

DOKUZ EYLUL UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF INTERNATIONAL BUSINESS AND TRADE
FOREING TRADE PROGRAM
MASTER’S THESIS

INVESTIGATION OF THE VALUE ADDED IN THE
MARBLE SECTOR: EVIDENCE FROM
AFYONKARAHISAR MARBLE SECTOR

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İZMİR - 2023

DECLARATION

I hereby declare that this master thesis titled as “Investigation of the Value Added in the Marble Sector: Evidence from Afyonkarahisar Marble Sector” has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

.../.../2023

Mehmet DUMAN

ABSTRACT

Master's Thesis

**Investigation of the Value Added in the Marble Sector: Evidence from
Afyonkarahisar Marble Sector**

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Department of International Business and Trade

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Exports of high-value-added products based on technology are the most important factors to increase countries' welfare levels. The products with high value-added are also a significant force in world trade and bring countries significant competitiveness in international trade.

This study consists of four main parts. In this respect, the first reveals details of the concept of value-added and the importance of value-added in the marble sector. The second part of the study provides the historical development and economic structure of the marble industry in the world, Türkiye and Afyonkarahisar. The third part of the study provides data and methodology. In the fourth part of the thesis, it is attempts to investigate the production of value-added products and problems companies faced in this field in marble sector in Afyonkarahisar. In addition, this section reveals the effects of the Covid-19 pandemic process on the marble industry.

The survey was conducted on 60 companies that are both manufacturer and in the marble sector in Afyonkarahisar. The study reveals that value-added production problems and sector problems in the marble sector do not differ according to the size of the companies and their export types. On the other hand, study displays that the companies that participate in international fairs as an exhibitor has a significant impact on their exports values. In addition, the thesis also documents that the companies in the marble sector have same

problems in marketing and the companies that carry out successful marketing activities are less affected by the pandemic.

Keywords: Value-Added, Export, Turkey, Afyonkarahisar, Covid-19 Pandemic Process



ÖZET
Yüksek Lisans Tezi
Mermer Sektöründe Katma Değerin Araştırılması: Afyonkarahisar
Mermer Sektörü Örneği
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Ülkelerin refah düzeylerinin artmasında teknolojiye dayalı katma değeri yüksek ürünlerin ihracatı en önemli unsur olarak öne çıkmaktadır. Katma değeri yüksek ürünler, dünya ticaretinde de önemli bir güçtür ve ülkelere uluslararası ticarete önemli bir rekabet gücü sağlamaktadır.

Bu çalışma, dört temel bölümden oluşmaktadır. Bu doğrultuda ilk olarak katma değer kavramı ve mermer sektöründe katma değerın önemi incelenmiştir. Çalışmanın ikinci bölümünde ise dünyada, Türkiye’de ve Afyonkarahisar’da mermer sektörünün tarihsel gelişimi ve ekonomik yapısı detaylı ele alınmıştır. Tezin dördüncü bölümünde ise yapılan anket çalışması ile Afyonkarahisar’da mermer sektöründe katma değerli üretim ve buna ilişkin sorunlar üzerinde durulmuştur. Aynı zamanda sektör sorunlarına yönelik analizler yer almaktadır. Buna ek olarak, Covid-19 pandemi sürecinin mermer sektörüne etkileri incelenmiştir.

Anket Afyonkarahisar ili mermer sektöründe üretim ve aynı zamanda ihracat yapan 60 firma üzerinde uygulanmıştır. Yapılan çalışma genel anlamda ortaya koyuyor ki mermer sektöründe katma değerli üretim sorunları ve sektör sorunlarının firmaların büyüklüğüne ve ihracat yapısına göre değişiklik göstermemektedir. Diğer taraftan firmaların uluslararası fuarlara katılımının ihracat üzerinden önemli bir etkisinin olduğunu ortaya koyuyor. Buna ek olarak ise, mermer sektöründeki firmaların pazarlamada benzer sorunlar

yaşadığını ve başarılı pazarlama faaliyeti sürdüren firmaların ise pandemiden daha az etkilendiği tespit edilmiştir.

Anahtar Kelimeler: Katma Değer, İhracat, Mermer Sektörü, Türkiye, Afyonkarahisar, Covid-19 Pandemi Süreci



**INVESTIGATION OF THE VALUE ADDED IN THE MARBLE SECTOR:
EVIDENCE FROM AFYONKARAHISAR MARBLE SECTOR**

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ABBREVIATIONS

AD	Anno Domini
BC	Before Christ
HS	Harmonized System
CNC	Computer Numerical Control
JIT	Just in Time
OECD	Organization for Economic Co-operation and Development
UAE	United Arab Emirates
USA	United States of America

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APPENDIX 1: Questionnaire



INTRODUCTION

Marble is a precious decorative material since the antique ages and a considerable indicator of wealth (Kandil and Selim, 2011). A popular belief is that the marble industry is one of the earliest industries in the world (Kara, 2015). It is a matter of fact that, it was a sign of wealth and prosperity due to its beautiful appearance and durability for man throughout history. Hence, it became widespread use in buildings over years (Kacı, 2017).

