
Income Smoothing: Evidence From Turkey

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ABSTRACT

The aim of this paper is to furnish empirical evidence on smoothing behavior by analyzing a large and a recent data set comprising 277 firms, 82 percent of the total firms listed on the Istanbul Stock Exchange, for the five-year period 2006-2010. The results indicate that the percentages of the smoothers are 30%, 21%, and 36% for the manufacturing, service, and financial industries, respectively. Logit analysis results show that very large size firms are less likely to have smoothing behavior than small size firms are, and firms in service industry are less likely to have smoothing behavior than firms in financial industry are.

Keywords: Income smoothing, Eckel Model, Industry, Firm size, ISE.

KÂRIN İSTİKRARLI HALE GETİRİLMESİ: TÜRKİYE ÖRNEĞİ

ÖZET

Kârını istikrarlı hale getiren işletmelerin değerli ve düşük riskli oldukları paydaşları tarafından değerlendirilmektedir. Bu çalışmanın amacı, geniş bir veri seti (İstanbul Menkul Kıymetler Borsası'nda işlem gören işletmelerin %82'sini oluşturan 277 işletme) ve güncel bir dönemi (2006 ile 2010 yılları) temel alarak, işletmelerin kâr yönetimi davranışları hakkında bilgiler sağlamaktır. Elde edilen sonuçlara göre, kârını istikrarlı hale getiren işletmelerin oranları üretim sektörü için %30, hizmet sektörü için %21 ve finansal sektör için %36 olarak saptanmıştır. Küçük işletmelerin büyük işletmelere göre kârlarını istikrarlı hale getirme tutumlarının daha olası olduğu, ve finansal sektördeki işletmelerin hizmet sektöründeki işletmelere göre kârlarını istikrarlı hale getirme tutumlarının daha olası olduğu istatistiksel olarak bulgulanmıştır.

Anahtar Kelimeler: Kârın istikrarlı hale getirilmesi, Eckel Modeli, Sektör, İşletme büyüklüğü, İMKB.

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1. INTRODUCTION

Corporate reported earnings have been a major focus of interest from both academics and practitioners (Prencipe, Markarian, et al., 2008:71). Recent studies show that earnings management practices are carried out for the main purpose of income smoothing (Buckmaster, 2001) that enhances earnings informativeness (Tucker and Zarowin, 2006:268; Cahan, Liu, et al., 2008:21). The belief that the advantages of smooth earnings stems from the view that managers use their private information about future income to smooth out temporary fluctuations in order to report representative and useful earnings (Francis, LaFond, et al., 2004:972). Managers try to smooth income not only for the benefit of stakeholders but also for themselves. The reasons for smoothing can be grouped into two main categories from an agency point of view. On the one hand, managers know that stakeholders appreciate a smooth running of the business (Carlson and Bathala, 1997), and that smoothing increases share prices (Ronen and Sadan, 1981). Thomas and Zhang (2002:17) find that earnings smoothing is associated with higher price-earning ratios, positively related to forecast growth, and negatively related to risk. Therefore, managers try to smooth earnings in order to satisfy the demand of stakeholders who interpret the reported earnings as an accurate indicator of future earnings (Mulford and Comiskey, 1996). Another incentive for smoothing is that analysts' forecasts urge firms to attain the expectations. Analysts, as well as investors, expect firms to announce figures in parallel with the forecasts because the deviations from the expected figures cause negative market reactions. Therefore, analysts' reports on firms are another factor to reinforce this process. Other roots of motivation also exist to smooth earnings. For instance, in order to avoid potential political costs, managers have tendency to smooth earnings (Wilson and Shailer, 2007:247).

