Avrupa Bilim ve Teknoloji Dergisi
Sayı 41, S. 211-220, Kasım 2022

Araştırma Makalesi

www.ejosat.com ISSN:2148-2683

European Journal of Science and Technology
No. 41, pp. 211-220, November 2022

Research Article

Examining Fraudulent Financial Statements of Small and Medium Sized Enterprises (SMEs) from Different Sectors in Turkey

Ozlem Senvar[1], Serhan Hamal [2*]

[1*] Marmara University, Department of Industrial Engineering, Istanbul, Turkey (ORCID: 0000-0003-3648-9445), ozlemsenvarresearch@gmail.com
[2] Marmara University, Department of Industrial Engineering, Istanbul, Turkey (ORCID: 0000-0002-0086-1025), serhanhamal@gmail.com

(First received 27 January 2022 and in final form 18 September 2022)

(**DOI:** 10.31590/ejosat.1063728)

ATIF/REFERENCE: Hamal, S. & Senvar, O. (2022). Examining Fraudulent Financial Statements of Small and Medium Sized Enterprises (SMEs) from Different Sectors in Turkey. *European Journal of Science and Technology*, (41), 211-220.

Abstract

Financial statement fraud has negative effects on sustainable financial development of businesses and industries. In this sudy, Turkish SMEs from different sectors have been examined in terms of fraud detection in financial statements. Banks, which assess the credit demands of SMEs, must be vigilant and innovative to combat financial accounting fraud. From these standpoints, comprehensive comparison study is conducted by examining 341 Turkish SMEs' financial statements from different sectors (manufacturing, construction, transportation, agricultural). The data of these SMEs are collected from one of the largest banks, based on total assets, in Turkey in which the bank provide them loans for funding. Results show that firms in construction sector mostly manipulate Cash (100), Due from Shareholders (131) financial accounts more than firms in other sectors (with rate of 56 %). This study can be guideline to comprehend on sectoral basis which financial accounts are mostly used in fraudulent financial reporting in which it can be useful to reduce fraud risks for SMEs along with to protect and prevent against fraud for all players in financial reporting system.

Keywords: Fraudulent financial statement, SME, Financial Accounting Fraud.

Farklı Sektörlerden Türkiye'deki Küçük ve Orta Büyüklükteki İşletmelerin(KOBİler) Hileli Finansal Tablolarının İncelenmesi

Öz

Finansal tablolarda hile, işletmelerin ve endüstrilerin sürdürülebilir finansal gelişimi üzerinde olumsuz etkilere sahiptir. Bu çalışmada, finansal tablolardaki hile tespiti açısından farklı sektörlerdeki Türk KOBİ'leri incelenmiştir. KOBİ'lerin kredi taleplerini değerlendiren bankaların finansal muhasebe dolandırıcılığı ile mücadele konusunda ihtiyatlı ve yenilikçi olmaları gerekmektedir. Bunlara dayanarak, farklı sektörlerden (imalat, inşaat, ulaşım, tarım) 341 Türk KOBİ'sinin finansal tabloları incelenerek kapsamlı bir karşılaştırma çalışması yapılmıştır. KOBİ'lerin verileri, Türkiye'nin aktif bazda en büyük bankalarından biri olan ve kendilerine finansman sağlamak için kredi sağladığı bir bankadan alınmıştır. Sonuçlar, inşaat sektöründeki firmaların (% 56 oranında) Kasa (100), Ortaklardan Alacaklar (131) finansal hesaplarını diğer sektörlerdeki firmalardan daha fazla manipüle ettiğini göstermektedir. Bu çalışma, hileli finansal raporlamada en çok hangi finansal hesapların kullanıldığını sektörel bazda anlamada, KOBİ'ler için dolandırıcılık risklerini azaltmak ve finansal raporlama sisteminin tüm oyuncuları için dolandırıcılıktan korunmak ve önlemek için faydalı olabileceği için yol gösterici olabilir.

Anahtar Kelimeler: Hileli finansal tablo, KOBİ, Finansal Muhasebe Hilesi.

1. Introduction

International Auditing and Assurance Standards Board (IAASB) (2009) published International Standard on Auditing 240 (ISA 240) and defined fraud as "An intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage ". According to ISA 240, fraud causes two sorts of misstatements: fraudulent financial reporting and misstatements resulting from asset misappropriation. Fraudulent financial reporting activities require higher levels of awareness and comprehensive understanding of financial statement fraud (Rezaee and Riley, 2010).

Intentional misstatements in financial statements, such as omissions of amounts or disclosures, are defined as financial statement fraud. Overstating assets, understating expenses or liabilities, overstating revenues, misappropriating assets, and other various methods are commonly utilized to deceive financial statement users (Tazilah and Hussain, 2015).

Financial fraud can take numerous forms, involving management fraud, credit card fraud, and money laundering. Financial fraud is divided into four categories by Ngai et al. (2011): Securities and commodities fraud, Insurance fraud, Bank fraud, and other associated financial fraud. Financial fraud is also divided into three categories by West and Bhattacharya (2015): Bank fraud, Corporate fraud, and Insurance fraud. Financial statement fraud can be referred to as corporate fraud when the financial reports include misstatements or omissions of accounts (Kassem, 2016). Financial statement fraud can also be categorised as management fraud, since management may manipulate financial accounts like as cash, accounts receivable, inventories, and net sales (Kassem, 2016; Thiruvadi and Patel, 2011).

