

# DIESELGATE AND ITS IMPACTS ON CONSUMERS, REGULATORS AND THE COMPANY

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**Abstract:** *The aim of this study is to discuss one of the world's biggest automobile manufacturing company's systematic emission test cheating and the impacts of this scandal—Dieselgate. The method comprises the assessment of American, British, and Turkish car forum comments, and analyses of relevant data collected from stock exchange and other statistical sources. It is found out that; on the average, around 40 percent of Volkswagen owners doesn't believe that there will be any negative change in the company's reputation in United Kingdom and Turkey. US data is somehow mixed. Members of one of two forums with a higher member profile by 28.95 percent believe VW brand will be damaged, and 14 percent find the matter a serious one. The members of the other forum where 24,571 messages are analyzed, only 554 messages are mentioning the terms fraud, ethics and moral. While stock exchanges market data backs the hypothesis that VW is no more a socially responsible group, and investors avoid it, sales data in United States do not absolutely support it. Further analyses on financial data, and comparison among more countries would be helpful.*

**Keywords:** *Dieselgate, Consumers, Regulators, Social responsibility, Volkswagen*

# Introduction

*'Everyone who buys a Lamborghini can pronounce the name just as he likes, but those who can't afford one should say it properly.'*

*Ferdinand Piëch, Volkswagen's chairman (2008)*

The scope of the paper is the Volkswagen (VW) Scandal; which was unfolded in 2013 with researchers finding abnormalities between the nitrogen oxide (NOx) emitted by VW vehicles in lab tests and on the road, and the impacts of the scandal. NOx is a smog-forming pollutant linked to lung cancer up to 40 times higher than the federal limit. The Environmental Protection Agency (EPA) investigation followed in May 2014. VW admitted tricks in early September of 2015, and the deception went public in mid September. This paper questions whether this scandal will hurt the reputation of VW, and/or change the attitude of the consumers towards VW.

The fact that VW committed a crime and broke all kinds of ethical rules is apparent to academics interested in corporate governance, social responsibility, and fraud. The main objective of academics is dealing with issues for the sake of the society and the environment. But... Is the society ready to embrace good things? Another point is... Conception of ethics is not uniform among members of the society, let there be any universal understanding of morality issues. Therefore...The researcher became curious about the stance of consumers from different countries. These countries are the ones where approaches toward fraud are quite different.

*“Culture starts at the top, but it doesn't start at the top with pretty statements. Employees will see through empty rhetoric and will emulate the nature of top-management decision making ... A robust 'code of conduct' can be emasculated by one action of the CEO or CFO.”*

*Andrew Fastow, the former CFO of Enron said in an interview with the Association of Certified Fraud Examiners.*

## Literature

VW scandal is manifold. The case is a good example for poor crises management. Almost all stakeholders of VW are affected, and will be affected in the future, as well. As Schultz reports; "Our company was dishonest with the EPA, and the California Air Resources Board and with all of you," says Michael Horn, the head of the VW brand in the US (2015). The car dealers are impacted very badly; same for the insurance companies. The consumers are put under a heavy burden, and their losses seem to be unrecoverable. First, second-hand value of their cars diminished. Secondly, the relatively high price they paid will be no more backed up by the performance of the vehicle they own. Third, VW will call the vehicles in the future for technical adjustments. The alteration which will be made on the vehicle will shift the vehicle in a new emission segment, and this will cause the car owner to pay higher taxes. In Dieselgate the public and the governments in general are the stakeholders who had been systematically cheated. The highest-level person charged by the US is Heinz-Jakob Neusser, who led development of the Volkswagen brand from July 2013 until September 2015 and engine development from October 2011 until July 2013 (Bomey, 2017). A documents cache seen by the Guardian show that the commission's in-house science service told it in 2010 that tests had uncovered what researchers suspected to be a "defeat device" that could cheat emissions tests (Neslen and Harmsen, 2016). This might be an evidence of VW cheating systematically since long. As reported by the Trefis Team, at first, it was only the 482,000 units in the United States (US) that were reported to have been fitted with a defeat device, which would help in cutting emissions while being tested, as compared to normal road conditions. Since then, Volkswagen reported that 11 million cars worldwide used this software, a significant portion of which could be in Europe (Forbes, 2015). Hypothetically, Dieselgate is expected to harm the reputation of VW.