Marble is a commodity that is traded in the world in many different shapes and sizes and its trade volume is improving day by day. The value of marble depends on its natural features such as color, quality, type, and technological processing (giving it a special shape, polish, size, and thickness) (El-Haggag et al., 2015). However, the value and price of marble highly rely on the level of technology used (Kandil and Selim, 2011). Marble has its special color and pattern as a natural material. To extract the natural stone from quarries and sell it as a slab and dimensional forms has been common in societies for many years. However, developments in information technologies have made more precise cutting possible in the field of marble extraction and processing, and provide different cuts with the same machines. In addition to technological advances, developments in construction sector have made marble industry possible to growth rapidly. Owing to this development in the construction sector, marble has started to become an important commercial product in the world (Research and Markets, 2021).

Afyonkarahisar has good quality marble reserve that endowed by nature. This rich deposit provides strong economic power to Afyonkarahisar. The contribution of marble industry to Afyonkarahisar's economy has improved remarkably over the past two decades. Afyonkarahisar's marble exports account for more than 56% of the total exports of the city. These marble exports consist of raw material, semi-processed (slabs and dimensioned), and processed marbles (Çelik, M., et al). Low value-added marble export comprises a large part of these exports in the city. The lack of value-added production causes a significant loss of income in Afyonkarahisar's economy. For this reason, this thesis will focus on obstacles in increasing value-added product in marble industry in Afyonkarahisar and suggest solution on this field.

It is possible to reveal two different academic contributions of this thesis to the existing literature. Firstly, researchers have not previously analyzed the obstacles in increasing value-added in the marble sector. The main focus of the study is to investigate which problems exist in terms of value-added production in the sector. Türkiye, which has one of the most important natural stone reserves, ranks as the first in marble export in the world. Although Türkiye has an important natural stone resource, it lags significantly behind its competitors in terms of value-added exports. For this reason, this study will be a considerable source for determining the obstacles in increasing the value-added in the sector for researchers. Secondly, there is no previous study on how the pandemic affected the marble sector, which is one of the most important export items of Türkiye and Afyonkarahisar. In this sense, this thesis will make a great contribution to the existing literature in this field. The results of the research conducted on both exporting and manufacturing companies will be an important resource for individuals and institutions studying in this field.

The thesis which covers four chapters is organized as follows; the first part of the study describes the overview of concepts of value-added and innovation. This part also explains value-added and innovation in the marble sector as well. Chapter II comprehensively depicts economic indicators of the marble sector in the world, Türkiye and Afyonkarahisar. In addition, this part reports the general view of value-added in the sector. Chapter III reveals data and methodology. Fourth part of the thesis focus on investigating obstacles for companies inclining to produce value-added products and problems in this field that companies experienced in marble sector in Afyonkarahisar. Moreover, last part of the study provides the results of how the pandemic affected the marble industry.

CHAPTER ONE

CONCEPT OF VALUE-ADDED AND INNOVATION

IN MARBLE SECTOR

1.1. CONCEPT OF VALUE-ADDED AND INNOVATION

1.1.1. Concept of Value-Added

Creating high value-added in the economy means producing products and services with higher contribution margin. In other words, it means that the products and services are priced relatively higher than their variable costs. Value-added is not the difference between how much you buy and how much you sell. It is to ensure that high value-added products/services are paid more than the market average or to attract more customers at the same time (Yülek, 2015). Industrial design activities create high value-added in the products and created value-added is a considerable tool for the current account deficit and development (Campaign for Architecture and the Built Environment, 2001). Added value, branding, technology and R&D are interrelated concepts. However, it is not clear to what extent companies understand the relationships between these concepts. Since value-added is a long-term process, companies should be aware that the production of value-added products requires a long-term investment, not a short-term investment. (Born et al., 2006).

There are two ways to increase the value-added in products: decreasing costs with technological development and branding. Value-added products help to reach new markets and provide a competitive advantage for firms in international market (Persson, 2015). It is an obvious fact that the exports of technology based products are seen as the most powerful means of increasing the welfare levels of countries. Technology-based products can be described as light in weight but heavy in value in the daily language (high value-added products) and, are considered an indicator of the competitiveness of countries (Güneş et al., 2015).

