

## “Market Power in Oil Industry: The Wholesale and Retailing Case”

**Irene Fafaliou**

University of Piraeus, 80, Karaoli & Dimitriou Street, 185 34 Piraeus,  
Greece, (Corresponding author: [fafaliou@unipi.gr](mailto:fafaliou@unipi.gr))

**Michael L. Polemis**

Hellenic Competition Commission, 1<sup>Α</sup>, Kotsika Street & Patission  
Avenue, 104 34 Athens, Greece, ([mpolemis@epant.gr](mailto:mpolemis@epant.gr))

**ABSTRACT:** *This paper attempts to examine the power structure and competition levels that exist in the European wholesale and retail oil markets by placing special emphasis on the Greek case. Our analysis indicates that in the wholesale segment the established legislative regime for the transportation of the liquid fuels develops an important barrier to new competitors' entry to the market and facilitates the incumbent oil companies to exercise more power. In the retail market, although the non-price competition appeared to be relatively high it was found that some problems may also occur in the near future due to deficiencies in the existing legal framework. These are mainly associated with the high rents for license contracts for fuel stations in national roads, the fixed trading hours of liquid fuel service stations, and the prohibition of fuels' sales by hypermarkets.*

**JEL Classification:** D40; L11.

**Keywords:** oil wholesale and retailing firms; market power; effective competition; deregulation; legal framework; Greece.

### 1. INTRODUCTION

Market structure and market dynamics in oil industry across the globe are highly complicated and diversified in many respects. To mention but a few, these are the existing differences in oil reserves,

different levels of oil markets development, different political and regulatory environments, and different responses to growth challenges (World Energy Outlook, 2006). Hence, to avoid generalization pitfalls and gain better policy insights, the existing oil literature often examines this industry's issues by distinguishing two broad sub-markets' categories. These are namely the upstream and the downstream oil market segment. The upstream segment comprises all the activities that have to be done to extract oil from earth whereas the downstream segment relates to activities necessary to get oil from producers to final consumers. In particular, the oil downstream includes the transportation of oil to refineries, the refinement of crude oil into final products, the transportation of these products to storage terminals, and the trading of the products produced by the wholesalers and retailers (FTC, 2004).

For years, the international oil market has been greatly impacted by the operation of the Organization of the Petroleum Exporting Countries (OPEC), which consists of twelve countries, has a market share of around 40% of global oil production and a much higher portion (70%) of world crude oil reserves (FTC, 2004). OPEC exhibits almost all features that a typical cartel displays as it operates above and beyond the reach of competition law, thus controlling output and setting oil prices in practice (David, 1991; Danielsen & Kim, 1988; Richard, 1976).

These days it is well acknowledged that the few traditional oil production countries have a major impact on the dependent production and prices of oil products internationally due to their vast natural resources on crude oil and their mature trading markets (KEPE, 2007). Subsequently, the performance of national markets of countries such as Greece and other European Union countries (like Portugal, Spain, etc), which themselves have no indigenous production, is strongly influenced by crude oil imports (IOBE, 2009).

Despite the emergence of new country-players in the international terrain, such as Brazil, Russia, India and China, up to present global oil market is considered as functioning in a non transparent and a rather monopolistic way (FTC, 2004). In most

non-production countries, the oil market is still heavily regulated with a view to avoid problems which may arise particularly in case of an oil upheaval. In addition to the above, there is a wide diversification in the way the upstream and downstream oil segments are structured and performed (IEA, 2009). That is to say, upstream activities (for e.g. oil extraction) appear to be highly concentrated with no or little liberalization efforts involved. By contrast, in downstream segments (e.g. refining of oil products, transportation, and wholesale and retail trading) competition and deregulation policies currently appear to play a vital role. A further important aspect of the downstream segment worldwide refers to the high heterogeneity of the characteristics of wholesale and retail sub-markets (IEA, 2009). Hence, the authors of this paper hope that an in depth country-specific qualitative analysis focused at the oil downstream sub-markets in Greece, will help officials to assess better existing situation and gain further relevant policy insights.