According to Connolly (2008) Europe's biggest automobile company, and the leading symbol of corporate Germany, was embroiled in a widespread scandal involving sex, bribery and pleasure trips, the scale of which the continent has not seen before. According to Trefis Team's estimates, the net present

value of the cost of the entire Dieselgate scandal for VW, including government fines and settlements, private settlements, recall expense, and future loss of sales, could be up to \$34.5 billion (Forbes, 2015). VW reported its biggest annual loss in almost eight decades of history as the growing cost of provisions for the global emissions scandal pushed Europe's largest carmaker into the red (McGee and Campbell, 2016). According to Holloway, there are some bright spots; between January and March in 2016, vehicle deliveries across the whole VW Group crept up to 2,508,000 units, a rise of 0.8 percent on the same period in 2015. As of May 2016 the VW Group has a handy £19.8 billion in cash in the bank, a massive 25 percent jump on the same time last year (2016).

VW Case did not pop up suddenly; it seems that the seeds of fraud had been sowed then. As of January 2017 Volkswagen has negotiated a conclusive plan with the U.S. Department of Justice for a criminal and civil settlement worth \$4.3 billion. As part of a settlement, Volkswagen is required to comply with significant reforms and face monitoring from an independent overseer. The automaker recently agreed to separate civil settlements totaling roughly \$17 billion — compensating US consumers and dealers who owned diesel vehicles affected by the scandal while also offering buybacks and software fixes (Posky, 2015). As two members of academia state; when corporations proclaiming social and ethical leadership violate their own stated standards, they are liable to charges of hypocrisy and will suffer disproportionately (Osegowitsch and Trenholm, 2015).

## **Methodology**

Whether Dieselgate will harm the reputation of VW or not is the research question of the study. This scandal may be a path-breaking one to business world. In case the scandal doesn't harm VW reputation, and the company doesn't record losses in the next few years, the socially responsible groups will be upset, and the case will be a discouraging one from environmental aspect. Thus, the study will enlighten the ethics question for car makers for countries chosen. These are US, United Kingdom (United Kingdom), and Turkey. The research has two stages. At the first stage, the emphasis is given to the

opinion of consumers and/or prospective customers. Then follows data gathered from several web sites, to present the facts related to sales.

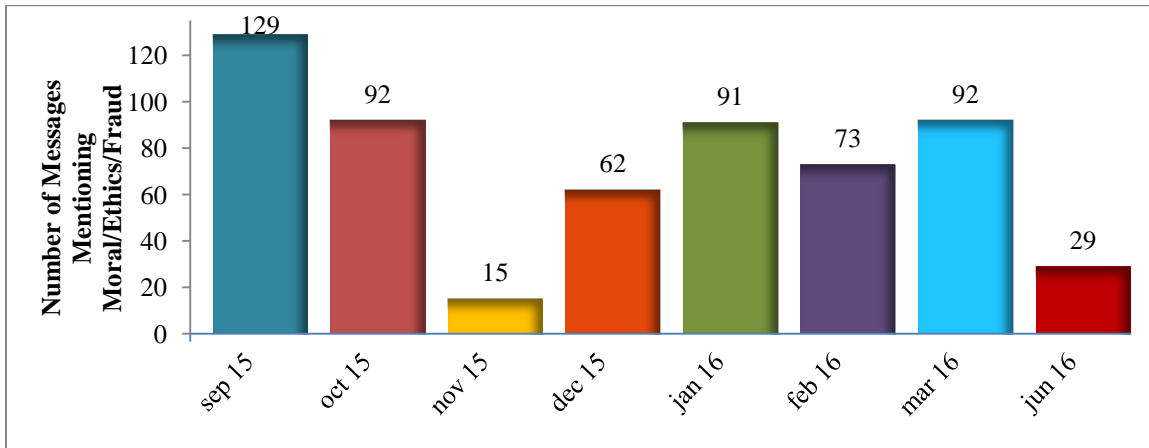
In order to visualize the opinions of car owners, forums about cars had been searched. By googling forums about Volkswagen Scandal, a data set of 10,087 consumer comments in forum threads chosen randomly had been printed [US forum assessment will follow later on, for the time the extended summary is prepared, data from UK and Turkey are examined], and each comment had been categorized as (1) the issue bothers them, (2) the issue doesn't bother them, (3) don't care, and (4) not really is an issue. Some additional comments aroused from Turkish forum, as well.

