be normal for the firm". Moses (1987) classified income smoothing as "behavior" to reduce fluctuation in earnings using some "smoothing devices". Chong (2006) considered income smoothing as "manipulation" of earnings toward a predetermined target which may be set by the management, requested or expected by a particular group of the stakeholders. Martinez and Castro (2011) defined income smoothing as the deliberate normalization of income in order to reach a desired trend. In

the most recent definition, Bora and Saha (2016) defined income smoothing as “a kind of intentional act committed by managers using special tools in accountancy for lowering profit fluctuations”.

In terms of the types of income smoothing, previous studies (Albrecht and Richardson 1990, Srinidhi *et al.* 2001, Bao and Bao 2004, Hamad and Abu-Nassar 2013) agreed with Eckel (1981) by classifying income smoothing as natural or intentional, where the natural smoothing results from the income generating process that produces a smooth income, which is not considered a manipulation by the management. While the intentional smoothing can be the result of real smoothing or artificial “accounting” smoothing techniques, a real smoothing is the result of managers’ change of the economic (revenue generating) events. Artificial smoothing is the result of managers’ change of the timing of accounting entries to produce smooth income.

Several motivations for income smoothing have been discussed in prior literatures. The first motive is to increase investors’ confidence in the firms’ future situation and enhance their ability to predict future cash flows (Aljifri 2007, Salehi and Manesh 2011, Alexandri and Anjani 2014). The second motive is to influence management bonus plans especially if management compensation is related to a steady growth of income (Koch 1981, Aljifri 2007, Matsuura 2008, Prencipe *et al.* 2011, Alexandri and Anjani 2014). The third motive is to reduce firm perceived risk and, as a consequence, reduces the corporate cost of capital (Aljifri 2007, Prencipe *et al.* 2011). The fourth motive is to influence income tax Aljifri (2007). After clarifying the several motivations for management to smooth income, the question arises: is income smoothing good or bad?, and to whom?.

Like many controversial issues in accounting, income smoothing has proponents and opponents. Barnea *et al.* (1975) stated that income smoothing assists accounting information users in predicting the future cash flow of a firm since managers transfer their expectations of future cash flow through smoothed income numbers. Carlson and Bathala (1997) concluded that income smoothing may increase the attractiveness of the firm to investors by reducing investors’ perceived risk of the firm. As cited by Aljifri (2007), Subramanyam (1996) and Chaney *et al.* (1996) argued that smoothed earnings would increase the quality of earnings. Recently, Harnovinsah and Indriani (2015) argued that income smoothing can positively affect the value of the firms’ stock market price. On the contrary, Patell (1989) argued that income smoothing would decrease the quality of income. Albrecht and Richardson (1990) and Ashari *et al.* (1994) concluded that income smoothing may result in an inadequate or misleading disclosure of income. Consequently, investors may not get sufficiently accurate information about income to evaluate the returns and risks of their portfolios. Finally, according to Parfet (2000) opinion, cited by Chong (2006), there is a good income smoothing and a bad income smoothing, where the good income smoothing occurs when management creates a stable financial performance by acceptable and voluntary business decisions. Bad income smoothing occurs when management creates artificial accounting entries or stretches estimates beyond reasonable limits. But discriminating between the good and the bad income smoothing is relatively difficult.

2. Study Motivation and Hypothesis Development

Earnings management in general, and income smoothing in particular, have attracted the attention of accounting literature since the end of the 1960s. The initial works in the subject focused on detecting income smoothing. But after that, taking into account the accounting scandals concerning Enron, WorldCom and Parmalat, the accounting literature focused on other aspects of income smoothing and became interested in studying factors leading to income smoothing, its objectives, types, objects, tools, motivations, and its affect on firms and stakeholders (Martinez and Castro 2011, Dilger and Graschitz 2015, Harnovinsah and Indriani 2015). Recently, studies by Vladu (2013) and Rusmin *et al.* (2013) found that at the times of financial and economic crises, the income usually does not have a smooth pattern which is considered a good motivation for firms to smooth it. Jordanian economy, like other Syrian neighboring countries, has been affected by the Syria’s refugees’ crisis. Since the beginning of the Syrian conflict in March 2011, the economic pressures on the hosting countries like Jordan caused by the Syria’s refugees’ crisis have been substantial. With the increase in the number of Syria’s refugees in Jordan which exceeds 1.5 million, Jordan economy has become under enormous pressures. On the one hand, this crisis has led to negative impacts on Jordan’s economy such as the increase in the levels of inflation, decrease of growth