Given the above, the main scope of this paper is to explore trends and spot core turning points in market power and competition in oil industry in Greece by focusing at the wholesale and retail segment. Our objective is twofold, first, to critically examine the environment in the two downstream sub-markets by using a PESTEL analysis (Porter, 1985) and, second, to assess current and future potential. This paper’s effort differs from other relevant work in that it is the first approach focused on a thorough examination of the two downstream sub-markets of the Greek oil industry.

The remainder of the paper is organized as follows. In Section 2, first, short background information on the Greek oil industry and its two sub-markets is provided. This is followed by a brief justification of the methodological tools employed. In Section 3, we analyse the legal and regulatory aspects of the two sub-markets. Section 4 examines the structure of the Greek oil market by focusing at some critical economic factors of the wholesale and retail oil segment. These are namely the level of concentration and the profit margins. Section 5 details the functional environment of the Greek

oil industry by examining business strategies and the suppliers' power. Section 6 reports findings whilst Section 7 concludes and offers some policy implications.

## 2. BACKGROUND INFORMATION AND METHODOLOGICAL APPROACH

### 2.1. The Greek Oil Industry and its Downstream and Upstream Sub-markets

In contrast to other European Union (EU) countries (like Germany, France, and the United Kingdom), the Greek downstream oil industry is divided into three distinct market segments, that is refining, wholesale and retail market (HCC, 2006).

In the refining segment, only two established companies operate (i.e. Hellenic Petroleum S.A. and Motor Oil Hellas S.A.). These refiners cover approximately 90% of the total Greek oil demand while the residual is imported by a few wholesalers, like BP Hellas S.A. and Shell Hellas S.A. (see Figure 1). Refiners are allowed to sell gasoline and other petroleum products (diesel and heating oil for e.g.) directly

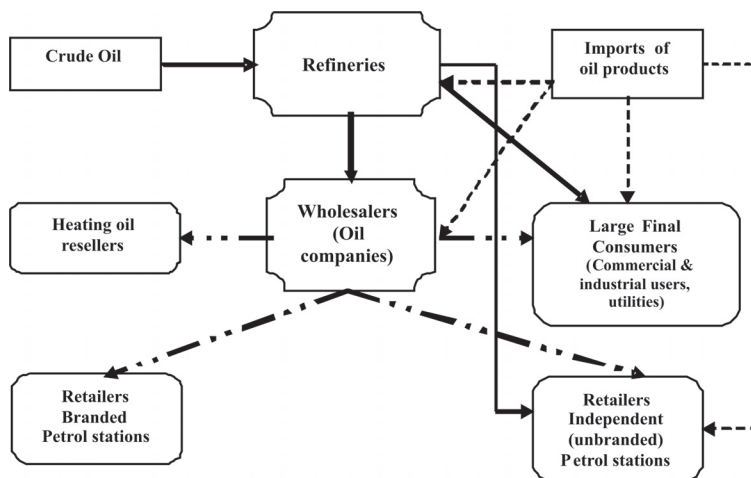


Figure 1: Structure of the Greek Oil Industry

Source: Authors' elaboration.

to ‘large final consumers’, such as trucking firms, industrial manufacturers and utilities or to independent retailers (unbranded petrol stations). The majority of the refiners’ petroleum products’ sales are however addressed to wholesalers (i.e. the oil companies).

The oil companies (for e.g. Shell Hellas, BP Hellas, EKO, AVINOIL, and Jetoil) which operate in the Greek wholesale segment, are legally separated from the refining operations and allowed to import and export oil products. In turn, they can sell these products to large final consumers and filling station operators (retailers). According to the provisions of the oil law (3054/2002), all companies (‘oil companies’ and ‘large final consumers’) are allowed to import oil products directly provided they can meet the 90-day stockholding obligation<sup>1</sup>.