Regardless of their size, companies aim to meet the demands for profitability, quality, technology and continuous improvement. The reason is quite simple; making money. Rapid developments in production technology show the effect in every stage

of the enterprises. Another factor that is as important as speed is the changes in production technology. Competition between buyer and seller at every stage of the value chain makes companies turn into new searches and strategies. In order to gain strategic advantage and maintain this superiority, it is considerable and necessary that the resources are well evaluated and used in line with the objectives. In general, business inputs are raw materials, labor, and capital. However, responding to the changing market structure on time has included a significant factor among inputs, which is time. The concept of time is included in the common denominator of understanding such as just-in-time production (JIT), continuous improvement, total quality management, and constraints theory (Akyoz, 2015).

Operations performed in order to fulfill the business functions take the name of the activity in the operating environment. Activities are divided into two: activities that create value-added and do not create value-added. In a broader sense, value-added is an activity that increases the value of the product or service offered to the customers. Conversely, activities that do not create value-added raise the time spent on production but do not enhance the value of the product and/or service. Non-value activities are unnecessary for the customer. These activities, which cause an increase in costs, are waste according to the JIT philosophy and should be reduced or eliminated without affecting the quality and market value of the product/service.

While examining the marketing of the product, it is also necessary to examine the issues such as convenience, reliability, customer attraction and satisfaction. The value occurs when the function achieves the expected quality and time at the minimum possible cost. The value is not directly related to cost. To reveal the value of a product, it must be compared with a product that can achieve the same performance. Value can be seen as a concept that can be measured by the desire of a person to receive or give anything. Here, it can be concluded that the saving on time in the production process has a positive effect on cost and implicitly customer satisfaction (Kootanaee et al., 2013). According to value logic, activities that do not generate value-added will enhance the cost of working capital as it will consume unnecessary resources. With the production process efficiency, activities that do not create value-added are reduced or eliminated. Delivering quality and low-cost products on time to customers must be the fundamental philosophy of companies.

Measurement of Production Process Effectiveness and Value-Added Analysis which are ignored by enterprises should be placed to the basic dynamics of this philosophy (Nguyen and Kira, 2001).

Product/service cost will provide a significant competitive advantage for the enterprise if it reflects the relationship between the use of resources and activities to the product or service produced in regard to value basis. As a result, measures such as Measurement of Production Process Efficiency Value-Added Analysis will enable enterprises to gain a competitive advantage in the market and increase the performance of their company.

1.1.2. Concept of Innovation

As a word, innovation is derived from the Latin noun “Innovates”. It means the introduction of new methods in the social, cultural and administrative environment. Although the word appeared in the early fifteenth century, Joseph Schumpeter revealed the modern definition and explanation of innovation (Shah et al., 2014). He added a new dimension to innovation concept. He described innovation as an industrial mutation and explained it in his creative destruction theory. This theory highlights the point that products and processes replace the old ones. These new product and processes affect the entire economic system and give rise to a structural problem by triggering the collapse of the old system. (McCraw, 2010). Innovation is an important competitive strategy implemented by businesses in order to enter new markets, increase market share and maintain its presence in the market. Today, it is no longer sufficient to use price reductions as a means of competition. It is necessary to improve service and product quality, accelerate the product life cycle, design a good product, and respond to the needs and requests of consumers more quickly and in detail. In order to achieve these goals, it is necessary to develop new products and services, develop new marketing techniques and create new business models. Innovation provides competitive advantages to companies (Gümüş et al., 2014). It is the synthesis of market needs and producing a product to meet that needs (Doepfer, 2012). In addition, innovation is the mechanism by which organizations produce the new products, processes and systems required to adapt to

changing markets, technologies and modes of competition (Lawson and Samson, 2001). In this definition, which has become a general statement, the concept of innovation is associated with products, processes, new marketing methods, or organizational methods. Hence, unlike common belief, innovation can not related only to technology, technology-based products, or processes. Innovation is the changes, discrepancies, and novelty in products, services, and business methods to create economic and social value (Elçi, 2006).

The prerequisite for innovation is the success of companies in producing, using and sharing knowledge. Innovation firstly emerges and develops as a result of creativity, then reaches the consumer as a commercial product/service. While innovation causes existing investments to become obsolete before they reach the end of their life, it also reduces the marginal efficiency of investments. For this reason, innovation is an inevitable process to achieve competitive advantage in the market. The acceleration of growth based on finding something new, and increasing the competitiveness by increasing profits thanks to these innovations are indicators of the success of innovation.