The topic of Turkish Forum is "What about your opinions about Volkswagen emission scandal?" The forum belongs to TurboFSI Audi Club Türkiye (<http://www.turbofsi.net>). The Forum Thread starts on 25th Sep 2015 and closed now. The data downloaded ends on 23 Feb 2016. There aren't any replies between 15 Nov 2015 – 23 Feb 2016. It has six Pages and 40 replies on each page. There are 224 messages. The Forum has 11,590 members.

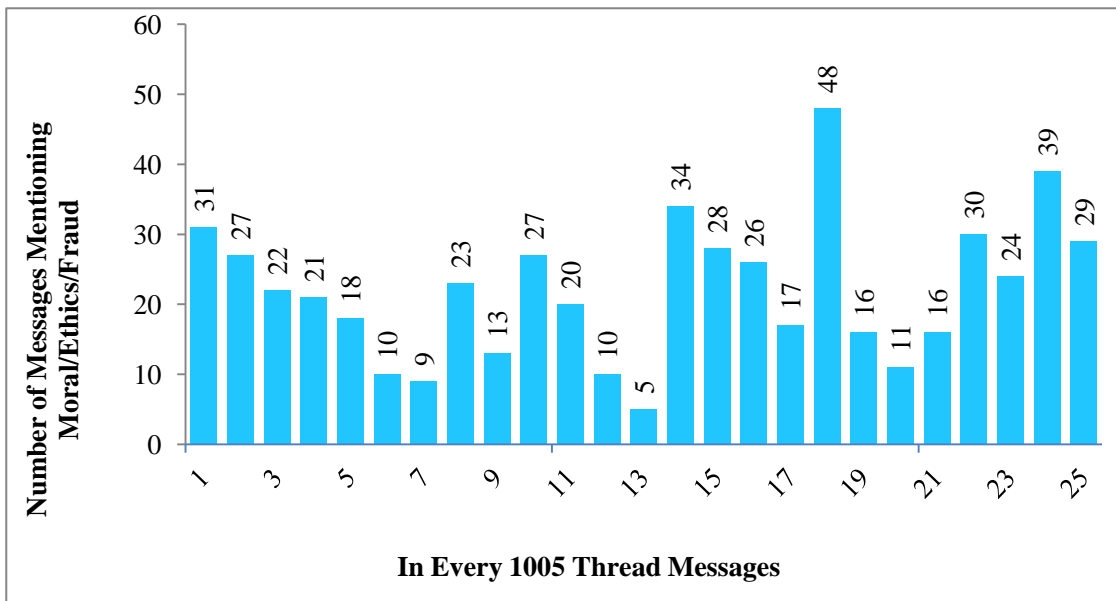
One of the US Forums has the topic: "VW TDI EPA Recall (2.0L and 3.0L)". The Forum Thread starts on 18th Sep 2015, as of July 2017 it still continues. Data downloaded ends on 25 Feb 2017. It has 97 Pages and 100 replies on each page. There are 9,700 replies. Club Touareg Forums have 61,805 members. For the analysis of the Forum Thread; 819 thread messages read. Out of these, there are 114 Dieselgate related opinions, where 51 different members posted these messages. Opinions are categorized.

The second US Forum has the topic: "Volkswagen's Clean Air Act violations on 2009+ TDIs spark huge recall, investigations." The forum belongs to TDIClub. TDIClub is a website dedicated to the VW TDI (Turbo Direct Injection Diesel) engine ([www.tdiclub.com](http://www.tdiclub.com)). The Forum starts on 20th Sep 2015, ends on 16 Jun 2016. It has 2,483 pages, 15 replies on each page. There are 37,232 replies. The thread is viewed 6,292,419 times. TDIClub has 104,985 members, and there are 13,479 active members. In this research 25,125 messages are evaluated. Specifically, the terms "moral", "ethics", and "fraud" are

searched. Hypothetically the more these terms are spoken, the more will be the consumers evaluated as conscious. The thread messages show the stance of consumers towards these kinds of fraud, and ethical issues. Monthly sent messages of this forum are displayed in Graphic 1. In fact the messages are grouped in 1005 and multiples of 1005. In order to follow whether the forum members keep in touch with the issue, these groups are analyzed as well.