As regards the situation in the Greek retailing segment, there are a relatively large number of petrol filling stations in relation to the total population of the country. It is estimated that approximately 7 filling stations correspond to 10,000 residents, while, for example, in Germany the ratio is only 2 stations per 10,000 inhabitants. In particular, across the Greek territory there are around 8,500 petrol filling station operators (nearly 600 are unbranded). This large number is mainly attributed to the peculiar spatial nature of the country which is dispersed into many island settlements (IEA, 2006). Greek petrol filling stations serve on average 1,500 persons and 800 vehicles, compared to 4,700 and 2,600 per station in Spain and approximately 2,600 and 1,600 in Italy, respectively (IEA, 2006). The majority of the stations, that is to say around 78%, are ‘dealer owned dealer operated’ (DODO) whilst 18% is ‘company owned dealer operated’ (CODO). It is noteworthy that only 5% of the total petrol filling stations in Greece are owned and run by the oil companies (COCO).

Given the above, it becomes apparent that the Greek oil companies can not easily control the retail segment of the market just by decreasing the pump prices of their network as a response to increased local competition. Further, it is noteworthy that most of the petrol stations are located close to the Attica region and account

for half of the total turnover of the relevant retail market. Beyond the filling station operators, there is a small number of traders, approximately 2,000 (the so-called 'resellers'), that sell heating oil directly to small final consumers (i.e. households).

## 2.2. PESTEL Analysis

In order to systematically sort out information in the two relevant sub-markets and decide if and in which parts of the market policy-makers need to intervene for remedies, we decided to employ a PESTEL analysis (also known as PEST) (see Figure 2). PESTEL is considered as a useful policy making tool for understanding better market structure, growth or decline, and business competitive position (Porter, 1985).

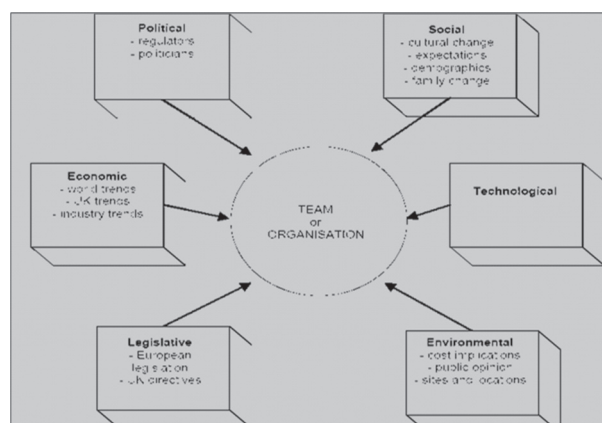


Figure 2: Main Parameters of a PESTEL Analysis

Source: Adapted from the website <http://www.improvementnetwork.gov.uk/imp/aio/1033478>

## 3. POLITICAL AND LEGISLATIVE FACTORS

### 3.1. Legal and Regulatory Framework in Wholesale and Retail Segments

Greek oil market was first deregulated in 1992 and since then competition is evolving in all three downstream segments. While,

in principle, the oil market is regulated by an antitrust law (Law 703/1977 as amended), a substantial part of it is regulated by industry-specific provisions (i.e. law 3054/2002). Those include licensing of firms which operate at each levels of the market (i.e. refiners, wholesalers and retailers), the way in which storage of emergency reserves is carried out, environmental related issues, the transfer of crude oil and oil products, and the bottling of the products. This law (3054/2002) has also introduced the potential for unbranded (independent) petrol station operators to skip wholesalers and purchase directly from refineries (Hellenic Petroleum S.A. and Motor Oil Hellas S.A.). In this way, the Greek downstream oil market became further liberalized (IEA, 2006).

During the regulated period, the government retained the exclusive right to set prices in all relevant markets (refining, wholesale and retail prices). Greek government had also the responsibility for the supply of crude oil and the provision of domestic market with petroleum products.

Under the law 2008/1992, the Greek oil downstream market was deregulated and petroleum products' prices were set free in all market segments. Each oil company is free, in turn, to set up prices and profit margins, while petrol station owners set retail prices and profit margins according to the existing local competition and their cost structure (fixed and variable cost). Although gasoline and oil prices have been set free in the market since 1992, the government still retains the right to set price ceiling if it considers that the market is not functioning effectively<sup>2</sup>.

#### **4. ECONOMIC FACTORS: WHOLESALE AND RETAIL SEGMENT'S CHARACTERISTICS**

##### **4.1. Level of Concentration in the Wholesale Market**

Deregulation has changed the level of market concentration in the wholesale and retail segment of the oil industry. As far as the wholesale market is concerned, it has to be mentioned that after

1992, the level of market concentration has been affected by the regulatory changes.