levels, increase of unemployment levels, and rent inflation. On the other hand, Jordanian firms have been affected negatively, because the Syrian market was considered as one of the main markets for imports and exports for these firms which, in turn, have affected firms' income due to the increases in the cost of inputs and the decreases of revenues. This study expands previous studies in the fact that it focuses on the issue of whether crises are associated with income smoothing. In particular, this study aimed to find out whether income smoothing is more likely in the periods of political crises. Accordingly, the study hypothesis is:

H1. Income smoothing is more likely in the periods of political crises.

The study period extended from 2006 to 2015 was divided into two sub-periods. The first period extended from 2006 to 2010 representing five years before the political crisis. And the other period extended from 2011 to 2015 representing five years during the political crisis.

3. Literature review

Previous studies have been interested in investigating income smoothing existence, its objectives, types (real or artificial), objects (e.g., gross profit, net income), factors affecting, tools, motivations, and its effect on return and risk. The following are the most related recent studies sorted by dates.

Ashari *et al.* (1994) aimed to identify the factors associated with the incidence of income smoothing in the Singapore Stock Exchange during the period 1980 to 1990. The results indicated that income smoothing is practiced and that operational income is the most common income smoothing objective. Profitability, industry and nationality have been the most affecting factors on income smoothing, while the size had no effect on income smoothing. Al-Juhmani (2001) investigated income smoothing practices in Jordanian firms listed on ASE. The results revealed that income smoothing has been practiced in Jordanian firms, but the study could not find any effect of firms' sector or size on income smoothing practices. Iñiguez and Poveda (2004) investigated the relationship between income smoothing, return and risk in Spanish stock market and found that smoother firms had a higher stock return and a lower risk associated with size and book to market factors. Depending on the data from 44 countries for the period 1993 to 2002, Cahan *et al.* (2008) found that income smoothing is more positively associated with earnings informativeness in countries with strong investor protection than it is in countries with weak investor protection, suggesting that managers in weak investor protection countries are more likely to use income smoothing for opportunistic reasons while managers in strong investor protection countries are more likely to use income smoothing to convey their private information about future earnings. Abu-Hilal (2010) investigated the income smoothing practices and their impact on the Palestinian national economy and revealed that 44.4% of Palestinian firms smooth their income. Prencipe *et al.* (2011) investigated whether family controlled firms differ from non-family controlled firms regarding income smoothing. The study revealed two primary results. First, income smoothing is less likely among family controlled firms. Second, among family controlled firms, income smoothing is less likely for firms whose chief executive officer and board chairman are members of the controlling family. Martinez and Castro (2011) aimed to measure the degree of smoothing in Brazilian public firms between the periods 1998-2007. The study also investigated the relationship between the smoothing and stock return and risk. The results indicated that smoother firms have a smaller degree of systemic risk and higher abnormal annualized returns. Rusmin *et al.* (2013) investigated whether managers smooth reported earnings to meet the benchmark target of last year's earnings figure during the global financial crisis period of 2006-2009 in seven Asian countries (China, Hong Kong, India, Japan, Korea, Malaysia and Singapore). The results suggested that during the period of financial crises firm managers engaged in less income smoothing behavior. Also, the results suggested that large size firms exhibited less income smoothing behavior. Vladu (2013) assessed whether the smoothing behavior of Spanish listed firms differ in bad economic periods compared to good economic periods. The results indicated a decrease in income smoothing behavior in the financial crisis period (2008-2009). Chen (2013) examined the effect of income smoothing on information uncertainty and cost of equity. The results indicated that smoother firms have higher abnormal returns around earnings announcement and lower implied cost of equity. Hamad and Abu-Nassar (2013) investigated the effect of income smoothing on the market return of the industrial and service firms listed on ASE. The study revealed that some firms practiced income smoothing but there were no effects of firm sector or size on income smoothing practice, and the results indicated the effect of income smoothing on abnormal market return. Alexandri and Anjani