Innovation is a term that includes three important concepts; creativity, value creation and commercialization. When the creative product meets the demand, it creates value. The size of the created value also affects the GNP and plays an active role in the economic growth of the countries. Finding and implementing creative ideas that is suitable for the demand structure increases the value of the company, and it make possible the spread of the innovation culture within the organization. The most important feature that affects the success of innovation at the institutional level is that it is in an environment where qualified human capital can exist with its ideas and qualities, supported by an original, flexible, innovative enterprise. What companies need to do for innovation is as follows:

- a. Just as good communication with the consumer is important, it is also important to be in good communication with the scientific world and academics.
- b. It is necessary to carry out professional R & D activities

- c. It is important to carry out basic research and to be in effective communication with researchers.
- d. It is necessary to be able to finance costly R&D activities in the long- run.
- e. It is important for the firm to protect its patent rights, to take shelter in the means of intellectual and industrial protection, and to have bargaining power with its competitors.
- f. It is noteworthy to move faster than the opponents are.
- g. It is important to be able to take high risks and to build a structure that is resistant to these risks.
- h. Ability to manage R&D, production, marketing and entrepreneurship activities simultaneously and integrating with each other is required.
- i. It is necessary to foresee and identify potential markets and to carry out training and information activities for these markets (Freeman et al., 1997)

1.2. VALUE-ADDED AND INNOVATION IN MARBLE SECTOR

1.2.1. History of Marble

Marble is a precious ornamental stone that people have been using since the earliest times in history. Marble quarrying and processing industry is one of the oldest industries in the world. (Kandil and Selim, 2011). Since the early ages, people have used natural stone in their buildings, houses, and other places where they live. With the rise in living standards, people turned to using marble because of its beautiful appearance and durability (Garcia et al., 2009). Marble has been a symbol of wealth and prosperity among people over years. It is one of the oldest building materials as well as one of the most used products in structures for more than the last two centuries. In brief, marble has used in graves, palaces, castles, walls, outdoor theaters, jewelry, ornaments, pyramids, temples, and many other antique places. Moreover, marble came to mean “Dedication to Gods” in temples, “Immortality” in pyramids, which is one of the seven wonders of the world, “Love” in Taj Mahal,

“Splendor and Glory” in Selimiye Mosque, and “Fear” in Great Wall of China (Karaca and Öztank, 2003).

Today, marble is the one of the most tradable goods in the construction sector in the world. Marble was the one of items that people use most in making daily goods or weapons during the primitive age and reached today without any transformation. Over time, people have started to use marble in different areas over and it has spread all over the world thanks to its aesthetic structure. Many civilizations benefited from Anatolia’s richness in terms of natural stone reserves. Some civilizations such as Hittites, Phrygians, and Ions in Anatolia used marble in their palaces, temples, and sculptures. However, marble was most common in Hellenistic and Roman Empire Periods. In terms of artistic usage, marble started to appear in Yasemek (Gaziantep) in 1600 BC. Artistic usage of marble showed great improvement after the establishment of marble schools in Ephesus in the Archaic Period (1550-470 BC), in Bergama in the Hellenistic Period (300-30 BC), and in Aphrodisias in Roman Empire Period (30 BC-395 AD). During the period of the Seljuk and Ottoman Empire, marble was often used in mosques, inns, palaces, and baths (Erkek and Özdemir, 2011).

1.2.2. Use Areas of Marble

Marble is the one of the most traded goods in the world since ancient ages. Designers and architects prefer to use marble in their works due to its beautiful appearance and durability. People widely used marble in artistic areas in ancient times while they now consume for decoration, ornament making, sculpture, and tombstone production in the construction sector due to its durability (Zhang, 2022). Furthermore, marble-related products are favorite materials in buildings such as interior and exterior facades, staircases, kitchens, fireplaces, and bathrooms as well as carrying columns. Thus, marble consumption has witnessed a boom and, marble has been one of the significant elements of trade between countries in recent years.

1.2.3. Marble Reserves

The abundance of natural stone endowed by nature gives some countries advantageous position in natural stone reserve. Some countries in the Alpine-Himalayan belt have more reserves of carbonate rocks. The carbonate rocks reserves are more concentrated in the countries such as Portugal, Spain, Italy, Greece, Türkiye, Iran and Pakistan. It is noteworthy that exploitable igneous rock (hard stone) reserves seems to be more reserve in Spain, Norway, Finland, Ukraine, Russia, Pakistan, India, China, Brazil and South Africa (Batı Akdeniz Kalkınma Ajansı, 2011). China is the leading country in terms of production in the sector. Seven countries including China, India, Italy, Türkiye, Egypt, Spain and Brazil have more than two third of the world's natural stone production.