According to Aladejebi and Oladimeji (2019), SMEs have smaller resources to both prevent and recover from financial fraud, and these businesses have fewer anti-fraud controls. Therefore, they are more vulnerable to fraud. To reduce fraud and manage risks proactively, SMEs should first identify the factors which may cause fraudulent activities. The weakening of societal values and financial pressure are the primary causes of fraud. Fraud prevention measures including societal values (integrity), strong internal and external control systems, and employee training programs should be implemented by SMEs for effective fraud management. While anti-fraud processes and controls, as well as appropriate oversight functions, have significant and positive effects on fraud prevention mechanisms, the development of an effective fraud prevention mechanism requires the full commitment of top management to establish a culture of honesty and high integrity (Sow et al., 2018a). European Federation of Accountants (2005) emphasized some measures such as establishing the ethical culture, identifying risk areas, establishing policies and procedures and providing a channel for reporting suspected fraud should be implemented in order to minimise the risk of fraud. Hess and Cottrell (2016) offered seven practical recommendations for small businesses to manage fraud risks as follows: (1) showing ethics matters, (2)making reporting easier, (3)trusting and verifying, (4)Beware of the slippery slope, (5)looking for suspicious patterns, (6) bad decision making with good outcomes, (7) giving employees what they need to reach for their goals. These strategies help them strengthen their defenses against fraud risks.

In the context of Turkish SMEs, both weak internal and external controls, weakling of societal values (honesty, trust etc.), weak financial conditions, tax avoidance and the loopholes within government regulations and laws are the major causes of fraudulent activities. Accordingly, identification of fraud risk indicators that consider above causes is crucial for establishing an effective fraud risk management approach.

Implementing audit procedures helps detecting fraud risk in financial statements, but financial fraud detection is a complex problem that requires more attention than conventional audit approaches (Chen et al., 2014). Statistical sampling, the Audit Risk Modeling, Business Risk Auditing and Big Data and Data Analytics in audit methodology has strengthened impact of auditing (Salijeni et al., 2019). However, the above developments in audit technology are not beneficial in financial accounting fraud detection for Turkish SMEs. Since, auditing has not been made mandatory for SMEs in Turkey.

Notably, more than 98% of the enterprises operating in Turkey are small and medium sized enterprises (SMEs) (Halıcı and Erhan, 2013), and the Cabinet Decree specifies which companies are subject to audit. The majority number of the SMEs do not comply the Cabinet Decree's restrictions (Karahan et al., 2017).

The companies, which are subject to audit, are determined by the Cabinet Decree published in the Official Gazette on 22.03.2018. According to the criteria; balance sheet total of 35 million ₺; annual net turnover of 70 million ₺; employee headcount of 175.

It is specified that companies providing at least two of the above criteria within the two consecutive accounting periods are subject to audit. In addition to these criteria, public interest entities including (but not limited to) Publicly held companies; Banks; Insurance reassurance and pension companies; Factoring companies; Financing companies; Financial lease companies; Asset management companies are subject to audit (Public Oversight Accounting and Auditing Standards Authority, 2018).

As a matter of fact, small businesses encountered specific fraud risks which are known to be different from the risks which are encountered by larger bussinesses. SMEs should be more concerned because businesses with fewer than 100 employees are experiencing fraud cases than larger businesses statistically (Aris et al., 2015). Cobo et al.(2017) emphasized that deepen the study of auditing role in terms of decision making in the banking sector, especially paying attentions to SMEs is required.

Few researchers have focused on fraud risks for SMEs. Johnson and Rudesill (2001) made an investigation into fraud prevention and detection of small businesses in the United States. They offered small businesses owners and managers to be proactive in preventing fraud, since small businesses are more vulnerable than large businesses and losses more devastating. Shanmugam et al. (2012) considered the issues of the internal controls, risk management, and fraud prevention on SMEs performance. Effective internal control, risk management, and the presence of adequate fraud prevention measures were found to help SMEs enhance their performance. Aris et al. (2015) assessed the possibility of fraudulent financial statements in a small medium automotive company in Malaysia.

Mekic et al. (2017) examined manipulative accounting of SMEs in Bosnia and Herzegoviana. They concluded that forensic accounting is vital and useful in pointing out incorrectly given

information. Following table summarizes some of studies that consider fraud risks for SMEs.

Table 1. Some of studies that consider fraud risks for SMEs.

Authors	Title
Johnson and Rudesill (2001)	An Investigation into Fraud Prevention and Detection of Small Businesses in the United States: Responsibilities of Auditors, Managers and Business Owners
Shanmugam et al. (2012)	Internal Control, Risk Management and Fraud Prevention Measures on Smes: Reliability and Validity of Research Instrument
Aris et al. (2015)	Fraudulent Financial Statement Detection Using Statistical Techniques: The Case of Small Medium Automotive Enterprise
Tazilah and Hussain (2015)	The Importance of Internal Control in SMEs: Fraud Prevention and Detection
Mekic et al. (2017)	Forensic Accounting as a Solution to Manipulative Accounting of Sme's in Bosnia and Herzegovina
Omar et al.(2017)	Predicting Fraudulent Financial Reporting Using Artificial Neural Network
Sow et al. (2018a)	Fraud Prevention in Malaysian Small and Medium Enterprises (SMEs)
Andoh et al. (2018)	Impact of Fraud on Ghanaian SMEs and Coping Mechanisms
Sow et al. (2018b)	Understanding Fraud in Malaysian SMEs
Aladejebi and Oladimeji (2019)	Fraud Management among Small and Medium Enterprises in Lagos, Nigeria

Similiarly, few studies have examined fraud risks on a sectoral basis. Gunduz and Onder (2013) considered corruption and internal fraud in the Turkish construction industry. They offered some improvement opportunities in order to reduce internal fraud risks. To limit the possibility of internal fraud, they emphasized the significance of having defined written workflows, job descriptions, open organizational structure, and extensive policies and procedures. They also advocated for the implementation of internal controls to ensure the effectiveness and efficiencies of operations, as well as compliance with laws and regulations. Fidan and Mumcu (2019) investigated fraud risks in the mining sector on an example marble firm. They found that the internal control system of the enterprise is not given the necessary importance, the distribution of duties of the employees is not made, the net rules are not applied in recruitment and promotion. In addition, it is stated that a lack of communication exists between the production department, marketing and sales departments and the senior management. It is also determined that an effective reporting system has not been established in the accounting department and that the accounting information system is not reliable. Aris et al. (2015) studied fraud risks in a small medium automotive company in Malaysia. According to their findings, there are some hazardous zones that need to be studied further by management. They recommended that the company set up an internal audit unit to ensure that the company's operations and financial reporting are accurate.