(2014) study aimed to determine the factors that affect income smoothing on the national private commercial foreign exchange banks listed in Indonesia Stock Exchange. The results showed that income smoothing was done by most of the sample and the variables of size, profitability and financial leverage had an effect on income smoothing. A comparative study by Shubita (2015) assessed the practice of income smoothing in the Gulf Cooperation Council markets (Saudi Arabia, Kuwait, United Arab Emirates, Oman and Qatar) and to examine the impact of income smoothing on the earnings quality. The results suggested that income smoothing was founded in the Gulf Cooperation Council markets and it improved earnings quality in three countries out of the four. Using a sample of listed firms in the United Arab Emirates, Morocco, South Africa and the Philippines Hessayri and Saihi (2015) examined whether the adoption of the International Financial Reporting Standards (IFRS) affected income smoothing behavior. By dividing the eight years study period into two sub-periods (four years of pre-adoption period and four years of post-adoption period) the authors found no evidence of lower income smoothing practice after the adoption of IFRS. A recent study by Bora and Saha (2016) investigated the income smoothing practices in India and the factors that affected it. The study concluded that income smoothing practices were present at a lower level among firms and that the small size firms smoothed income more than large firms. This study also concluded that there was no significant association between the sector (service and manufacturing) and income smoothing.

4. Income smoothing detecting approaches

According to Copeland (1968), income smoothing could be discovered through three ways. First, get ascertain from management by interview or questionnaire. Second, contact other parties, such as auditors. Third, examine the financial statements. But the first two methods are difficult to depend on because management and auditors maybe unwilling to cooperate. In this regard Bao and Bao (2004) argued that income smoothing behavior cannot be observed directly. This means that the available way to detect income smoothing is through examining the financial statements.

Among other approaches for detecting income smoothing through examining the financial statements is Eckel's (1981) approach (income variability approach), which has been the most popular and most used one (see for example: Albrecht and Richardson 1990, Ashari *et al.* 1994, Kousenidis *et al.* 2003, Iñiguez and Poveda 2004, Bao and Bao 2004, Prencipe *et al.* 2011, Kangarlouei *et al.* 2012, Hamad and Abu-Nassar 2013, Alexandri and Anjani 2014, Aljuaidi and Aldaoor 2014, Harnovinsah and Indriani 2015, Bora and Saha 2016). To build his model, Eckel (1981) stated the premises that: income is a linear function of sales and is equal to sales minus variable cost and fixed cost; the variable costs as percentage of sales remains constant over time; fixed costs may remain constant or increase from period to period, but may not be reduced; and the gross sales can only be intentionally smoothed by real smoothing but cannot be artificially smoothed. Accordingly, the following conclusions were stated:

If $I = S - (VC\% * S) - FC$
and $FC > 0$
and $FC_{t+1} \geq FC_t$
and $0 < VC\% < 1$
and $VC\%_{t+1} = VC\%_t = VC\%$
then $CV \Delta S \leq CV \Delta I$

So, when the variability of income is lower than the variability of sales, the firm is classified as a "smoother": $|CV \Delta I \div CV \Delta S| \leq 1$

Where,

I = income in dollars;

S = sales in dollars;

VC% = variable costs as percentage of sales;

FC = fixed costs in dollars;

ΔS = one period change in sales;

ΔI = one period change in income; and

CV = coefficient of variation = $\sqrt{\text{variance}} \div \text{expected value}$.

5. Methodology of research

5.1. Study sample and data

The study sample consisted of all non-financial firms listed on ASE during the period 2006-2015. Following the previous studies in this field (e.g., Carlson and Bathala 1997, Iñiguez and Poveda 2004, Martinez and Castro 2011, Salehi and Manesh 2011, Hessayri and Saihi 2015) the financial firms (financial, insurance, and banking) were eliminated because of the fundamental differences in their financial accounting relative to non-financial firms. At the time of conducting this study, there were 118 industrial and service firms listed on ASE. The firms that started after 2006 (n=34), the firms with incomplete data (n=10), the firms that stopped their operations during 2006-2015 (n=5), and the firms that merged during the period (n=2) were excluded. Finally, the firms in utility and extracting industries (n=8) were also excluded because these firms had large total assets compared to other firms in the sample which may affect the results. Accordingly, the final sample consisted of (59) firms, representing (590) firm-year observations (50% of the population). For each sample firm, the following information was extracted or computed: total assets, current liabilities, long-term liabilities, sales, gross profit, operating income, net income before tax, net income after tax, ROA, and financial leverage.