**Table 1**  
**Market Shares (%) in the Wholesale Segment, CR-4 and HHI in Greece**  
**(2000-2008)\***

<i>Company</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>
EKO	18.02	19.25	18.75	19.01	17.60	17.30	21.56	19.95	19.73
BP	21.09	19.80	18.76	18.55	18.50	17.10	18.59	16.32	15.22
SHELL	12.01	15.44	15.52	15.91	15.50	15.50	16.20	14.70	14.56
AIGAION OIL	1.52	2.88	3.48	3.94	5.00	6.00	n.a	5.94	8.85
AVINOIL	8.07	9.76	9.46	9.24	8.60	8.50	7.65	8.33	6.87
JETOIL	7.18	7.29	8.17	7.20	7.50	7.60	6.94	6.53	6.62
ELINOIL	4.42	4.65	5.05	5.16	4.70	5.00	5.07	5.19	5.77
ETEKA	2.01	2.18	2.39	2.64	3.10	3.40	3.01	2.81	4.70
REVOIL	2.45	3.00	3.13	3.38	3.80	4.20	4.09	4.14	4.16
SILK OIL	2.73	2.99	3.05	3.21	3.40	3.50	5.61	5.56	3.01
CYCLON	1.29	1.54	1.59	1.57	1.70	1.90	2.51	2.40	2.60
DRACOIL	2.38	2.48	2.53	2.71	2.60	2.40	2.95	2.68	2.30
OTHERS	16.83	8.74	8.12	7.48	8.00	7.60	5.82	5.45	5.61
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
CR-4	59.19	64.25	62.49	62.71	60.20	58.40	64.00	59.30	58.36
HHI	1,132	1,226	1,185	1,189	1,128	1,132	1,311	1,153	1,127

(\*) The ranking of the market shares concerns the year 2008;  
n.a = not available

*Source:* Bikos (2004) for the period 2000-2003 and Ministry for Development afterwards.

As Table 1 indicates, in terms of market power, EKO, which is by 100% a subsidiary of the Hellenic Petroleum S.A., followed by BP and SHELL (the only two multinational companies in Greece), are the three market leaders in the wholesale segment with a totally market share of 50%. The next larger player is AIGAION OIL (8.8%), followed by AVINOIL (6.9%), JETOIL (6.6%), and ELINOIL (5.7%), while the rest holds approximately 22.0% of the wholesale segment. Each company sells its products (gasoline, diesel and heating oil) through branded filling stations.



The market share claimed by the four major oil companies in 1995 (CR-4 index) was estimated at around 61.5%, while in 2008 the four leading companies acquired 58.3% of the total sales of gasoline. Also, the first eight oil companies had 81.9% of the market in 1995 (CR-8 index) while in 2008 they claimed 82.3% of the total gasoline sales. It is interesting to highlight that within the period 2000-2008, the concentration level of the relevant market remained stable. However, during the periods 1995-2008 the Hirschman-Herfindahl Index (HHI) performed a steady increase reaching up to 1,127 in 2008, compared to 1,008 in 1995. This evolution reveals that during the last five years the smaller firms are becoming less important. This fact further suggests that the wholesale market is quite oligopolistic and that firms within this market segment compete on various non-price strategies such as service offerings and advertising as well as brand building.

In the wholesale market, entry conditions appear not to be restrained by significant technical, legal or economic barriers to entry. Provided that a company has the required capacity and infrastructure (i.e. investment capital, contact with oil suppliers, distribution network, and stockholding capacity) it can enter the market and compete with the incumbents.