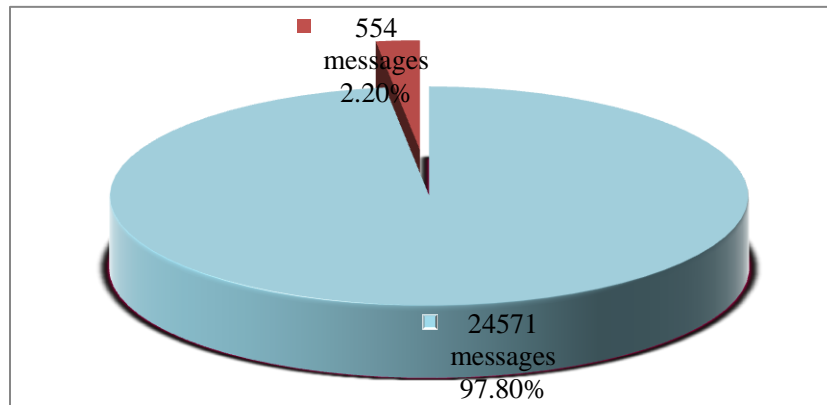


**Graphic 1:** Number of Messages Mentioning the Terms Searched for



**Graphic 2:** Number of Messages Mentioning the Terms Searched for in Every 1005 Message

In regard to the second US Forum, out of 24,571 messages, as seen from Graphic 3, only 554 messages have either one of these terms "moral-ethics-fraud".



**Graphic 3:** Number of Messages Mentioning the Terms Searched for

As mentioned in the introduction, the third country is United Kingdom. The data are dug from volkswagenforum.co.uk. It is apparent that each country has its own and unique legislation and regulations. US and UK make up the core of the Anglo-Saxon business world. Since the second half of 20th century Turkey started adopting the rules and the way of executing business of the Anglo-Saxon world. VW is a German car manufacturer, and is a very important source for employment in Europe. Therefore, in order to eliminate biased opinions, EU countries are skipped, and for this study the focus became US, UK, and Turkey.

<http://www.volkswagen.co.uk/owners/dieselinfo>

*Dear Volkswagen customer,*

*We regret to inform you that the Type EA 189 engine built into your vehicle with the Vehicle Identification Number WVWZZZ1KZAW\*\*\*\*\* you submitted, is affected by software that may cause discrepancies in the values for oxides of nitrogen (NOx) during dynamometer runs. Your car is safe from a technical standpoint and roadworthy.*

*We are very sorry to have broken your trust and are working at full speed to find a technical solution. Volkswagen will cover the cost relating directly to this repair.*

*We will be in touch with you directly to explain what steps are required. We'll do any necessary rectification work at our cost.*