Figure 1: Alpine-Himalayan Belt



Source: Xuecheng, 2023

1.2.4. Factors Affecting Commercial Properties and Quality of Marble

Demand of marble has increased day by day in the world due to its extensive usage (Tosun, 2007). While some countries earn high amount of money from this trade, some generate a low income due to insufficient or lack of marketing strategy, innovation, technology, branding, production process, subvention and promotion. As such in other natural sources, there is a huge value-added margin difference between natural sources and processed products in marble industry. While some countries create a value-added from their natural stone sources, some create a low value-added. This case results in value income difference between countries, which have natural stone sources, in the world.

Marble's price and value differs according to its characteristic features and its technological processing. While characteristic features include type, color and quality of marble, technological processing covers shape, design, polish and thickness. Marble has many different colors and patterns. According to the culture and fashion sense of the countries, the demand for marble can be differentiated all over the world. In this sense, color varieties and technological use of marble are one of the most significant tools to enter the world's marble market. Hence, color and processing varieties in different shapes and quality in marble provide competitive advantages to countries (Kandil and Selim, 2011).

1.2.4.1. Importance of Design in Marble

Design is the creation of a plan, an object, or a construction process (architectural drawings, engineering drawings). Namely, design is a process in which critiques of pre-existing things are presented and new solutions are proposed, often by trial and error. This process is shaped according to the basic principles of design, its functional, aesthetic and economic values (Taura and Naga, 2012). Industrial design is the professional practice of developing manufactured products, devices and services with particular attention to form and function. Industrial designers often research how consumers can use a particular product and then work with other professionals such as engineers and marketers to create concepts and designs for

inventions. Marble is a unique design material and therefore widely used in both interior and exterior design. It is very attractive, shiny, esthetics and it has different natural patterns (Cortés, 2021). Depending on the basic principles of the design, place and environmental conditions are very determinant to use appropriate marble in an architectural project (Lemon, 1995).

Marble, which has been used in many areas from the past to the present, is used as an artistic material with different designs today and adds aesthetic value to the places. First and above all, technological developments in marble processing have reached an important point and this technology leads to more efficient use of marble and the emergence of more artistic materials. In this context, the most important design machines used in the marble industry are Waterjet and CNC. These marble processing machines come to the fore as the most important material in increasing the value-added in marble.

Recent trends in architecture led to a growth in the use of granite and marble facades in high-rise structures. The increased use of stone cladding is due not only to an interest in the aesthetic qualities of the materials but also a result of the new technology (Grelk et al., 2008). In today's modern architecture, marble is widely used as a covering material. The use of marble in coating is very common, as it is resistant to impacts and protects its structure for years. Marble must preserve its design principles while carrying out this task; the marble must be functional (like being hygienic, having the proper strength on the floor and on the facade), it should add aesthetics to the place where it is used and it should be economical during the life of the structure (Karaca and Öztank, 2003).

Marble is widely used in more classic design with old-style homes or in public areas. However, designers have begun to discover this stylish and durable material once more in recent years. In addition, it is used not only bathrooms and kitchens, but also in different parts of houses and offices. Adapted to modern designs, the marble not only revives the beautiful memories of the past but also adds a stylish touch to places (Salman, 2022). Marble, which is frequently used in ancient Greek and Roman works, remains an elegant design element so it can be used in all parts of the houses. (Homify Online Gmbh & Co. Kg, 2022) It seems that usage of

marble in the house and office will increase in the following years. That is to say, design in marble is one of the most important ways to obtain a high income for countries. It is a well known fact that design is the only way to turn marble into a value-added product. These are the machines that will increase the value-added and add aesthetics to marble: Waterjet, 3D CNC, and 5D CNC (Özkara et al., 2014).

1.2.4.2. Importance of Production Process in Marble

Today, modern methods have taken the place of classical methods in marble production. Marble processing abilities are constantly growing and the number of marble plants functioning with modern technologies is increasing (Republic of Türkiye Ministry of Energy and Natural Sources, 2018). Countries that have high natural stone reserves can sell their reserves both in a finished and block form (CBI, 2023). On the other hand, countries that do not have natural stone reserves or adequate reserves have to import these natural resources from other countries. One of the most important cases here is the processing costs of natural stones. Countries, such as China and India, import natural stone resources as blocks from other countries due to their inadequate sources. They process these blocks and convert them to finished products in their own country. On the other hand, countries such as the United States and Australia, incline to importing natural stones from other countries in processed form due to high labor costs and lack of natural stone reserve (International Trade Centre, 2021).