Financial ratios are commonly used as fraud risk indicators to detect financial statement fraud. For financial statement fraud detection, numerous studies have utilized a variety of financial ratios. Financial ratios involved falsified accounts will differ from usual patterns and indicate signals of accounting fraud if a fraudulent operation is conducted (Jofre, 2017). Therefore, it is important to examine the most used financial items for financial accounting fraud. These are as follows.

Cash (100)

Cash (100) is a part of the current assets section of the balance sheet and contribute to a company's net working capital. It includes legal tender, bills, coins, and savings accounts. Expenses and losses, which are not transferred to the income statement, can be hidden in this account.

Accounts Receivable (120)

Accounts receivable is more likely to be manipulated by management (Loebbecke et al., 1989; Persons, 1995; Fanning and Cogger, 1998). Sales can be recorded before they are earned because of the differences of timing in revenue recognition, and this increase accounts receivable.

Allowance for Doubtful Accounts (129)

The allowance for doubtful accounts is subject to manipulation as it is open to management's judgment (Fanning and Cogger, 1998).

Due from Shareholders (131)

One of the common transactions in a company is borrowing funds from the company. When a shareholder needs personal funds, he/she can withdraw funds from the company. However, this account is open to management manipulation.

Inventories (15)

Many researchers such as Persons (1995), Summers and Sweeney (1998), Fanning and Cogger (1998) and Spathis (2002) claim that management may manipulate inventories. Summers

and Sweeney (1998) indicate that inventory is open for preferences and interpretation, and manipulations on this account can be performed more easily. Obsolete inventories are important part of such manipulations. Companies eager to commit fraud do not properly disclose the amount of obsolete inventory (Fanning and Cogger,1998). Another type of manipulation is stating inventory at a reduced cost, or selling price (Birol, 2017; Spathis, 2002).

Due to Shareholders (331)

It is the account in which all payments except the capital that shareholders of the firm transfer to firm, are examined. In addition, non official receivables and sales can be hidden in this account (Turkmen,2016).

There are absolutely manipulated accounts which are not mentioned in this article. Since there are many financial accounts, the most used financial items for financial accounting fraud are handled in this study.

Fraud risk indicators are important for fraudulent financial reporting and they are useful to detect the underlying causes of fraudulent financial reporting (Rezaee, 2002). Financial ratios are used as fraud risk indicators to detect financial statement fraud (Kaminski et al., 2004; Ravisankar et al., 2011; Chen,2016; Omar et al, 2017). For financial statement fraud detection, many studies have employed various financial ratios. According to Girgenti and Hedley (2011), an effective fraud fraud risk management strategy involves three controlled objectives: to prevent, to detect and to respond.

From these standpoints; in this study, we mainly focused on 'to detect' objective to establish an effective fraud risk management for SMEs in Turkey. In this study, financial ratios that include "Cash" , "Due from Shareholders" and "Due to Shareholders" accounts are taken into consideration for financial statement fraud detection. These financial accounts are handled in terms of management along with corporate financial statement fraud. The study's scope includes a complete comparison analysis of 341 Turkish SMEs from various sectors using financial statements (manufacturing, construction, transportation, agricultural, and etc.). The data of these SMEs are collected from one of the largest banks, based on total assets, in Turkey. This research intends to shed light on the financial statements of Turkish SMEs operating in a variety of industries with high loan demand. Banks, which assess the credit demands of these SMEs, must be constantly vigilant and innovative in their approaches to combat financial accounting fraud. Results of the our examinations revealed that the most manipulated financial accounts as fraud risk indicators in financial statements were obtained as Cash (100), Due from Shareholders (131), Inventories (15) , Due to Shareholders (331), Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years (280) for 341 Turkish SMEs.

To the best of our knowledge, financial ratios of "Cash" , "Due from Shareholders" and "Due to Shareholders" accounts have not been examined for detecting financial statement fraud, yet. We believe that this study can be a guideline to reduce fraud risk for SMEs as well as to protect and prevent against fraud for all players in the financial reporting system. The rest of the study is organized as follows: Section 2 covers Material and Method. Results and Discussion are given in Section 3. Section 4 provides conclusion, recommendations for further directions.

2. Material and Method

In this study, it is aimed to extend existing literature by examining financial accounts which can indicate fraud risk in financial statements of SMEs on a sectoral basis. To the best of our knowledge, financial ratios, which include Cash (100) , Due from Shareholders (131) and Due to Shareholders (331) accounts have not been examined for detecting financial statement fraud in previous studies. We look to fill this gap in the literature by examining the manipulated financial accounts by SMEs.

2.1. Data Collection

The financial statements of 341 Turkish SMEs from various industries (manufacturing, construction, transportation, agriculture, and etc.) have been analyzed. This data are collected from one of the largest banks, based on total assets, in the sector. Microsoft Excel and Minitab Statistical Software 17 were used for data analyses.

Notably, the codes and corresponding accounts in Uniform Chart of Accounts of Turkey published in the Official Gazette on 26.12.1992 are considered in this study. The Uniform Chart of Accounts is a set of rules that regulates accounting's fundamental concepts and principles. The firms in Turkey are required to comply with the procedures and accounting principles specified in this communique.

In this study, after examination of all financial accounts in financial statements of 341 Turkish SMEs, manipulated financial accounts are detected and determined.

2.2. Descriptive Statistics

After data collection, the firms, which have been analyzed for fraud detection in this study, have been classified into six sectors according to the European Union official classification of economic activities, called NACE (Nomenclature statistique des Activités économiques dans la Communauté Européenne) (Eurostat, 2008): Wholesale and Retail Trade, Agricultural, Transportation, Manufacturing, Construction and Accomodation and Food Service. Then, the share of each sector in the sample has been calculated. For instance, the share of Wholesale and Retail Trade sector in the sample has been computed as 40 percent. The similar computations are performed for other sectors, respectively. The share of each sector in the sample is shown in Figure 1.