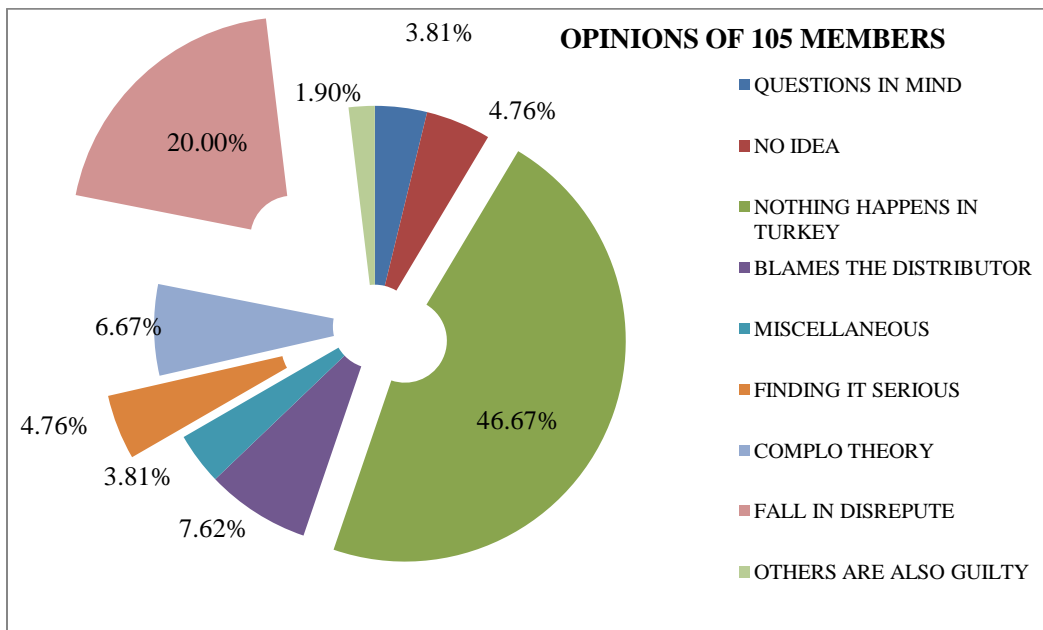
*Yours faithfully,*

*Volkswagen.*

**Letter 1:** Letter sent to VW owners living in United Kingdom

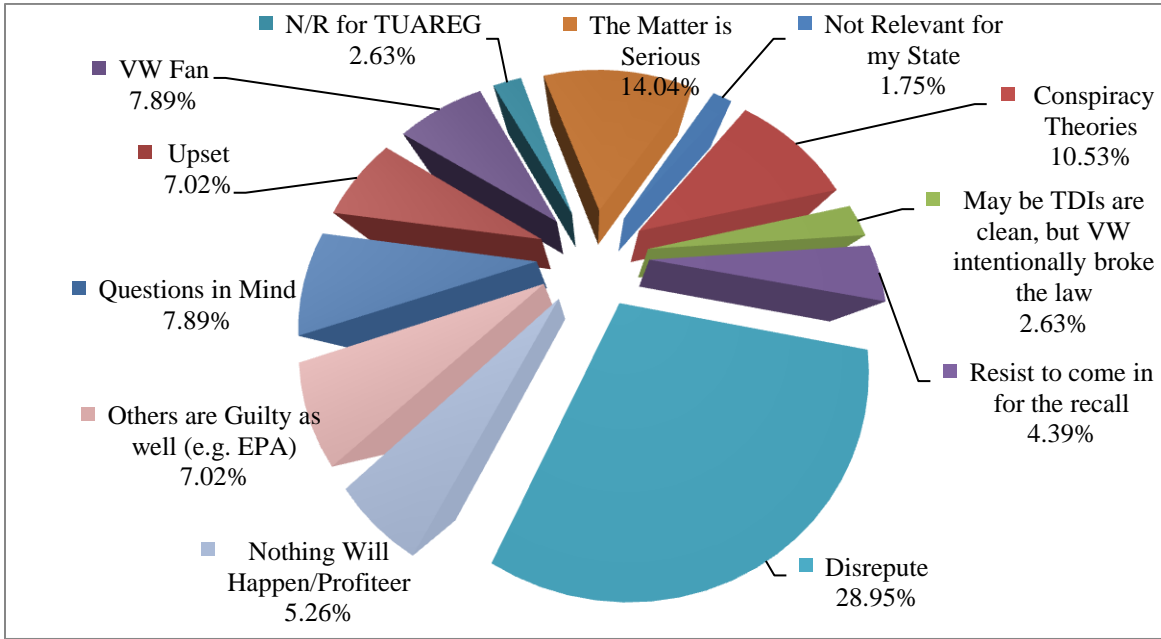
## Findings

The results of UK forum show that more than 41 percent of comments state "the issue doesn't bother". Roughly 17 percent doesn't even realize it as an issue, and almost nine percent conclude that the issue doesn't bother them. The remaining comment givers (33.33%) state that the issue bothers them, but this depends on the country where the consumer lives. Turkish forum comments are distributed as such: 47 percent of comment owners doesn't think that there will be any damage to VW brand image; however 20 percent admits a severe damage to brand and are apparently aware of the ethical issue in the case. Comment owners, who view the issue as *one which matters* make up 4.76 percent; 6.67 percent view the case as a complot against VW.



**Graphic 4:** Categorized Opinions of TurboFSI Audi Club Turkish Forum Thread





**Graphic 5:** Categorized Opinions of VW TDI EPA Recall (2.0L and 3.0L) Forum Thread

In the below given table, there are some of the interesting opinions of thread members.