5.2. Study Variables

5.2.1. Independent and Control Variables

Political crises represented the independent variable in this study, and because the effects of Syria's refugees' crisis on Jordanian economy began in March 2011, the study period (2006-2015) was divided into two sub-periods, representing five years before the crisis (2006-2010) and five years during the crisis (2011-2015). So, the Syria's refugees' crisis is a dichotomous variable, assumed to be (zero) for the firm fiscal years 2006-2010 and assumed to be (1) for the fiscal years 2011-2015.

To better estimate the correlation between crises and income smoothing and to isolate the impact of firm attributes, various control variables were included in the analysis. Based on previous studies, the most common variables included were the firm sector, size, ROA, and financial leverage. For the firm sector, which represented a dichotomous variable, Albrecht and Richardson (1990) study concluded that firms in different sectors smoothed their income in varying degrees. So, in this study, this variable is assumed to be (zero) for service firms and (1) for industrial ones. The size of the firm is measured as the natural logarithm of the firms' total assets (Ashari *et al.* 1994, Koh 2005, Matsuura 2008, Rusmin *et al.* 2013). Previous studies concluded conflicted results concerning the effect of firm size on income smoothing behavior. Ashari *et al.* (1994) argued that larger firms are well known and likely to receive more attention from investors and analysts. Consequently, there is additional value for a smoothed income numbers. Carlson and Bathala (1997) argued that large firms are more likely to be income smoothers than small ones, because large ones have a wide array of discretionary expenditures, non-recurring items and have synchronized revenues and earnings. On the contrary, Martinez and Castro (2011) showed that small firms faced greater risks than large ones, so they smooth their income to offset the risks associated with size. The control variable of profitability is used as a proxy of firm performance and is measured by the ROA. The final control variable - financial leverage- is measured as the sum of short-term and long-term debt scaled by total assets.

5.2.2. Dependent Variable

Following previous studies (e.g., Eckle 1981, Albrecht and Richardson 1990, Prencipe *et al.* 2011, Hamad and Abu-Nassar 2013), four income measures that are possible objects of smoothing attempts were used to classify firms into smoothers or non-smoothers. These measures are: gross profit (GP), operating income (OI), income before tax (IT), and net income after tax (NI). The ratio of coefficient of variation (income smoothing (IS) ratio) of each income measure is calculated to classify firms. Firm is classified as smoother if at least three out of the four ratios of the income measures (GP, OI, IT, or NI) are less than one (an IS ratio less than one implies that income variability is lower than sales variability), otherwise the firm is classified as a non-smoother.

6. Results and discussions

6.1. Univariate results

Before classifying firms into smoothers and non-smoothers it is helpful to analyze the effects of the crisis on Jordanian firms. Table 1 shows a comparative analysis of the sample firms before and during the crisis. As shown, there are no significant differences for net sales (NS), gross profit (GP), operating income (OI), and current liabilities (CL) before and during the crisis. Although income before tax (IT) decreased clearly for industrial firms during the crisis, the difference is statistically not significant, while IT for service firms increased slightly during the crisis. Concerning net income after tax (NI), the results show a significant difference for industrial firms before and during crisis, as these firms realized losses during crisis compared to profits before crisis. On the contrary, service firms show an increase in NI during the crisis. These facts were reflected on ROA, where the results show a dramatic significant decrease in ROA for industrial firms, changing from a positive return before crisis to a negative one during it. In spite of the fact that NI for service firms increased during the crisis, the significant increase in total assets (TA) for these firms lead to a decrease in ROA. Another effect of crisis was the increase of long-term liabilities (LTL) for both sectors, taking into account that this increase is statistically significant for industrial firms. Finally, the increases in CL and LTL compared to the increases in TA for service firms lead to a significant increase in its financial leverage (FL). Linking these results together, it can be argued that the service sector was affected less than the industrial sector by the crisis, especially in terms of profitability.