Market volume of the natural stone industry in the world is approximately 20 billion dollars, and 70% of the production is made by seven countries (Batı Akdeniz Kalkınma Ajansı, 2011). However, for countries, rich in natural stone reserves, to use this resource effectively or not is very important. Selling natural stone sources as a processed product instead of raw materials make a great contribution to countries' economy. Consequently, it is very important not only to extract and sell natural resources but also to have the technology to process them.

CHAPTER TWO

MARBLE SECTOR IN THE WORLD, TÜRKİYE AND AFYONKARAHİSAR

2.1. GENERAL VIEW OF MARBLE SECTOR IN THE WORLD

2.1.1. Marble Production in the World

When considering marble production in the world, no reliable data about quantity of the world marble reserves are available. Yet, studies shows that marble reserves located in Alpine Belt, which covers the Aegean Islands, Anatolian Peninsula, Iran, Pakistan, India (Himalaya elevation) and China. These extensive areas almost have the same structure. Countries located in Alpine Belt such as Portugal, Spain, Italy, Greece, Türkiye, Iran, and Pakistan, have much more carbonated rock (marble, limestone, travertine, and onyx) reserves. Otherwise, operable magnetic rocks (hard rocks) are located in Spain, Norway, Finland, Ukraine, Russia, Pakistan, India, China, Brazil, and South Africa (Eraslan et al., 2008).

China, India, Italy, Türkiye, Brazil, Spain, and Iran account for 71% of marble production in the world (Batı Akdeniz Kalkınma Ajansı, 2011). The rapid development in the construction sector and the technological development in marble processing technologies led to an increase in marble production. Countries such as Italy and Spain have a corner on the marble market due to their marble processing technologies in the world. However, countries such as Türkiye, India, China, and Brazil have made very significant progress in the marble sector in recent years. It goes without saying that these countries start to dominate the international markets as well (Ertaş et al., 2011).

2.1.2. Marble Trade in the World

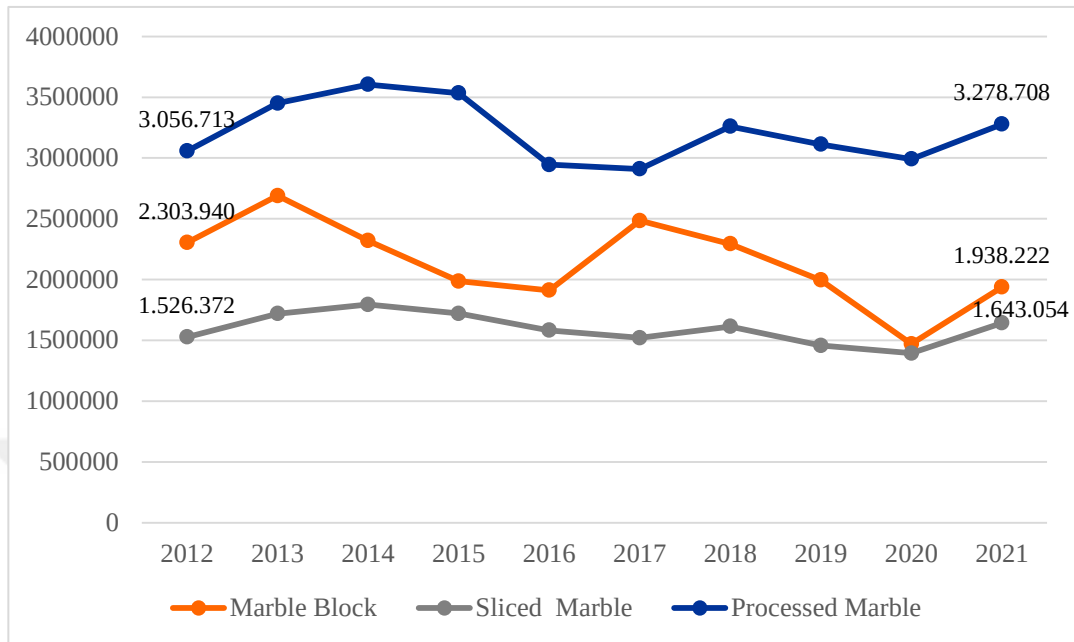
Marble is not only used for decorative purposes but also functionally used in various areas like stairs, external walls in the construction sector, and pavements

(Kandil and Selim, 2011). Due to its fascinating appearance and extensive usage, the demand for the marble has been continuously rising all around the world (Kacı, 2017).