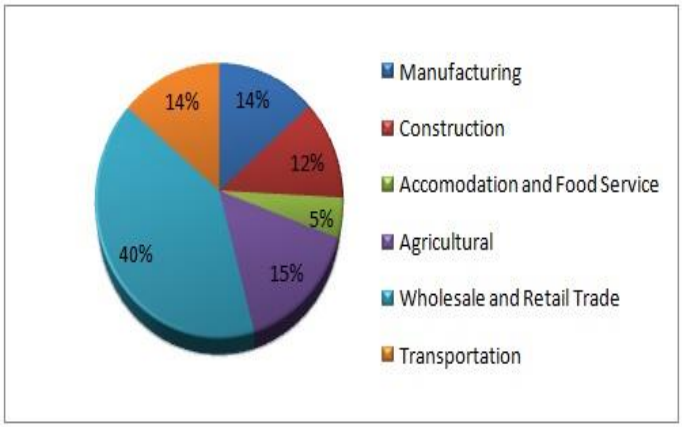

Figure1.Sectoral Distribution of SMEs

After above calculations, deeper examinations have been performed by using financial statements of Turkish SMEs. In total, 64 percent of the firms are found as non fraudulent and 36 percent are found as fraudulent (Figure 2).

Figure 2. Relative Frequency of SMEs

Then, examinations have been extended within the context of sectoral basis. In terms of Wholesale and Retail Trade sector, 65 percent of them are found as non fraudulent, 35 percent of them are found as fraudulent. Moreover, relative frequencies of both fraudulent and non fraudulent financial statements are evaluated for each corresponding sector. In regard to Agricultural sector, 85 percent of the firms have non fraudulent financial statements, 15 percent of them have fraudulent financial statements. With respect to Transportation sector, 54 percent of firms have non fraudulent financial statements, 46 percent of them have fraudulent financial statements. In terms of Manufacturing sector, 72 percent of firms have non fraudulent financial statements, 28 percent of them have fraudulent financial statements. In the matter of Construction sector, 44 percent of firms have non fraudulent financial statements, 56 percent of them have fraudulent financial statements. With respect to Accomodation and Food Service sector, 50 percent of firms have non fraudulent financial statements, 50 percent of them have fraudulent financial statements. Relative frequency of fraudulent firms and non fraudulent firms can be seen from Table 2.

Table 2. Relative Frequency of Fraudulent Firms and Non Fraudulent Firms

Sectors	Non Fraud	Fraud	Total
Manufacturing	72%	28%	100%
Construction	44%	56%	100%
Accomodation and Food Service	50%	50%	100%
Agricultural	85%	15%	100%
Wholesale and Retail Trade	65%	35%	100%
Transportation	54%	46%	100%

Frequency distribution of fraudulent firms and non fraudulent firms can be seen from Table 3. As can be seen in Table 3, non fraudulent firms are in the majority in all sectors except Construction and Accomodation and Food Service sectors. In Accomodation and Food Service sector, the number of non-fraudulent firms and fraudulent firms are found as equal.

Table 3. Frequency Distribution of Fraudulent Firms and Non Fraudulent Firms

Sectors	Non Fraud	Fraud	Total
Manufacturing	34	13	47
Construction	18	23	41
Accomodation and Food Service	8	8	16
Agricultural	44	8	52
Wholesale and Retail Trade	89	48	137
Transportation	26	22	48
Total	***219***	***122***	***341***

In Construction sector, fraudulent firms are in the majority. Figure 3 also shows relative frequencies of fraudulent firms on a sectoral basis.

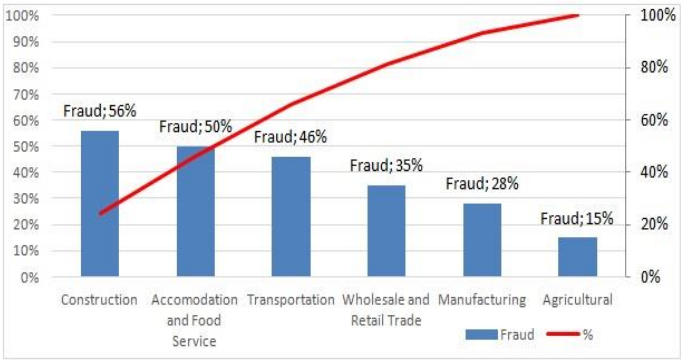

Figure 3. Relative Frequency of Fraudulent Firms on a Sectoral Basis

A firm may commit fraud over only one year, non-consecutive years or consecutive years. Figure 4 shows distribution of fraudulent firms by number of years in which commiting fraud. Of 122 firms, 39 commited fraud for only one year. 22 firms commited fraud for two years, 23 firms commited fraud for three years. For the five years from 2013 to 2017, a total of 321 fraudulent cases are identified across 122 fraudulent firms. This dataset comprises 1384 non fraudulent cases and 321 fraudulent cases in total (Figure 5). Figure 6 presents distribution of fraudulent cases by year. Figure 6 also reveals that the number of fraud cases increased dramatically between 2013 and 2017, having peaked in 2017.