Table 1. Comparative analysis of the sample firms before and during the crisis *

	Industrial Firms (n=37)		Sig.	Service Firms (n=22)		Sig.
	Pre-Crisis	Crisis		Pre-Crisis	Crisis	
NS	23,084,313	23,748,761	0.722	20,724,896	21,494,186	0.540
GP	4,032,989	3,895,282	0.604	6,613,262	8,290,325	0.127
OI	1,146,662	452,906	0.287	3,182,323	3,331,190	0.829
IT	1,024,096	8,817	0.169	3,041,144	3,396,025	0.651
NI	941,342	(147,045)	0.088 **	2,301,817	2,673,852	0.626
CL	11,071,782	11,071,003	1.000	10,369,725	11,063,359	0.531
LTL	2,277,313	4,215,637	0.001 **	4,618,514	6,299,531	0.160
TA ***	16.900	16.885	0.720	17.471	17.596	0.044 **
ROA ***	0.024	(0.030)	0.013 **	0.080	0.051	0.154
FL ***	0.520	0.596	0.195	0.393	0.469	0.014 **

* Amounts (US Dollars) are measured in averages for the periods: 2006-2010 (pre-crisis) periods; 2011-2015 (crisis) periods.

** Difference in mean is significant at $p < 0.1$ level

*** Values rounded to the third decimal.

Abbreviations: NS, net sales; GP, gross profit; OI, operating income; IT, income before tax; NI, net income after tax; CL, current liabilities; LTL, long term liabilities; TA, natural logarithm of total assets; ROA; return on assets (measured as net income after tax scaled by the total assets); FL, financial leverage (measured as the sum of current and long-term liabilities scaled by the total assets).

Eckle's (1981) approach was used to classify sample firms into smoothers (smooth=1) and non-smoothers (smooth=0). IS ratio was calculated for the four income measures that are possible objects of smoothing (GP, OI, IT and NI). Then the firm is classified as smoother if at least three out of the four IS ratios of the income measures are less than one (see for example: Albrecht and Richardson 1990, Prencipe et al. 2011, Hamad and Abu-Nassar 2013). Table 2 shows the classification of the sample firms as smoothers and non-smoothers. As shown, 21 firms out of 59 are considered smoothers, representing approximately (36%) of the sample, whereas 16 industrial firms out of 37 are smoothers, representing approximately (43%) of the industrial firms, while only 5 service firms out of 22 are smoothers, representing approximately (23%) of the service firms. Although these results show that the industrial sector include more smoothers compared to the service sector, Chi-Square test shown in Table 3 indicated

that these differences are statistically not significant. In other words, income smoothing is not affected by firm sector. This result concurs with previous studies conducted in ASE such as Al-Juhmani (2001) study and Hamad and Abu-Nassar (2013) study.

In terms of the effect of crisis on income smoothing practice, Table 2 shows that the numbers of smoothers increased from 13 before crisis to 26 during crisis, and this difference is considered statistically significant (Table 4). Accordingly, the study hypothesis is accepted, which means that income smoothing is more likely in the periods of political crises. This result concurs with Ahmad-Zaluki *et al.* (2011) study which found that Malaysian firms' management engaged in higher levels of earning management during the economic crisis. But it disagrees with Vladu (2013) and Rusmin *et al.* (2013) studies, where Vladu (2013) found that income smoothing behavior of Spanish listed firms decreased in the financial crisis periods. Also, Rusmin *et al.* (2013) found that during the period of financial crises, firms' managers in seven Asian countries engaged in less income smoothing behavior. On the other hand, previous results shown in Table 1 indicated that industrial firms were affected by the crisis more than the service firms, especially in terms of profitability. This was evidenced by the numbers of smoothers before and after the crisis. Table 4 shows that smoothers in the industrial sector increased from 9 before the crisis to 20 during the crisis and this increase is statistically significant. However, smoothers in the service sector increased from 4 to 6 and this increase is statistically not significant. This could be attributed to the fact that the industrial sector relies, more than the service sector, on neighboring countries suffering from the political crisis, especially in terms of imports and exports.

Concerning income smoothing objects (shown in Table 2), it is interesting to note that the most common income smoothing object before the crisis was income before tax followed by net income after tax, gross profit and operating income respectively. This order changed during the crisis, were gross profit became first followed by operating income, net income after tax and income before tax respectively.

Table 2. Classification of sample firms during 2006-2015

Income Measure/Sector	Pre-Crisis *		Crisis **		All Period ***	
	Smoothers	Non-Smoothers	Smoothers	Non-Smoothers	Smoothers	Non-Smoothers
GP						
Industrial Firms	12	25	23	14	11	26
Service Firms	7	15	8	14	4	18
OI						
Industrial Firms	10	27	21	16	16	21
Service Firms	5	17	7	15	6	16
IT						
Industrial Firms	14	23	20	17	18	19
Service Firms	7	15	5	17	7	15
NI						
Industrial Firms	14	23	21	16	19	18
Service Firms	5	17	5	17	5	17
Composite (smoother if at least three measures)						
Industrial Firms	9	28	20	17	16	21
Service Firms	4	18	6	16	5	17

* Pre-crisis period extended from 2006 to 2010, ** crisis period extended from 2011 to 2015, *** all the period covers the years from 2006 to 2015.