**Table 1:** Compilation of Interesting Opinions of Thread Members\*

will not consider purchasing another VW product for a long time or at least until some good faith is restored.
Engineers tend to be much more rational and "rule following" than the average bear.
they cheated the EPA, not the consumer
So many apologists for VW's fraud on this site. There love of VW blinds them to the facts or they have no integrity in their own life so they see that behavior as acceptable.
What? You mean that there is a course in ethics in business school? For many years I have assumed that no such thing exists in the curriculum for an MBA. This assumption is totally unrelated to (and predates) the current VW situation. Aside from some smaller family owned businesses (and maybe a few exceptions) there has long appeared to be a complete absence of ethics in most corporate cultures. If it doesn't positively effect the quarterly numbers, it is dismissed. If it does positively effect the quarterly numbers, it is embraced. Often, in my experience, that is the only rule in business.

Yup. Ethics courses are a standard part of the curriculum. However, some people are just not burdened with a conscience. That and a LOT of business leaders are sociopaths. They simply do not give a **** about anyone or anything but themselves.
It's politics; ethics have no place in the discussion. A pathetic thing to say, in the face of VW's fraud.
. . . . I've got a GMC with the ignition switch that kills you and the airbags that kill you and resale value remains shockingly good. & But the good part is that when the ignition switch causes the accident, it shuts off the airbags, so at least you can't get killed by both.

\* (no grammatical editing)

**Table 2: Summary**

<b>Turkish forum:</b> 40 Opinion holders, 105 opinions	Nothing will happen: 46.67% Severe damage to VW brand: 20%
<b>British forum:</b>	The issue doesn't bother: 41% The issue bothers them, but this depends on the country: 33.33%
<b>US Tuareg forum:</b> 51 Opinion holders, 114 opinions.	Damage to VW brand : 28.95% The matter is serious: 14.04%
<b>US TDI forum:</b> 24571 messages	554 messages mentioning Fraud - Ethics - Moral

Opinion does not necessarily always reflect consumer behavior. Therefore, there is need for numerical data and analysis in order to better visualize the effects of Dieseldgate. There is a serial of sales of VW in US and Canada. This allows a comparative analysis. From year 2010 through 2017 there are monthly data available. Table 3 displays monthly sales data for US, and Table 4 sales data for Canada. Yearly total and average sales are calculated. Then, last three months' sales are summarized, and the shares of the last quarters are also calculated. This assisted the research in monitoring the yearly changes in sales, if there is any. Same is done regarding sales in Canada.

In US, the average of the share of the last quarters from 2010 to 2016 is 25.77 percent. The share of the last quarter in 2015, following the month when the scandal burst is 24.39 percent—5,36 percent below the average; and next year it is 28.39 percent—10.16 percent above the average. The average of

these specific years is 26.39 percent, which is well above the average of last quarter shares throughout the years. In Canada, the average of the share of the last quarters from 2010 to 2016 is 22.97 percent. The share of the last quarter in 2015, following the month when the scandal burst is 21.04 percent—8,43 percent below the average; and next year it is 20.56 percent—10.49 percent below the average. The average of these specific years is 20.80 percent, which is below the average of last quarter shares throughout the years. These analyses let us conclude, that the US market does not bother for ethical issues, whereas Canadians care for. This supports the US TDI forum data.



**Graphic 6:** VW Stock Prices (2015-2017)

**Source:** Börse Frankfurt. Stocks. Volkswagen. <http://en.boerse-frankfurt.de/stock/Volkswagen-share/ETR>, 13.11.2017.

Graphic 6 displays the statue of VW in Börse Frankfurt. As of 16 Mar 2015 VW stock price is euros. 247.5500, which is the peak seen for the last three years until Nov 2017. Following the scandal becoming public the price of the shares dropped drastically to 101.1500 euros, and it does not seem to have recovered until 2017. It is to be recalled that VW is a stock, the price of which once reached 499.5000 euros on 28 Oct 2008.