#### **4.2. Level of Concentration in the Retail Market**

In the retail segment, there is a steady increase in the number of petrol stations since the deregulation. This is mainly due to the relatively high profit margins of retailers in contrast to other European countries. Despite the existence of a high non-price competitive level in the retail segment, some problems may occur, which in majority are currently associated with the existing legal framework (HCC, 2007). In particular, as a consequence of the existing legislation, hypermarkets, which literally could sell large quantities of gasoline at low cost (due to economies of scale), are not active players in the petrol retailing market in Greece unlike their counterparts in other European countries (e.g. the United

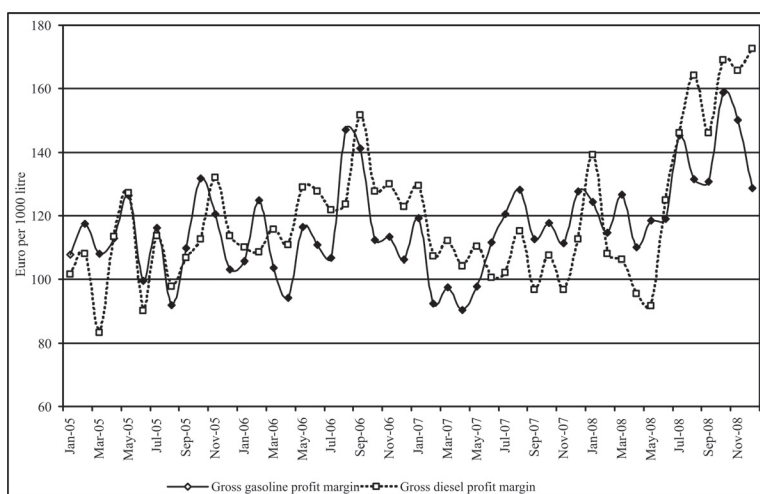
Kingdom and France)<sup>3</sup>. In such a way, competition in the Greek oil retailing segment is restricted. Hence, gasoline retail prices before taxes and duties are systematically above the EU average (IEA, 2006). Another potential interpretation of the price volatility is that, in majority, the petrol filling stations in Greece, probably due to their large number, have low sales compared to other countries in the EU (HCC, 2007).

### **4.3. Wholesale and Retail Profit Margins**

Wholesale gross profit margin is strongly dependent upon a number of market variables. First, the location of the petrol filling station and the transportation cost play a crucial role in the formulation of the profit margin. Second, the profit margin is strongly affected by the quantity sold per product (petrol, diesel oil, heating oil, etc), while the credit policy to the retailers constitutes also an important factor. Further, the financial cost and investments made by oil companies in petrol stations determine to a large extent the level of gross profit margin. On the other hand, the retail gross profit margin is strongly correlated with the operational cost of the petrol station (i.e. rents, wages, and business profit), the level of sales (volumes), the turnover of other service offerings (e.g. refreshments, snacks, and gifts), and, finally, the level of local competition. The relatively high retail profit margin in Greece compared to other EU countries (France, United Kingdom, Germany, etc.) suggests that non-price competition has been effective in reducing consumers' responsiveness to prices at the firm level (KEPE, 2007).

The total gross profit margin (wholesale and retail) for unleaded gasoline has shown a modest growth rate resulting in 0.4% per month, reaching the level of 128, 73 euro per 1,000 lt in December 2008. However, the total gross profit margin for diesel is not characterised as highly volatile. For example, during 2005-2008, it showed a small increase by 1.1% per month. It is worth mentioning that there is no available data for distinguishing in real terms the gross profit margin for each market segment (i.e. wholesale and

retail), but on crude estimates it is considered that the wholesale and retail profit margin is almost the same (See Figure 3).



**Figure 3: Gross Profit Margins in Gasoline and Diesel 2005-2008 (Monthly Average)**

Source: Adapted from IOBE, 2009.

## 5. FUNCTIONAL ENVIRONMENT

### 5.1. Business Strategies

Deregulation has changed the nature of competition in the wholesale market in many respects. Since its initiation, oil companies have tried to differentiate their marketing strategies by giving emphasis on the quality and the specific mixture of their products (gasoline, diesel oil, heating oil, etc), like additives<sup>4</sup>. Their efforts, especially those of the large players in the field, focused mainly on the establishment of a strong brand name and a high level of customer loyalty. Their strategies relied mostly on advertisement and high quality services to customers by offering gifts and other benefits (Bikos, 2004). To raise the level of sales, oil companies provided several benefits through their petrol stations network (i.e. car

washing, dishes, toys, plates and glasses, music CD's, loyalty cards, etc). Usually, gifts are linked to a minimum quantity of fuel that customer should purchase (Bikos, 2004). As a result, after the regulated period, competition in the oil industry and especially in the wholesale segment has not been restricted only to price strategies but it has been expanded to other areas as well (for e.g., advertisement, quality and brand names, appearance and good service of the petrol stations, benefits, and gifts).