Table 3. Classification of sample firms into smoothers and non-smoothers according to sector

	All	Industrial	Service	Chi-Square
Smoothers	21	16	5	P = 0.111
Non-Smoothers	38	21	17	
Total	59	37	22	

Table 4. Classification of sample firms into smoothers and non-smoothers before and after the crisis

	Smoothers	Non-Smoothers	Chi-Square
<u>Industrial Firms</u>			
Before Crisis	9	28	P = 0.009
During Crisis	20	17	
<u>Service Firms</u>			
Before Crisis	4	18	P = 0.472
During Crisis	6	16	
<u>All Firms</u>			
Before Crisis	13	46	P = 0.011
During Crisis	26	33	

Table 5 demonstrates a comparative analysis of the study variables and other related financial indicators for smoothers and non-smoothers. For all sectors (Panel A), smoothers and non-smoothers do not statistically differ in terms of sales, current and long-term liabilities, total assets and financial leverage. Concerning profitability, results indicated that smoothers had higher operating income, higher income before and after tax. However there are no statistical differences regarding gross profit and ROA. The result concerning the effect of firms' size on income smoothing concurs with many previous studies (e.g., Ashari *et al.* 1994, Al-Juhmani 2001, Hamad and Abu-Nassar 2013) which could not find any effect of firms' size on income smoothing practice. The result concerning financial leverage disagrees with Alexandri and Anjani (2014) study that found an effect of financial leverage on income smoothing practice. Although ROA result, as a measure of profitability, did not indicate any significant difference between smoothers and non-smoothers, other profitability measurements did. Smoothers were more profitable in terms of operating income, income before tax and income after tax. Finally by analyzing each sector individually, results show that industrial smoothers achieved net income after tax, while the non-smoothers suffered from net loss (Panel B). Also, results indicated that service smoothers are larger in total assets and had more long-term liabilities compared to non-smoothers (Panel C).

Table 5. Comparative analysis of study variables and firms indicators for smoothers and non-smoothers

	Total	smoothers	non-smoothers	T	Sig.
Panel A: all Sectors					
NS	22,556,301	24,050,988	19,851,628	0.655	0.515
GP	5,264,618	5,661,498	4,546,454	0.622	0.536
OI	1,715,943	2,212,314	817,747	1.858	0.069 *
IT	1,524,030	2,090,407	499,157	1.746	0.086 *
NI	1,110,056	1,700,007	42,526	2.121	0.038 *
CL	10,939,075	10,217,830	12,244,186	-0.657	0.554
LTL	4,071,493	3,074,136	5,876,232	-1.319	0.197
TA	24.129	24.145	24.1	0.123	0.903
ROA	0.022	0.034	0.002	1.224	0.226
FL	0.51	0.47	0.583	-1.159	0.255
Panel B: Industrial Sector					
NS	23,416,536	19,128,357	26,683,720	0.815	0.421
GP	3,964,135	3,944,414	3,979,161	0.017	0.390
OI	799,783	335,412	1,153,590	1.494	0.147
IT	516,457	-172,002	1,040,996	1.515	0.139
NI	397,149	-393,013	999,176	1.757	0.088 *
CL	11,071,392	11,374,024	10,840,815	-0.123	0.902
LTL	3,246,475	3,900,049	2,748,513	-0.460	0.649
TA	23.792	23.655	23.897	0.536	0.595
ROA	-0.003	-0.013	0.004	0.696	0.491
FL	0.558	0.614	0.514	-0.797	0.433