On the other hand, managers behave in an opportunistic way to maximize their self-interests. Negative deviations from the budget put their performance into question as the unrealized budgets can be a motive to terminate their contracts. Therefore, management wants to adhere to the budget that is declared to shareholders or to their headquarters. Positive deviations - just like negative deviations - are equally unwanted by management. Positive deviations make the task of management challenging for the following year and hence obtaining bonuses becomes difficult (Healy, 1985). When the current year's actual figures are better than the budgeted amounts, the following year's budget will be prepared based on the actual current figures. Higher budget figures will put management into a risky position, as they would be pushed to attain a more aggressive budget. Evidence shows that managers tend to take risks when the result is linked to option compensation package (Grant, Markarian, et al., 2009:1057). Moreover, Ronen, Tzur, and Yaari (2007:17) find that managers induce earnings management and make trading gains by designing suboptimal incentives. Leuz, Nanda, and Wysocki (2003:506) distinguish managers and controlling owners as insiders who can use their control over the firm to benefit themselves at the expense of other stakeholders. They have incentives to manage reported earnings to cover true firm performance. Thus, both management and stakeholders desire less or even no deviation and a smooth running business.

Turkey lived through a long period of high inflation and the financial statements were not prepared according to hyperinflationary reporting standards. The implementation of the Turkish standard for financial reporting in the hyperinflationary economy took effect in 2004, but it was abandoned one year later as the inflation was reduced to a non-hyperinflationary level. High inflation made the analysis of the financial results difficult for the shareholders and investors. During that hyperinflationary period, as a rule of thumb, a firm was considered successful if the percentage increase of its current year profit was more than the percentage increase of inflation in that year. After 2005, with the normalization of the inflation level, analyzing the effect of income smoothing was more appropriate as the operations were not inflated to produce fictive profits due to high inflation.

This paper contributes to the literature in many ways. First, there was no research in this area on Turkish firms until 2009 (Atik, 2009:592), so this study would be among the first ones to contribute to the literature. Secondly, the study provides empirical evidence with recent data by analyzing a five-year period 2006-2010 without the effects of the high inflation for a large data set (277 firms). Thirdly, the study investigates the relationship among smoothing behavior, the industry, and firm size. The firms are categorized into three main industries, namely manufacturing, service, and financial ones. In the previous study, the firms were categorized into 12 industries and the results showed no significance between the smoothers and industries. It is hard to determine a significant relationship when the data set is small and firms are categorized into many industries. As for the size effect, firms are categorized by dividing them into quartiles in order to investigate the relationship between smoothing behavior and firm size. The paper has practical implications. It provides empirical results that would be useful for management to consider income smoothing practices. For instance, practicing income smoothing contributes to firm value but also it reduces the volatility in the stock markets.

2. LITERATURE

Income smoothing is defined as the voluntary management of the results to reduce variability of accounting income. It is accomplished by deferring earnings during the profitable years for use during the downturn years (Healy and Wahlen, 1999). This process is considered ethical unless it is a fraudulent or an abusive act (Chong, 2006:42). The decision to smooth is made by management of the firm, if not the CEO. The basic aim of practicing income smoothing is to satisfy the demand of the stakeholders. Smoothing enables steady figures that go parallel to the expectations. Any deviation from the targets, either downwards or upwards, is not a desirable situation. Literature suggests that income smoothing helps firm value creation (Bart, Elliott, et al., 1999:398; Goel and Thakor, 2003:151). However, some studies report that income smoothing may decrease value due to asymmetric information (Defond and Park, 1997:118; Bandyopadhyay, Huang, et al., 2011:27).

Smoothing may be real or artificial. Real smoothing involves the firm operations, while artificial smoothing involves accounting records. In real smoothing, managers can create gains or losses by manipulating firm operations such as selling securities before maturity. On the other hand,

artificial smoothing is performed by manipulating accounting figures such as by increasing or decreasing accruals and by selecting the desired accounting methods. For instance, managers can make expense accruals depending on different assumptions. Another instance is that they can also select an overhead cost allocation (Su, 2007:138) method to smooth earnings. Literature also identifies income smoothing and firm value according to the method of smoothing. Artificial smoothing using abnormal accruals is inversely related to firm value, whereas real smoothing using financial derivatives improves firm value (Huang, Zhang, et al., 2009:232).