**Table 3: Volkswagen US Sales (2010-2017)**

<b>Month</b>	<b>Volkswagen U.S. Sales 2010</b>	<b>Volkswagen U.S. Sales 2011</b>	<b>Volkswagen U.S. Sales 2012</b>	<b>Volkswagen U.S. Sales 2013</b>	<b>Volkswagen U.S. Sales 2014</b>	<b>Volkswagen U.S. Sales 2015</b>	<b>Volkswagen U.S. Sales 2016</b>	<b>Volkswagen U.S. Sales 2017</b>
<b>January</b>	18,019	18,401	27,209	29,018	23,494	23,504	20,079	23,510
<b>February</b>	18,116	21,461	30,577	31,456	27,112	25,710	22,321	25,145
<b>March</b>	22,148	27,176	36,588	37,704	36,717	30,025	26,914	27,635
<b>April</b>	23,135	28,542	37,525	33,644	30,831	30,009	27,112	27,557
<b>May</b>	23,543	30,100	38,657	38,013	32,163	34,758	28,779	30,014
<b>June</b>	21,051	28,444	38,170	36,957	28,827	30,436	23,809	27,377
<b>July</b>	23,880	29,066	37,014	35,779	30,553	31,300	28,758	27,091
<b>August</b>	22,855	25,232	41,011	40,342	35,181	32,332	29,384	32,015
<b>September</b>	19,943	27,036	36,339	31,920	25,996	26,141	24,112	32,122
<b>October</b>	20,084	28,028	34,311	28,129	30,313	30,387	24,779	27,732
<b>November</b>	20,189	28,412	36,728	30,727	31,725	23,882	29,672	
<b>December</b>	23,867	32,502	44,005	34,015	34,058	30,956	37,229	
<b>Share of last 3 months</b>	24.97%	27.42%	26.26%	22.78%	26.19%	24.39%	28.39%	n/a
<b>Last 3 Months</b>	64,140	88,942	115,044	92,871	96,096	85,225	91,680	0
<b>Change from last year (Last 3 months)</b>	n/a	38.67%	29.35%	-19.27%	3.47%	-11.31%	7.57%	n/a
<b>Total</b>	256,830	324,400	438,134	407,704	366,970	349,440	322,948	193,253
<b>Average</b>	21,403	27,033	36,511	33,975	30,581	29,120	26,912	27,608

**Source:** Data gathered from <http://www.goodcarbadcar.net/2012/10/volkswagen-brand-sales-figures-usa-canada/> as of 12 Nov 2017.

**Table 4: Volkswagen Canadian Sales (2010-2017)**

<b>Month</b>	<b>Volkswagen Canadian Sales 2010</b>	<b>Volkswagen Canadian Sales 2011</b>	<b>Volkswagen Canadian Sales 2012</b>	<b>Volkswagen Canadian Sales 2013</b>	<b>Volkswagen Canadian Sales 2014</b>	<b>Volkswagen Canadian Sales 2015</b>	<b>Volkswagen Canadian Sales 2016</b>	<b>Volkswagen Canadian Sales 2017</b>
<b>January</b>	2,332	2,861	3,109	3,373	3,683	4,134	3,408	3,031
<b>February</b>	2,821	3,237	3,539	3,911	3,733	4,711	3,408	3,104
<b>March</b>	4,272	4,536	5,064	5,884	4,026	6,950	5,380	4,176
<b>April</b>	4,394	5,526	5,620	6,248	6,483	7,358	7,845	5,486
<b>May</b>	4,587	5,776	6,030	6,315	6,465	7,367	6,596	5,945
<b>June</b>	4,479	5,006	5,500	5,606	6,226	6,454	5,085	6,624
<b>July</b>	3,881	4,522	4,807	5,107	7,706	6,618	5,675	7,823
<b>August</b>	3,369	4,302	5,782	5,804	6,464	6,826	5,253	9,032
<b>September</b>	3,276	4,630	5,468	5,701	6,381	5,128	5,026	7,564
<b>October</b>	4,306	4,628	5,777	5,809	5,276	5,715	5,079	6,681
<b>November</b>	3,937	4,015	4,659	4,832	4,840	4,575	4,553	n/a
<b>December</b>	3,734	3,565	3,777	4,078	4,394	4,508	2,709	n/a
<b>Share of last 3 months</b>	26.39%	23.21%	24.04%	23.49%	22.09%	21.04%	20.56%	n/a
<b>Last 3 Months</b>	11,977	12,208	14,213	14,719	14,510	14,798	12,341	0
<b>Change from last year</b>	n/a	1.93%	16.42%	3.56%	-1.42%	1.98%	-16.60%	n/a
<b>Total</b>	45,388	52,604	59,132	62,668	65,677	70,344	60,017	37,398
<b>Average</b>	3,782	4,384	4,928	5,222	5,473	5,862	5,001	5,343

**Source:** Data gathered from <http://www.goodcarbadcar.net/2012/10/volkswagen-brand-sales-figures-usa-canada/> as of 12 Nov 2017.