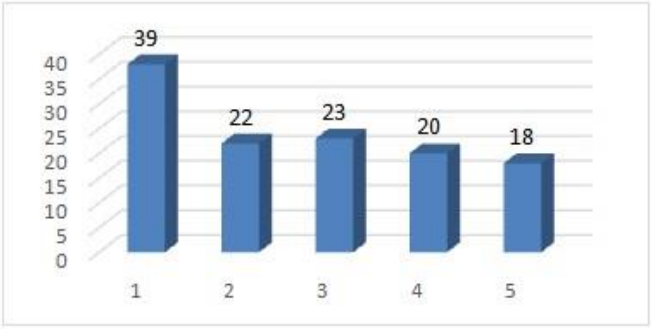

Figure 4. Distribution of fraudulent firms by number of years in which commiting fraud

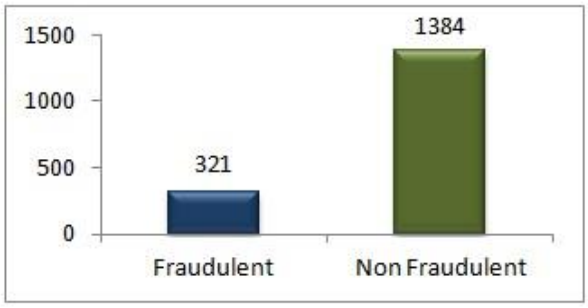

Figure 5. Distribution of cases

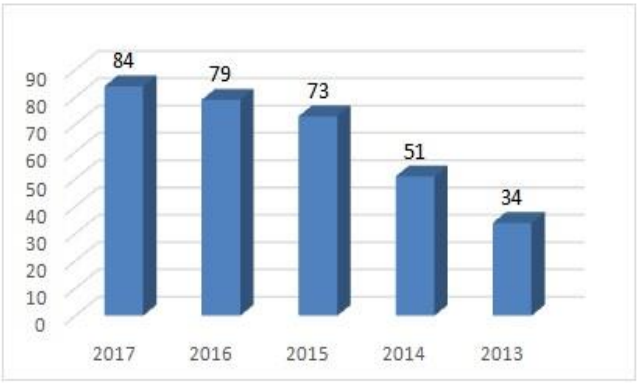

Figure 6. Distribution of fraud cases by year

Figure 7 shows financial accounts, which are used for fraudulent financial reporting activities. Accordingly, the most commonly used financial accounts for financial statement fraud are found as cash (100), Due from Shareholders (131), Inventories (15) , Due to Shareholders (331), Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years (280).

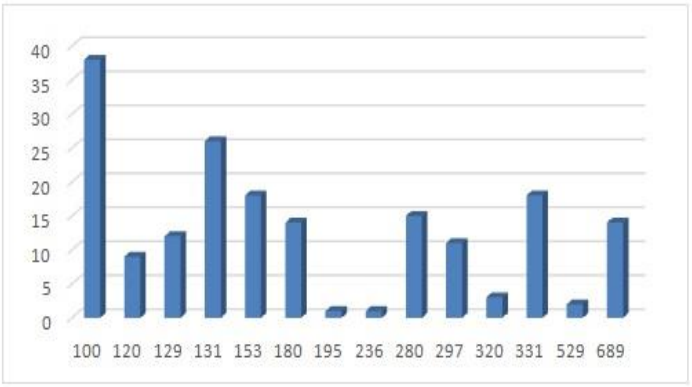

Figure 7. Frequency distribution of financial accounts which are used for fraudulent financial reporting activities

The most commonly used financial accounts for financial statement fraud on a sectoral basis are shown in Figure 8. Fraudulent firms in the manufacturing sector mostly manipulated Cash (100), Doubtful Trade Receivables (128) and Due from Shareholders (131) financial accounts. In the Accomodation and Food Service sector, Cash (100) and Due to Shareholders (331) financial accounts were mostly used for fraudulent activities. Fraudulent firms in the construction sector mostly manipulated Cash (100) and Due from Shareholders (131) financial accounts. In the Agricultural sector, Doubtful Trade Receivables (128), Due from Shareholders (131) and Inventories (15) financial accounts were mostly used for fraudulent activities. In the Wholesale and Retail Trade sector, Cash (100) and Inventories (153) financial accounts were mostly used for fraudulent activities. Fraudulent firms in the transportation sector mostly manipulated Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years (280) financial accounts.

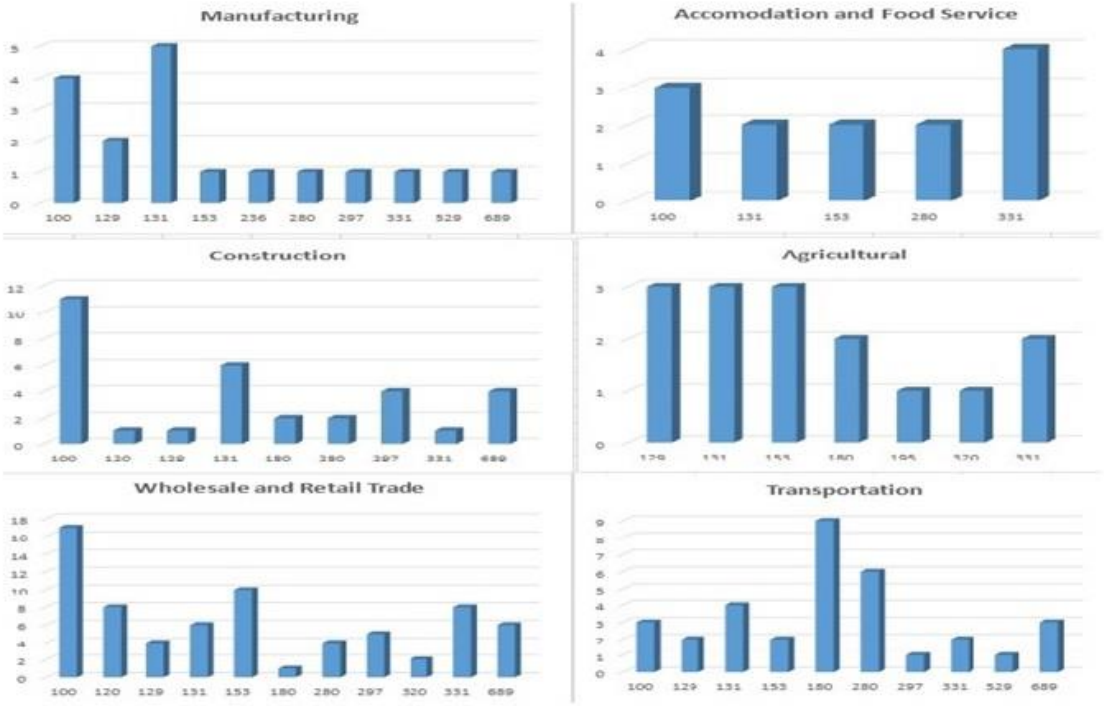

Figure 8. The most commonly used financial accounts for financial statement fraud on a sectoral basis

2.3. Inferencial Statistics

In order to find out whether the difference in averages of manipulated financial accounts is statistically significant or not, t-test for independent samples is conducted between non fraudulent firms and fraudulent firms. Standard deviations, means, p-values, and t-values for each manipulated financial account in this data set are presented in Table 4.