Besides differentiating smoothers and non-smoothers, studies also investigate explanatory variables of smoothing such as firm size and industry. Firm size is measured by total sales (Moses, 1987; Saudaragen and Sepe, 1996) and total assets (Ashari, Koh, et al., 1994; Chaney and Jeter 1997). Moses (1987) provides evidence that smoothing is associated with firm size, and that larger firms, as they attract more attention, are involved in income smoothing more often than smaller firms do. However, Ashari et al. (1994) argue from a counter view that large firms have less motivation to smooth their income as they are more examined by analysts and more information is available about them; therefore, smoothing does not contribute much to firm value. In this study, the contradictory arguments of Moses and Ashari et al. are investigated for the Turkish case.

Industry is another important explanatory factor. Economic, social and political circumstances may differ from one industry to another. It is worth examining whether or not the smoothing practice has “industry character”. Other studies also include the distinction of core and periphery industries, but the findings show no statistically significant difference between them on any measure of income (Albrecht and Richardson, 1990:719). A study on Turkish firms also found no significant difference between the smoothing behavior and industries. However, that study included a small data set of only 74 firms within 12 industries (Atik, 2009:609). This paper investigates 277 firms, 82 percent of the total firms listed on ISE as of December 31, 2010, within three main industries.

3. RESEARCH

In the literature, there are several methods to detect the income smoothing firms. Although the calculation differs among the methods, there is no significant difference of the results of the six out of the seven popular methods (Michelson, Wootton, et al., 2003:76), and Eckel’s model is among these six methods. According to the method developed by Eckel (1981:34), values of the coefficient of variation of the annual change in income to the coefficient of variation of the annual change in sales which are between -1 and +1 are an indication of smoothing behavior. This is formulated in equation (1).

$$\left| \frac{CV_{AI}}{CV_{AS}} \right| < 1 \quad (1)$$

CV stands for correlation of variance that is calculated by the following equations (2) and (3).

$$CV_{\Delta I} = \frac{\sigma_{\Delta I}}{X_{\Delta I}} \quad (2)$$

$$CV_{\Delta S} = \frac{\sigma_{\Delta S}}{X_{\Delta S}} \quad (3)$$

Where,

$\sigma_{\Delta I}$ = Standard deviation of the annual change in net income,

$\sigma_{\Delta S}$ = Standard deviation of the annual change in net sales,

$X_{\Delta I}$ = Mean of the change in net income,

$X_{\Delta S}$ = Mean of the change in net sales,

| ... | = Absolute value.

The descriptive statistics are given in Table 1. The mean of Eckel Index is 14,69, 77,99, and 9,22 for manufacturing, service and financial industries, respectively. The lowest mean, standard deviation (SD), and median belong to financial industry, which points out that the probability of smoothers would be high in the financial industry compared to others. In terms of the nominal amounts, financial industry is much greater than the other two industries according to total and average income and sales.

Table 1. Descriptive Statistics for $CV_{\Delta I} \div CV_{\Delta S}$ /

Industry	Average	SD	Median	Minimum	Maximum
Manufacturing	14,69	63	2,25	0,01	651,23
Service	77,99	433	4,44	0,03	3.008,85
Financial	9,22	33	1,58	0,01	256,40

The data covers 82% ISE-listed firms for annual figures for the years 2006-2010 retrieved from www.finnet.com.tr. Average is the arithmetic mean of the Eckel's index calculated for each industry. SD stands for standard deviation.

The numbers of smoother and non-smoother firms are given in Table 2. The percentages of smoothers in manufacturing, service and financial industries are 30%, 21%, and 36%, respectively. Albrecht and Richardson (1990) determined that income smoothing exists evenly across different industries of an economy. Although the findings show that smoothing behavior exists in different industries, financial industry has the highest ratio of smoothers. This can be accorded to Basel agreement (1988): when the expected results are low, bank managers manage earnings in order to reach a satisfactory ratio of capital adequacy. For this purpose, financial institutions, especially banks are involved in smoothing through loan loss provisions, and security gains or losses. Other researchers give several examples: Japanese bank managers set aside reserves during the good times (Genay, 1998) for use in bad times (Shrieves and Dahl, 2003), and institutional shareholders do not object to smoothing (Kwak, Lee, et al., 2009:221). Blasco and Pelegrin

(2006:370) conclude that Spanish saving banks report increasing earnings rather than positive earnings, and managers artificially reduce earnings to report lower but stable growth rates. A significant proportion of commercial banks in OECD countries tend to smooth their results intentionally (Taktak, Shabou, et al., 2010a:124). Islamic banks extensively use income smoothing (Taktak, Zouari, et al., 2010b:147).