## **5.2. Power of the Suppliers**

As noted earlier, the major players in the Greek refining segment are the Hellenic Petroleum S.A. and Motor Oil Hellas S.A. The Greek refining industry is dominated by the partially state-owned Hellenic Petroleum S.A. company, which holds approximately 75% of the refining market since merged with the private company PETROLA in 2003. Therefore, the two active refineries possess a significant market power. Given the structure of the Greek oil industry, it is evident that the bargaining power of suppliers is very high mostly due to the substantial share of the cost of raw materials (oil products) to the total cost of oil companies. The bargaining power of suppliers in Greek oil market is also increased by the limited domestic extraction of crude oil and the absence of imported final products (e.g. petrol, light and heavy fuel oil). In 2005, the estimated reserves of Greece in Prinos and Kavala sites stood at 22 million barrels of oil equivalent (Mboe) and the daily production in 2004 reached up to 2,761 barrels, thus covering a minor proportion of Greek oil supplies (IEA, 2006).

## **6. FINDINGS AND DISCUSSION**

### **6.1. Main findings: wholesale segment**

With regard to the wholesalers, we identified that the companies which operate in this market segment need to have significant infrastructure and the ability to trade large quantities of products,

as a way to counterbalance the associated risk. Market concentration at this stage is moderately high, as the four larger wholesalers in the country have a total market share of about 60%. Further, despite the duopoly at the upstream market (refining), at the wholesale level, there are opportunities for effective competition given that wholesalers are free to choose the refinery from which they buy products. This option constitutes a factor that may lead to further competition (HCC, 2006).

Nevertheless, as it has been exemplified above there are strong indications that price competition in the wholesale segment is low. Grounded on the current legislation, the greatest part of the oil transportation across the country is conducted by trucks of ‘public use’ (i.e. oil trucks which belong to persons who have acquired a specific license from the state). Only a small percentage of the total amount of oil that is transferred by trucks is carried out by privately owned truck operators. More importantly, the number of oil trucks in Greece is fixed by regulation while the tariffs that trucks of public use charge their customers are set by the Ministry of Transportation. Therefore, this regulatory framework may cause a distorting effect on competition, since the price charged for the transportation of oil products is not set free in the market. This is, for example, most evident in the case of the independent retailers, who do not have the opportunity to have their own tanker trucks and, therefore, need to use the trucks of ‘public use’ and comply with the regulated prices.

On the other hand, restrictions to the ownership of tanker trucks by oil companies and retailers may constitute a serious barrier to entry for new retailing and oil transport companies. The government should consider taking action fast to allow unrestricted ownership of tanker trucks to all licensed companies (IEA, 2006). In other words, trucking deregulation promoted by the government is needed to allow smaller firms a significant opportunity to compete. To sum up, the existing legal framework regarding the transportation of oil products with private use tanker trucks creates significant

impediments to competition both in the wholesale and the retail segment of the oil industry (HCC, 2007).

## **6.2. Main Findings: Retail Segment**

At the retailing level, one of the major problems which hinders the level of competition in the market refers to the 'vertical contracts' signed between wholesalers and retailers. In particular, the branded petrol stations anticipate limitations on the amount of oil products they can purchase from wholesalers and, subsequently, sell to the final consumers (HCC, 2006). Further, most of contracts with wholesalers include clauses which provide that the retailers have to compensate the wholesalers for each extra cubic meter of oil they use in case they exceed the agreed maximum of consumption (HCC, 2006). In addition, there is no transparency in the way the prices at which the retailers buy the products are formulated (wholesale prices).