As can be seen in Table 4, all the manipulated financial accounts present low p-values ($p \leq 0.05$). In other words, the difference in averages of manipulated financial accounts is statistically significant between non fraudulent firms and fraudulent firms. There is sufficient evidence that the manipulated accounts differ from the usual patterns and indicate signals of accounting fraud.

Table 4. Standard Deviations,Means, P-values and T-values for Manipulated Financial Items

			NonFraudulent Firms		Fraudulent Firms		t-statistic	
Category		Financial Accounts	Standard deviation	Mean	Standard deviation	Mean	t-value	p-value
Balance Sheet	Current Assets	Cash (100)	99,946	50,211	1,401,232	1,621,813	10.03	0.000
		Accounts Receivable (120)	2,183,268	2,158,464	2,770,517	9,394,563	13.94	0.000
		Doubtful Trade Receivables (128)	59,228	12,985	841,926	1,738,804	10.25	0.000
		Due from Shareholders (131)	108,666	18,973	1,473,028	2,471,783	13.73	0.000
		Inventories (15)	2,030,495	1,140,014	3,110,386	6,412,806	11.91	0.000
		Prepaid Expenses for Future Months (180)	126,828	34,271	1,020,907	1,747,432	7.87	0.000
		Work Advances (195)	230,808	26,769	977,684	2,509,569	5.68	0.005
	Long-Term Assets	Other Miscellaneous Receivables (236)	21,832	1,865	803,045	3,162,690	7.87	0.004
		Prepaid Expenses for Future Years (280)	172,72	64,148	1,044,036	1,453,295	7.52	0.000
		Other Fixed Assets (297)	99,537	8,339	1,432,269	2,407,272	6.04	0.000
	Liabilities	Accounts Payable (320)	2,257,685	1,646,648	2,254,619	9,922,304	6.34	0.000
		Due to Shareholders (331)	1,369,503	445,25	2,922,639	3,680,307	7.64	0.000
	Shareholder's Equity	Other Capital Reserves (529)	661,706	155,724	3,241,836	7,671,716	6.13	0.001
Income Statement	Other Expenses	Other Extraordinary Expenses and Loses (689)	271,85	73,166	1,296,676	2,372,291	6.87	0.000

3. Results and Discussion

3.1. Findings by Sectors

It has been revealed that SMEs operating in the Construction sector, manipulate their financial accounts considerably more than firms operating in other sectors (with a rate of 56 %). Understatement of expenses is a common fraudulent technique used by firms operating especially in the construction sector. Profitability can be overstated by using this technique, and so these firms may provide credit facilities above their true borrowing capacities from banks and financial institutions. Based on this finding, it is possible to recommend that there would be reduction in fraudulent activities if governmental regulations and laws would be provided and imposed for auditing of operations in this sector and hence enhancement of efficiencies and effectiveness can be achieved, accordingly.

Accomodation and Food Service is the second sector that mostly manipulate financial statements. Unrecorded sales is a common fraudulent technique used in this sector. This type of fraud takes place when an individual sells goods or services to a customer and receives payment, but does not keep track of the transaction. Firms use this method for tax avoidance, and this method is commonly used by Turkish SMEs.

Fraudulent financial statements are also common in the transportation sector (with a rate of 46%). In this sector, prepaid expenses are generally used for overstatement of assets. Because the payment indicates a benefit that will be utilised in future periods, prepaid expenses are recognized as an asset on a balance sheet of a company. However, the company may delay the recognition of some expenses, and this violates the expense recognition principle.

According to our data set, it is found that fraudulent activities in wholesale and retail trade, manufacturing and agricultural sectors are less than other sectors (construction, accomodation and food service, transportation). However, it should be noted here that this situation may vary according to different data sets.

3.2. Findings by Financial Accounts

The findings of this study revealed that manipulated financial accounts may change on a sectoral basis. For instances, Cash(100) and Due from Shareholders (131) are found as the most manipulated financial accounts in the construction sector. It is found that fraudulent firms in the transportation sector mostly manipulated financial accounts of Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years(280). In all sectors, the most commonly used financial accounts for financial statement fraud were found as Cash (100), Due from Shareholders (131), Inventories (15), Due to Shareholders (331), Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years (280).

t-test for independent samples was conducted in order to find out whether there is significant difference in averages of manipulated financial accounts between non fraudulent firms and fraudulent firms. The results of the study demonstrated that the difference in averages of manipulated financial accounts is statistically significant between non fraudulent firms and fraudulent firms. This situation shows that the manipulated accounts differ from the usual patterns and indicate signals of accounting fraud.

Cash (100) is a part of the current assets section of the balance sheet and contributes to company's net working capital. It has been found that this account is the most manipulated financial account by Turkish SMEs. Expenses and losses, which are not recognized in the period that appear on the income statement, can be hidden in this account. It is likely to say that this account is more susceptible for recording expenses improperly to overstate profitability.

According to our data, it is found that Due from Shareholders (131) is the second most manipulated account by Turkish SMEs. This account is used to record transactions of borrowing funds from the company by a shareholder. However, this account is liable to management manipulation.

Other financial accounts of Inventories (15), Due to Shareholders (331), Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years (280) are found as mostly manipulated for fraudulent activities. Fraudulent firms utilize these financial accounts for capitalizing the expenses, understating expenses, overstating assets or other fraudulent techniques.

4. Conclusions and Recommendations

SMEs are the locomotives that accelerate economic growth. In other words, SMEs play a vital role in economic development. It has to be emphasized that SMEs rely heavily on the banking system to meet their loan requirements and obtain funding.