Looking at the marble trade in the world, marble is traded internationally in three categories: (1)marble blocks, (2) marble slabs, and (3) dimensional marble. Firstly, marble block is the raw material resource for marble slab and dimensional marble. Marble block is exported as merely cut. The marble exported in this way is listed under HS codes 2515.11 and 2515.12 of the World Customs Organization. Secondly, sliced or slab marble is produced by cutting marble blocks smoothly with various surface treatments, such as plaster cutting, occasional polishing, decorative brushing, pickling. Sliced or slab marble is listed under HS codes 6802.21. Thirdly, dimensional marble consists of quarried blocks or large pieces of marble. Dimensional marble is listed under HS codes 6802.91 (Rajendra et al., 2013).

Unlike all other products, slab marble, processed marble, and marble block buyers are different in the natural stone market in the world due to the market structure of the natural stone. To give an illustration, the USA, England, Japan, and Australia are slab/processed stone buyers, otherwise, China and India are marble block buyers (Erzan and Taşdemir, 2014). The following figure shows that marble block, slab marble, and processed marble trade amounted to approximately 6 billion 859 million dollars in 2021. This value was 6 billion 887 million dollars in 2012. It is seen that marble trade export did not undergo a change within ten years. While marble block and slab marble were composed of 52.2% of total marble trade export in 2021 with 3 billion 581 million dollars, processed marble accounts for 47.8% of total marble with 3 billion 689 million US dollars (International Trade Centre, 2022).

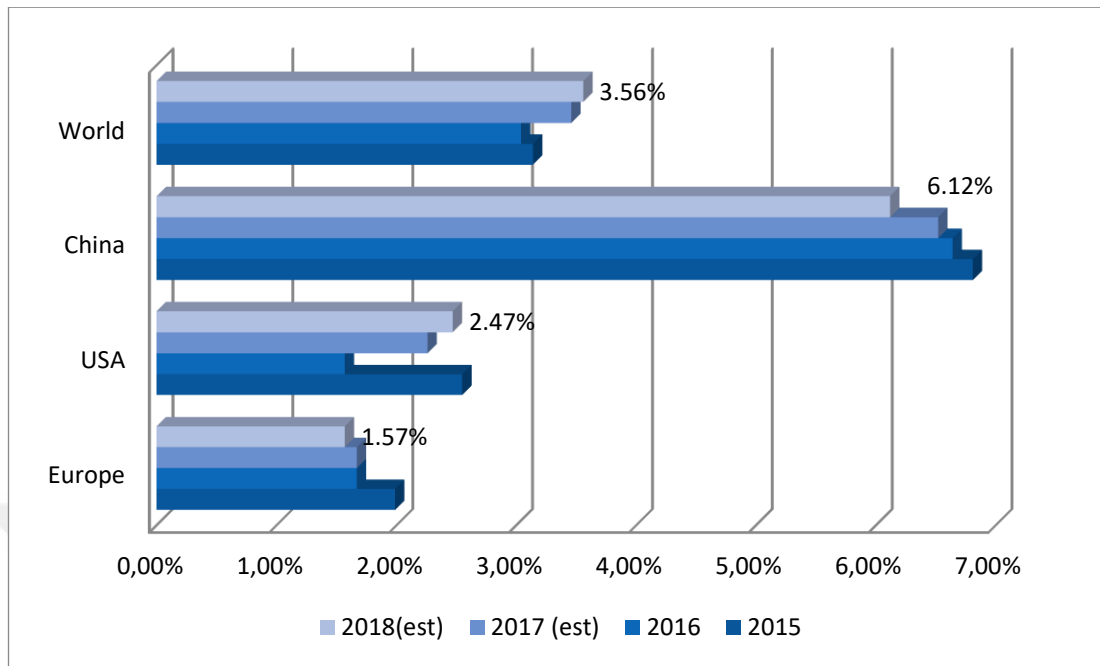
Figure 2: Marble Trade Export of the World (Marble Block, Sliced or Slab Marble, Dimensional Marble) (Thousand Dollar)



Source: International Trade Center, 2021

The marble stone industry witnessed a boom in the past few years due to the outgrowth in construction sector. As the construction industry develops, marble demand equally increases in the world. It is worth bearing in mind that the construction sector's growth rates respectively were 3.14% in 2015 and 3.04% in 2016. As for 2018, it is estimated that the growth rate of the construction sector will increase over the years (Ünal, 2018).

Figure 3: Growth Rate of Construction Sector in the World



Source: Ünal, 2018

As for 2017, the proportion of the construction sector in the global economy was approximately 15%. The construction sector shows a strong momentum especially in developing countries, thanks to their momentum of economic growth, the influence of government policies, and investment potential (Ünal, 2018). It is estimated that the construction sector will growth around 85% and come up to be 15.5 trillion dollars by leading China, USA and India in 2030 (Robinson, 2018). In light of this information, marble trade will have grown in parallel with the construction sector.