Concerning the independent retailers, most of the problems observed in this market refer to difficulties that such retailers face in their attempts to purchase oil products from refineries. These problems mainly stem from the legislation related to the transportation of oil by oil trucks. Another regulatory measure which sets restrictions on competition in this market is the fixed trading hours of liquid fuel service stations. The relevant regulatory regime imposes quotas on the number of stations that may operate beyond the regulated opening hours, as well as on Sundays. Such limitation should be abolished following examples in other EU countries, since it may develop serious competition distortions.

The fact that only a certain percentage of the oil stations (not more than 20%) may operate beyond the regulated opening hours, may lead to increased prices as the number of potential competitors (retailers) is limited. Even worse, such increased prices may be retained during the regular opening hours also, having thus a broader effect on prices at which the products are sold. It is vital to consider that in most of the EU member states, petrol stations

are able to readjust their working hours (Bikos, 2004). Further, the existence of a small number of petrol stations beyond the trading hours (nights or on Sundays) may give rise to additional mal practices (e.g. abuse of dominant position in a small geographical area).

## **7. CONCLUDED REMARKS AND POLICY IMPLICATIONS**

This paper has critically examined the market power and competition trends as well as the core turning points in the Greek oil industry by placing special focus at the wholesale and retail sub-markets. Our analysis indicates that although the Greek oil industry has been deregulated since 1992, there are certain legal and structural distortions in the wholesale and retail segments that still impede the level of effective competition.

The small volume of imported oil products (i.e. automotive oil products, heating oil, LPG, etc.), regulated by legal restrictions of the existing stockholding obligation system, has been further deteriorated by the absence of certified storage facilities in the Greek territory. Hence, imports of oil products in Greece still remain limited, thus hindering effective competition.

In the wholesale segment, entry is not restricted by significant technical, legal or economic barriers. If a company has the required scale and infrastructure, it can enter the market and compete with the established firms (multinational and vertical integrated companies). However, the existence of specific legal restrictions in the ownership of tanker trucks constitutes a serious threat to potential competition.

In the retail segment non-price competition is relatively high. Some problems may however occur as a corollary of the existing legislation. Under the latter regime, hypermarkets are not allowed to play an active part in the Greek petrol retailing. In this way, competition is prohibited and gasoline retail prices before taxes and duties are systematically above the EU average. At the same time, the fact that the retail market has high profit margins suggests that

the upstream operators (i.e. refineries and oil companies) have not been able to obtain rents from the downstream firms (i.e. petrol stations).

Beyond the potential of exercising market power by the refineries, distortions in the oil industry is likely to be the outcome of other market factors. A proper policy to protect consumers' interests might be the application of both regulatory and business behavioural measures. The strengthening of the wholesalers' role and the removal of certain restrictions that regulate the use of private and public tanker trucks could provide a suitable mechanism to enhance the level of petroleum imports in Greece. In this way, oil prices should not be determined by the refineries. Oil imports instead may affect the price of existing petroleum products. An alternative appropriate policy to prevent existing market players from predatory practices (i.e. price fixing and abuse of dominant position) is linked with a thorough investigation of mergers by the Hellenic Competition Commission. Mergers in the oil sector that increase market concentration without creating economies of scale can have counter-competitive effects and increase incumbents market power.

The industry structure in other EU countries consisted of vertically integrated companies and significant market players (hypermarkets) in the retail chain of the industry could constitute a useful paradigm to the Greek policy makers and government officials.

### **Notes**

1. According to this oil law, since 2003, any market player (refiners, oil companies, large industries) who wishes to import crude oil or final oil products (gasoline, diesel, heavy fuel oil, LPG, etc.) must hold reserves within the Greek territory equivalent to 90 days of the last year's net imported quantity.
2. The Ministry for Development that monitors the oil market in Greece has first applied the above measures in specific country's regions (Thesprotia, Arta, Ioannina, Cyclades, etc.) in 2003. However, the measure did not entail the expected results (RAE, 2004).



3. It is worth noticing that in the United Kingdom, over the last years, supermarkets have grown steadily and significantly whereas their number has grown at the expense of the traditional road site filling-stations (OFT, 1998; 2000).
4. In order to distinguish the quality of their products and focus on the brand name, incumbents like BP, SHELL and EKO sell their products by giving them different names such as “Ultimate”, “V-power” and “Kinitron”, respectively.

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