The purpose of this study is to examine fraud risk indicators in financial statements for SMEs. The financial statements of 341 Turkish SMEs from different sectors (manufacturing, construction, transportation, agricultural, and etc.) have been examined and analyzed.

In order to examine whether there is significant difference in averages of manipulated financial accounts between non fraudulent firms and fraudulent firms, t-test for independent samples is performed. The results showed that the difference in averages of manipulated financial accounts is statistically significant between non fraudulent firms and fraudulent firms. It has to be emphasized that there is sufficient evidence to say that the manipulated accounts differ from the usual patterns and indicate signals of accounting fraud.

In general, according to the results, it is possible to say that Turkish SMEs are highly vulnerable to fraud risks. In total, 64 percent of the firms are found as non fraudulent and 36 percent are found as fraudulent. Besides, results pointed out that firms in the construction sector manipulate their financial accounts more than firms in other sectors (with a rate of 56 %). In the construction sector, Cash(100) and Due from Shareholders(131) were identified as mostly used financial accounts for fraudulent activities. In all sectors, the most commonly used financial accounts for financial statement fraud were obtained as Cash (100), Due from Shareholders (131), Inventories (15) , Due to Shareholders (331), Prepaid Expenses for Future Months (180) and Prepaid Expenses for Future Years (280).

Principally, financial ratios can be used for financial statement fraud detection. For further directions, determination and selection of financial ratios, which include the most commonly used financial accounts for financial statement fraud, can be considered as fraud risk indicators. Since this study have not focused on any specific industries, future researches can also consider examination of fraudulent firms in specific industries especially construction sector for evaluating specific fraud risks.

Independent internal and external audit programs should be implemented to reduce fraud risks for SMEs in Turkey. It's crucial to assess how effective the controls are. Effective reporting systems should be established in the accounting department. Employees should be trained about fraud risks, ethic policies of the firm, code of conduct and internal controls. Government regulations and laws can be improved for auditing the effectiveness and adequacy of operations.

5. Acknowledge

This research received no specific grant from public, commercial, or not-for-profit sectors. The authors would like to express their sincere gratitude to Can Tansel Kaya (Prof. at Yeditepe University) for his valuable comments.

References

Aladejebi, O., & Oladimeji, J. A. (2019). Fraud Management among Small and Medium Enterprises in Lagos, Nigeria. *The International Journal Of Business & Management*, 7 (3), 227-236. DOI: 10.24940/theijbm/2019/v7/i3/BM1903-048

Andoh, C., Quaye D., & Frimpong, I.A. (2018). Impact of fraud on Ghanaian SMEs and coping mechanisms. *Journal of Financial Crime*, 25 (2), 400-418. DOI: https://doi.org/10.1108/JFC-05-2017-0050

Aris, N.A., Arif, S.M.M., Othman,R., & Zain, M.M. (2015). Fraudulent financial statement detection using statistical techniques: The case of small medium automotive enterprise. *The Journal of Applied Business Research*, 31 (4), 1469-1478. DOI: https://doi.org/10.19030/jabr.v31i4.9330

Birol, B. (2017). Corporate Governance and Fraud Detection: A Study from Borsa Istanbul. PhD Thesis, Yeditepe University, Turkey, 103-112.

Chen, S. (2016). Detection of fradulent financial statements using the hybrid data mining approach, *Springer Plus*, (2016) 5-89. https://springerplus.springeropen.com/articles/10.1186/s40064-016-1707-6

Chen, S., Goo, Y.J., & Shen, Z.D. (2014). A hybrid approach of stepwise regression, logistic regression, support vector machine, and decision tree for forecasting fraudulent financial statements. *The Scientific World Journal*,2014. DOI: https://doi.org/10.1155/2014/968712

Cobo, E. P., Crespo, A.H., & Corte, J.M. (2017). Are credit risk analysts concerned about the audit of the financial statements of SMEs? *Universia Business Review* , 2017 (1), 1698-5117. DOI: 10.3232/UBR.2017.V14.N1.04

European Federation of Accountants (2005). How SMEs can reduce the Risk of Fraud. Retrieved from https://www.pibr.org.pl/assets/file/943,FEE-How-SMEs-can-reduce-the-Risk-of-Fraud.pdf

European Statistics (2008). NACE Rev. 2 Introductory Guidelines. Retrieved from https://circabc.europa.eu/sd/a/aaea2438-5405-43ae-866f-904923ab8ec2/NACE%20Rev.%202%20Introductory%20guidelines%20-%20EN.pdf

Fanning, K.M., & Cogger, K.O. (1998). Neural network detection of management fraud using published financial data. *International Journal of Intelligent Systems in Accounting, Finance & Management*, 7(1998), 21-41. DOI: https://doi.org/10.1002/(SICI)1099-1174(199803)7:1<21::AID-ISAF138>3.0.CO;2-K

Fidan, M. E., & Mumcu, E. Ş. (2019). Internal Control and Fraud Risks in Mining Companies: A Study on a Marble Enterprise. *KMU Journal of Social and Economic Research*, 21(37), 61-81. https://dergipark.org.tr/tr/pub/kmusekad/issue/51332/615845

Girgenti, R.H.J.D., & Hedley, T.P. (2011). *Managing the risk of fraud and misconduct: meeting the challenges of a global, regulated, and digital environment*. McGrawHill, New York.

Gunduz, M., & Önder, O. (2013). Corruption and internal fraud in the Turkish construction industry. *Science and Engineering Ethics*, 19(2), 505–528. https://link.springer.com/article/10.1007/s11948-012-9356-9

Halıcı, A., & Erhan, D.U. (2013). Structuring strategic management with ratio analysis method: A case study in the transition to SME TFRS process. *Procedia - Social and Behavioral Sciences*, 99, 947 – 955.