	Total	smoothers	non-smoothers	T	Sig.
Panel C: Service Sector					
NS	21,109,541	22,166,094	20,798,790	-0.19	0.851
GP	7,451,794	6,472,983	7,739,679	0.358	0.724
OI	3,256,757	2,361,221	3,520,150	0.453	0.655
IT	3,218,584	2,646,865	3,386,737	0.261	0.797
NI	2,309,037	1,436,250	2,565,739	0.488	0.631
CL	10,716,542	15,028,703	9,448,260	-1.346	0.193
LTL	5,459,023	12,200,018	3,476,377	-3.198	0.005 *
TA	24.695	25.523	24.451	-1.907	0.071 *
ROA	0.065	0.05	0.07	0.334	0.742
FL	0.431	0.481	0.416	-0.537	0.597

* Difference in mean is significant at $p < 0.1$ level

Before performing multivariate analysis, Pearson correlation test was used to investigate if multicollinearity problem exists between the study variables. Table 6 presents correlation matrix between the dependent, independent and control variables. As shown, the significant correlation values indicated that multicollinearity is not a problem in the regression model estimations. On the other hand, the correlation results provide additional support for the study hypothesis, crisis is statistically significant and positively correlated with income smoothing, suggesting that income smoothing is more likely in the periods of political crises. Although Chi-Square test shown in Table 3 indicated that income smoothing is not affected by the firm sector, correlation results show a significant positive correlation between the firm sector with income smoothing, indicating that there are more smoothers in the industrial sector than the service sector. Other control variables (Size, ROA and FL) do not show any significant correlation with income smoothing, asserting the previous results that income smoothing is not affected by firm size, ROA and financial leverage. Results also show a significant negative correlation between sector and each of size and ROA. And this result could be justified because the service sector (=0) is larger than the industrial sector (=1) in terms of total assets and ROA. On the other hand, size is correlated positively to ROA, indicating that larger firms have higher ROA than small ones. Finally, ROA is negatively correlated to FL indicating that more profitable firms have less debt.

Table 6. Pearson correlations Matrix

Variable	Sector	Size	ROA	FL	Smooth ¹
Crisis ²	.000	.019	-.202 *	.112	.215 *
Sector ³		-.321 **	-.300 **	.180	.182 *
Size			.291 **	.062	-.021
ROA				-.536 **	-.143
FL					.093

¹ Dummy variable (1=smoother, 0=non-smoother)

² Dummy variable (1=during crisis, 0=before crisis)

³ Dummy variable (1=industry, 0=service)

* Significant at $p < 0.05$ level

**Significant at $p < 0.01$ level

6.2. Multivariate results

In order to analyze the impact of crisis on income smoothing and to isolate the impact of control variables, regression analyses were applied. The regression model used is represented as follows:

$$\text{SMOOTH}_i = \beta_0 + \beta_1 \text{CRI} + \beta_2 \text{SECI} + \beta_3 \text{SIZE}_i + \beta_4 \text{ROA}_i + \beta_5 \text{FL}_i + \varepsilon_i \quad (1)$$

Where:

SMOOTH: Dichotomous variable that is assumed to be (1) if the firm is classified as smoother; (0) if it is classified as non-smoother,

- CRI: Political crisis, representing dichotomous variable that is assumed to be (0) for the firm fiscal years 2006-2010; (1) for the firm fiscal years 2011-2015,
 SEC: Dichotomous variable that is assumed to be (1) for industrial firms; (0) for service firms,
 SIZE: The size of the firm, measured by total assets (after taking logarithms),
 ROA: Return on assets, measured as net income after tax scaled by the total assets,
 FL: Financial leverage, measured as the sum of short-term and long-term debt scaled by total assets.

Because income smoothing, which represents the dependent variable, is a dichotomous one, logistic regression analysis was used (see for example: Ashari *et al.* 1994, Prencipe *et al.* 2011, Martinez and Castro 2011). Table 7 presents the results of logistic regression. As shown, the coefficient of the independent variable (crisis) is positively statistically significant ($p < .05$) suggesting that income smoothing is more likely in the periods of crisis, providing support to study hypothesis and previous Chi-Square and Correlation tests results. The coefficient of the control variable of sector is positively and moderately statistically significant ($p < .10$) suggesting that sector could be considered an explanatory variable of income smoothing. Chi-Square results shown in Table 2 indicated that the industrial sector include more smoothers compared to the service sector (16 industrial firms out of 37 are smoothers and 5 service firms out of 22 are smoothers) but these differences are not statistically significant. One possible justification for this is that the significance of Chi-Square test ($p = .111$) is close enough to accept the fact that the sector affects income smoothing. The other control variables, size, ROA and financial leverage are insignificant, supporting the previously revealed results that these variables are not explanatory for income smoothing behavior. Finally, results show that the model has a predictive capacity of 30% for smoothers, approximately 85% for non-smoothers, and overall accuracy rate of 66%, which is considered satisfactory by Ashari *et al.* (1994).