Atik (2009:602) found that approximately 60 percent of the Turkish firms for the period 1998-2003 were determined as smoothers by employing a different method to detect income smoothers. Some drawbacks of this study are that the data set was limited to only 74 firms, and financial institutions were not comprised in the data set. On the other hand, this study included 277 firms as shown in Table 2. The low percentage of smoothing behavior may have some reasons. Managers are more oriented to smooth income to convey their private information about future earnings in countries with strong investor protection (Cahan, Liu, et al., 2008:21), while investor protection is weak in Turkey. Another reason might be the global economic crisis in 2008 that made managing earnings difficult.

Table 2. Number and Percentage of Smoother and Non-Smoother Firms

Industry	Smoothers	%	Non-Smoothers	%	Total	%
Manufacturing	48	30	114	70	162	100
Service	10	21	38	79	48	100
Financial	24	36	43	64	67	100
Total	82	30	195	70	277	100

The sample consists of firm-year observations over the period 2006 to 2010. The Percent (%) column shows the percent of firms by industry as a percentage of the total sample. Total column is the total number of firms of smoothers and non-smoothers.

In the second part of the study, the firms are put in order from the largest to the smallest in terms of the last year sales (year of 2010) and divided into quartiles. The first quartile consists of firms with sales at least TL 750 million (labeled “very large” firms), the second quartile with sales from TL 170 to 750 million (labeled “large” firms), the third quartile with sales from TL 45 to 170 million (labeled “medium” firms), and the fourth quartile with sales below TL 45 million (labeled “small” firms). The data are summarized in Table 3.

Table 3. Smoothing Behavior According to Size and Industry

Size (millions TL)	Industry	Smoothers	%	Non-smoothers	%	Total	%
Over 750	Manufacturing	7	22	25	78	32	100
	Service	1	7	13	93	14	100
	Financial	7	30	16	70	23	100
	Subtotal	15	22	54	78	69	100
170-750	Manufacturing	14	33	29	67	43	100
	Service	3	21	11	79	14	100
	Financial	4	33	8	67	12	100
	Subtotal	21	30	48	70	69	100
45-170	Manufacturing	15	28	39	72	54	100
	Service	1	20	4	80	5	100
	Financial	5	50	5	50	10	100
	Subtotal	21	30	48	70	69	100
Below 45	Manufacturing	12	36	21	64	33	100
	Service	5	33	10	67	15	100
	Financial	8	36	14	64	22	100
	Subtotal	25	36	45	64	70	100
Total		82	30	195	70	277	100

This table presents the smoothing and non-smoothing firms according to size and industries. The data set is divided into quartiles according to the last year (2010) sales of firms. Firms with sales over TL 750 millions represent very large firms, sales between TL 170-750 millions represent large firms, sales between TL 45-170 millions represent medium firms, and sales below TL 45 millions represent small firms.

A logit model is appropriate when the relationship is between a single dichotomous dependent variable and several explanatory variables. Categorical dependent variable is the smoothing variable, smoothers and non-smoothers. Explanatory variables are firm size and industry variables. Logit is a model building method searching for a combination of explanatory variables that explain the data set. Application of the multinomial logistic regression results show that the difference in $-2 \cdot \log$ -likelihoods is 6.756 (Chi-square) and the likelihood ratio test statistic is not significant ($p=0.239$). This means that the best-fitting model should not include the combination of size and industry effects. The Goodness-of-fit test statistic has a value of 2,718 ($p=0.843$), indicating that the interaction of the size and industry does not affect smoothing. Likelihood ratio tests table shows the results of the final model with a simpler reduced model formed by leaving out one of the two effects, size and industry. Leaving out size from the model is associated with a likelihood ratio statistic of 3.661 ($p=0.301$), leaving out industry from the model is associated with a likelihood ratio statistic of 3.326 ($p=0.190$). Therefore, neither of the variables is statistically significant to capture the data in the fewest parameters.