Hess, M. F., & Cottrell Jr., J. H. (2016). Fraud risk management: A small business perspective. *Business Horizons*, 59(1), 13-18. DOI: 10.1016/j.bushor.2015.09.005

International Auditing and Assurance Standards Board (IAASB) (2009). International Standard on Auditing 240 (ISA 240): The Auditors' Responsibilities Relating to Fraud in an Audit of Financial Statement, http://www.ifac.org/system/files/downloads/a012-2010-iaasb-handbook-isa-240.pdf.

Johnson, G.G., & Rudesill, C.L. (2001). An investigation into fraud prevention and detection of small businesses in the United States: Responsibilities of auditors, managers and business owners. *Accounting Forum*, 25(1), 56-78. DOI: 10.1111/1467-6303.00055

Jofre, M. (2017). *Fighting Accounting Fraud through Forensic Analytics*. Doctoral Dissertation, The University Of Sydney Business School, Australia, 42-119. http://hdl.handle.net/2123/17826

Kaminski, K.A., Wetzel, T.S., & Guan, L. (2004). Can financial ratios detect fraudulent financial reporting? *Managerial Auditing Journal*, 19(1), 15-28. DOI: https://doi.org/10.1108/02686900410509802

Karahan, M., İğde, M., & Özbezek, D. (2017). Evaluation of International Financial Reporting Standards in Terms of SMEs-Turkey Application. *Gaziantep University Journal of Social Sciences*, 16 (2), 330-344. DOI: https://doi.org/10.21547/jss.299362

Kassem, R. (2016). *Detecting Financial Reporting Fraud: The Impact and Implications of Management Motivations for External Auditors – Evidence from the Egyptian Context*. Doctoral Dissertation, Loughborough University, Loughborough Leicestershire, UK, 1-11.

Loebbecke, J.K., Eining, M.M., & Willingham, J.J. (1989). Auditors' experience with material irregularities-frequency, nature, and detectability. *Auditing- A Journal of Practice & Theory*, 9(1), 1-28.

Mekic, A., Halilbegovic, S., & Huric, A. (2017). Forensic Accounting as a Solution to Manipulative Accounting of Sme's in Bosnia and Herzegovina. *Ecoforum*, 2 (11). http://www.ecoforumjournal.ro/index.php/eco/article/view/634

Ngai, E.W.T., Hu,Y., Wong, Y.H., Chen, Y., & Sun, X. (2011). The application of data mining techniques in financial fraud detection: A classification framework and an academic review of literature. *Decision Support Systems*, 50 (2011), 559–569. DOI: https://doi.org/10.1016/j.dss.2010.08.006

Omar, N., Johari, Z.A., & Smith, M. (2017). Predicting fraudulent financial reporting using artificial neural network. *Journal of Financial Crime*, 24(2), 362-387. DOI:https://doi.org/10.1108/JFC-11-2015-0061

Persons, O.S. (1995). Using financial statement data to identify factors associated with fraudulent financial reporting. *Journal of Applied Business Research*, 11(3), 38–46. DOI: https://doi.org/10.19030/jabr.v11i3.5858

Public Oversight Accounting and Auditing Standards Authority (2018). Regulations, http://www.kgk.gov.tr/DynamicContentDetail/7954/Regulations.

Ravisankar, P., Ravi, V., Rao, G.R., & Bose, I. (2011). Detection of financial statement fraud and feature selection using data mining techniques. *Decision Support Systems*, 50 (2011), 491–500. DOI: https://doi.org/10.1016/j.dss.2010.11.006

Rezaee, Z. (2002). The three Cs of fraudulent financial reporting. *Internal Auditor*, 57-61.

Rezaee, Z., & Riley, R. (2010). *Financial statement fraud prevention and detection*. Second Edition, John Wiley&Sons,Inc., Hoboken, New Jersey and Canada.

Salijeni, G. , Taddei, A.S., & Turley, S. (2019). Big Data and changes in audit technology: contemplating a research agenda. Accounting and Business Research, 49(1), 95-119. DOI: https://doi.org/10.1080/00014788.2018.1459458

Shanmugam, J.K., Ali, A., & Haat, M.H.C. (2012). Internal control, risk management and fraud prevention measures on SMEs: reliability and validity of research instrument. *3rd International Conference on Business and Economic Research*, 12 - 13 March , Indonesia.

Sow, A.N., Basiruddin, R., Mohammad, J., Abdul & Rasid, S.Z. (2018a). Fraud prevention in Malaysian small and medium

enterprises (SMEs). *Journal of Financial Crime*, 25(2), 499-517. DOI: **https://doi.org/10.1108/JFC-05-2017-0049**

Sow, A.N., Basiruddin, R., Abdul Rasid, S.Z., & Husin, M. M. (2018b). Understanding fraud in Malaysian SMEs. *Journal of Financial Crime*, 25(3), 870-881. DOI: **https://doi.org/10.1108/JFC-08-2017-0077**

Spathis, C.T. (2002). Detecting false financial statements using published data: some evidence from Greece. *Managerial Auditing Journal*, 17(4), 179-191. DOI: **https://doi.org/10.1108/02686900210424321**

Summers, S.L., & Sweeney, J.T. (1998). Fraudulently misstated financial statements and insider trading: An empirical analysis. *Accounting Review*, 73(1), 131-146.

Tazilah, M.D.A.B.K., & Hussain, N.B.C. (2015). The importance of internal control in SMEs: Fraud prevention & detection. *International Conference on Business, Accounting, Finance, and Economics*, *Malaysia, 9th October*.

Thiruvadi, S., & Patel, S. C. (2011). Survey of data mining techniques used in fraud detection and prevention. *Information Technology Journal*, 10 (4), 710-716. DOI: **10.3923/itj.2011.710.716**

Turkmen, B. (2016). Errors and abuses in financial accounting and results. *Procedia Economics and Finance*, 38(2016), 77-83. DOI: **10.1016/S2212-5671(16)30179-4**

West, J., & Bhattacharya, M. (2016). Intelligent financial fraud detection: a comprehensive review. *Computers & Security*, 57, 47–66. DOI: **https://doi.org/10.1016/j.cose.2015.09.005**