Table 7. Logistic regression results

	B	S.E.	Wald	Sig.	Exp(B)
Constant	-3.935	4.099	.922	.337	.020
Crisis	.901	.422	4.566	.033	2.461
Sector	.875	.478	3.347	.067	2.400
Size	.131	.240	.297	.586	1.140
ROA	-2.037	3.661	.310	.578	.130
Financial Leverage	-.032	1.020	.001	.975	.968
-2 Log likelihood	140.773				
Cox and Snell R-Square	.084				
Nagelkerke R-Square	.116				
<u>Classification results</u>					
	Predicted status				
Actual status	Total	Smoother	Non-smoother	Accuracy rate	
Smoother	40	12	28	30.0%	
Non-smoother	78	12	66	84.6%	
Total				66.1%	

7. Conclusions

This study aimed to provide additional evidence about the effect of political crises on income smoothing behavior, by examining the effect of Syria's refugees' crisis on income smoothing behavior in hosting countries, taking Jordan as an example. The study sample consisted of non-financial firms listed on ASE during the period 2006-2015 which was divided into two sub-periods, where the first period extended from 2006 to 2010 representing five years before the crisis, and the other period extended from 2011 to 2015 representing five years during the crisis. Other factors representing firms' attributes were used as control variables; these variables were: sector, size, ROA and financial leverage.

This study confirmed most of the previous studies (e. g., Al-Juhmani 2001, Hamad and Abu-Nassar 2013) conducted in Jordan about the existence of income smoothing practices in non-financial firms listed on ASE, where the income before tax was the most common income smoothing object before the crisis,

while during the crisis, the gross profit became most common income smoothing object. Three different statistical tests; Chi-Square, Pearson Correlation and Logistic Regression supported the acceptance of the study hypothesis and indicated that income smoothing is more likely in the periods of political crises, which concurs with Ahmad-Zaluki *et al.* (2011) study which revealed that firms management engage in higher levels of earning management during crises, but disagrees with Vladu (2013) and Rusmin *et al.* (2013) studies, that found that income smoothing behavior decreased during crises periods.

Univariate analysis indicated that the industrial sector was affected by the crisis more than the service sector especially in terms of profitability, as these firms realized losses during the crisis compared to profits before it, which was reflected on the ROA, changing from a positive return before the crisis to a negative one during it, which could be attributed to the fact that the industrial sector relies, more than the service sector, on neighboring countries suffering from the political crisis in terms of imports and exports. Consequently, the results indicated that there are more industrial smoothers than service smoothers, where smoothers in the industrial sector increased from approximately (24%) before the crisis to (54%) during it, compared to an increase from approximately (18%) to (27%) in the service sector.

Although this study agreed with previous studies (Al-Juhmani 2001 and Hamad and Abu-Nassar 2013) conducted in ASE, reflecting failure to provide evidence about the effect of firm sector on income smoothing behavior, the results of statistical tests used in this study conflicted. Chi-Square test indicated that the differences between the numbers of smoothers in the industrial sector and the service sector were statistically not significant. Pearson Correlation indicated a significant positive correlation between sector and income smoothing. Logistic Regression also indicated that sector is considered an explanatory variable of income smoothing. Taking into account that the significance of Chi-Square test was close enough to accept that sector may have an effect on income smoothing behavior, which leaves the door open for future studies to prove or disprove this issue. The result concerning firm size and financial leverage concurs with previous studies (e.g., Ashari *et al.* 1994, Al-Juhmani 2001, Hamad and Abu-Nassar 2013) that could not find any effect of firms' size on income smoothing practice. But it disagrees with Alexandri and Anjani (2014) study that found an effect of financial leverage on income smoothing practice. Although the result did not indicate any significant difference between smoothers and non-smoothers in term of ROA, other profitability measurements did. Smoothers were more profitable in terms of operating income, income before tax and income after tax.

Finally, because of the lack of the consensus of previous studies concerning factors affecting income smoothing, it can be argued that factors affecting income smoothing in a particular country or economy could not be generalized to other countries or economies due to their special characteristics.

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