A more detailed analysis on brand basis regarding VW sales in US is displayed in the below given table. Among VW brands, leaving aside the brand Eos, the highest fall in sales is observed in sales of VW CC—52.20 percent, Touareg follows with a drop of 17.80 percent, and e-Golf, and Passat follow with nine and eight percent shrinkage.

**Table 5: VW Detailed Sales Analysis**

United States Sales	Oct 2017	Oct 2016	Change from last year %	Sales Year to Date	Last Year's US Year to Date Sales	The Year on Year Growth Rate %
Volkswagen Jetta	9,217	8,068	14.20	100,213	97,816	2.50
Volkswagen Tiguan	5,111	3,322	53.90	31,975	31,975	0.00
Volkswagen Golf	4,697	5,137	-8.60	60,173	46,235	30.10
Volkswagen Passat	3,937	6,234	-36.80	54,567	59,320	<b>-8.00</b>
Volkswagen Atlas	3,664	0	0.00	15,895	0	0.00
Volkswagen Beetle	796	1,507	-47.20	13,265	12,668	4.70
Volkswagen Touareg	252	271	-7.00	2,860	3,479	<b>-17.80</b>
Volkswagen e-Golf *	203	407	-50.10	2,902	3,189	<b>-9.00</b>
Volkswagen CC	58	240	-75.80	1,240	2,595	<b>-52.20</b>
Volkswagen Eos	0	0	0.00	1	387	<b>-99.70</b>
<b>Total</b>	27,935	25,186		283,091	257,664	
<b>Average</b>	2,794	2,519	-15.74	28,309	25,766	-14.94

**Source:** Data gathered from <http://www.goodcarbadcar.net/2017/11/october-2017-ytd-u-s-vehicle-sales-rankings-top-302-best-selling-vehicles-in-america-every-vehicle-ranked/> as of 13 Nov 2017.

In the American market there are 36 automakers, where Ford ranks number one with sales around 2.5 million cars; Toyota is number two with almost 2.15 million cars, and Chevrolet ranks third by selling more than 2 million cars. The average share of Ford for 2015 and 2016 is 14.25 percent; 12.20 percent for Toyota and 12.10 percent for Chevrolet. The share of VW is two percent in 2015 and 1.80 percent in 2016, the year following the scandal. This share makes VW the 15th automaker in US. It might be the case that by wishing to increase its market share, VW cheated. However, such a poor explanation does not bring an answer to the question why VW cheated at home as well.

## Conclusion

Comments of UK VW owners and VW owners in Turkey almost overlap; 43.5 percent on the average believe that the scandal will not hurt VW in their countries. Only 10 percent of UK VW owners consider the case as an important ethical problem, whereas 20 percent of comments givers of Turkish forums perceive the case as a significant and brand harming one.

Since regulations differ, VW vehicle models which are affected changes from country to country, and from year to year. The mostly affected ones are in US. German market is excluded from research in the study, because VW is a huge employer in Germany, and the pride of Germans. This may impair objectiveness of German car owners. Even though forums are very cozy settings for opinion holders, to express their feelings, it may also be a constriction of the study.

As stated by Useem (2016) a "defeat device" cannot unconsciously be installed into hundreds of thousands of cars. One needs to be sneaky, and thus deliberate. In order to understand VW's behavior he advises to turn to a more select subset of examples. Indeed, there are numerous examples of misconduct; which led the sociologist Diane Vaughan to coin the phrase the normalization of deviance to describe a cultural drift in which circumstances classified as "not okay" are slowly reclassified as "okay."

The results of the study may help academia to make alterations in ethics related courses' contents, the number of courses related to social responsibility, and it also points to importance of ethics courses existence not only in business administration related classes, but also engineering sciences and disciplines.

Next step of this research will be comparative analyses of data which is already mined. This way the stance of consumers from different countries with non-resembling cultural attitudes will be pictured. Later on, literature will enlighten the findings of the research, and conclusions and recommendations will follow.

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