Table 4 shows the parameter estimates. Only very large size and service industry categories have statistical significance at 0.10. It is concluded that very large size firms are 0.489 times less likely to have smoothing behavior than small size firms are. Similarly, firms in service industry are 0.455 times less likely to have smoothing behavior than firms in financial industry are.

Table 4. Parameter Estimates

Smoothers	B	Std. Error	Wald	Sig.	Exp(B)
Intercept	-0,279	0,324	0,745	0,388	
Very Large Firms	-0,715	0,387	3,409	0,065	0,489
Large Firms	-0,199	0,367	0,294	0,588	0,819
Medium Firms	-0,245	0,374	0,428	0,513	0,783
Small Firms	0 ^a				
Manufacturing Industry	-0,322	0,320	1,014	0,314	0,725
Service Industry	-0,787	0,442	3,168	0,075	0,465
Financial Industry	0 ^a				

^a This parameter is set to zero because it is redundant.

The nature of the logit relationship is illustrated in Table 5, in which the percentages of firms smoothing in the three industries are shown for each size quartile.

Table 5. Standardized residuals

Size (millions TL)	Industry	Smoother	
		Yes	No
Over 750	Manufacturing	0,23	-0,23
	Service	-1,02	1,02
	Financial	0,79	-0,79
170-750	Manufacturing	0,67	-0,67
	Service	-0,08	0,08
	Financial	-0,59	0,59
45-170	Manufacturing	-1,22	1,22
	Service	-0,06	0,06
	Financial	1,28	-1,28
Below 45	Manufacturing	0,32	-0,32
	Service	1,16	-1,16
	Financial	-1,48	1,48

This table presents the percentage of firms smoothing in the industries for each size quartile.

Very large firms (sales greater than TL 750 millions according to last year's sales) in the financial industry have a much greater percentage of smoothing behavior than do similar sized firms in the service industry. Conversely, small firms (sales less than TL 45 millions) in the service industry have a much greater percentage of smoothing behavior than do similar sized firms in the financial industry. Medium firms (sales between TL 45 and 170 millions) in the financial industry have a much greater percentage of smoothing behavior than do similar sized firms in the manufacturing industry. There is little difference within the other industries.

4. CONCLUSION

A firm is considered valuable and less risky by its stakeholders when the firm smoothes its income. The main aim of this paper is to give evidence of income smoothing behavior of Turkish firms by analyzing a large and new data

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set (277 firms in the five-year period 2006-2010), and hence to contribute to the literature in this area that lacks research. The results show that the percentages of the smoothers are 30%, 21%, and 36% for the manufacturing, service, and financial industries, respectively. One of the reasons for the low percentage of smoothing behavior might be the inclination of managers to smooth income in countries with strong investor protection, and Turkey is not among those countries. Another reason might be the 2008 global financial crisis that made managing the reported income difficult for firms.

There was no significant difference in income smoothing behavior between industries and firm sizes. The findings are supported by the previous research (Atik, 2009). However, further analysis reveals that very large size firms are less likely to have smoothing behavior than small size firms are. The findings do not support Moses (1987), but Ashari et al.'s (1994) arguments. Large firms disclose more information than small firms, and more analysis is conducted on large firms. Therefore, large firms do not have incentives to practice smoothing. Another finding is that firms in service industry are less likely to have smoothing behavior than firms in financial industry are. Basel applications that favor bank managers to manage earnings might account for the high percentage of smoothers in the financial industry.

To conclude, smoothing contributes to firm value, and decreases the volatility not only for a firm but also for the whole stock market. It is also a practice desired by most of the stakeholders and managers. Firms in Northern America practice smoothing pervasively and Graham, Harvey, and Rajgopal (2005:24) find that 78 percent of the chief financial officers in the United States use their discretion to smooth the income. The reasons for the low income smoothing practices can be analyzed for the Turkish firms as a future research question. Other worthwhile topics to investigate would be the relation between smoothers and firm value, and the relation between smoothers and the dividend policy.

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