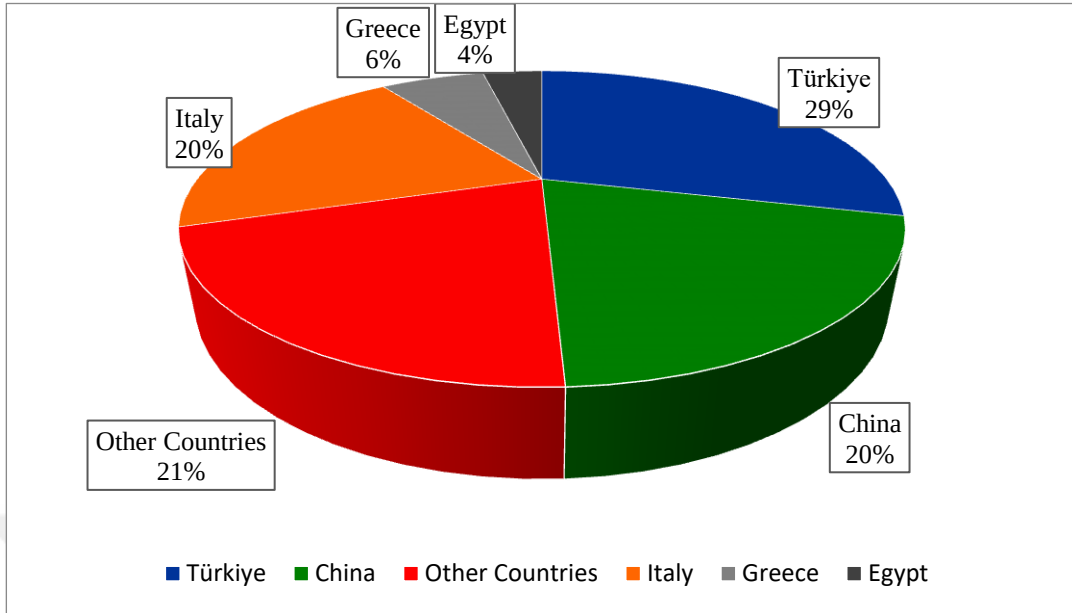
2.1.2.1. Marble Export In The World

Crystalline limestones defined as marble are geologically located in the Alpine-Himalayan belt in the world, in the area extending from the Aegean Islands, the Anatolian Peninsula, Pakistan and India (Himalaya Elevation) to China. It can be said that the countries located in the Alpine-Himalayan belt have the richest and highest quality marble deposits in the world

Marble export came out to be 6 billion 859 million dollars in 2021, while it was 2 billion 363 million dollars in 2002. Türkiye and Italy as countries played a major role in this increase, whereas China and Greece have also benefited from a sharp increase. Türkiye is the one of the most marble exporting countries: it raised its marble export from 275 million dollars in 2001 to 1 billion 977 thousand dollars in 2021 and therefore, approximately risen 619% over 20 years. As this figure demonstrates, Türkiye has already made a significant contribution to the world's marble trade. Italy, which has widely spread marble reserve and rich deposits, has the one of the major resources and is one of the major producers in marble industry in the world. Furthermore, Italy holds a significant share of the international marble trade (Hatch, 2018). Italy has increased its export by 56% in the last two decades. Its export amount is roughly 1 billion 379 million dollars in 2021. China has such an important position in the marble sector that it is the one of the biggest marble buyers and sellers in the world (The Steering Committee of the Trustone Initiative, 2021). Analyzing available data for the last 20 years (2002-2021), it is possible to point out an increase of 1.556% for marble export. China increased its marble export from 85 million dollars to 1 billion 656 million dollars in that period. Other important countries for marble trade in the world are Spain, Egypt, Iran, India, Portugal, and Oman.

Türkiye's, Italy's, and China's total marble export were composed of approximately 69.35% with 6 billion 860 million dollars in 2021. The overall picture is represented in Figure 4. The rest of the countries accounted for only 28.54% of marble export. Due to developments in the world's economy, high economic growth in China and its effect on the construction sector have given rise to extraordinary improvements in the marble sector in the world over years. Türkiye's marble export was composed of 28.8% of total marble exports in 2021 in the world. Secondly, China exported 20.4% of total marble export. As for Italy, its export value accounted for 20.1% of total marble export in 2021 (International Trade Centre, 2022).

Figure 4: Shares of the Countries in Marble Export in 2021



Source: International Trade Center, 2021

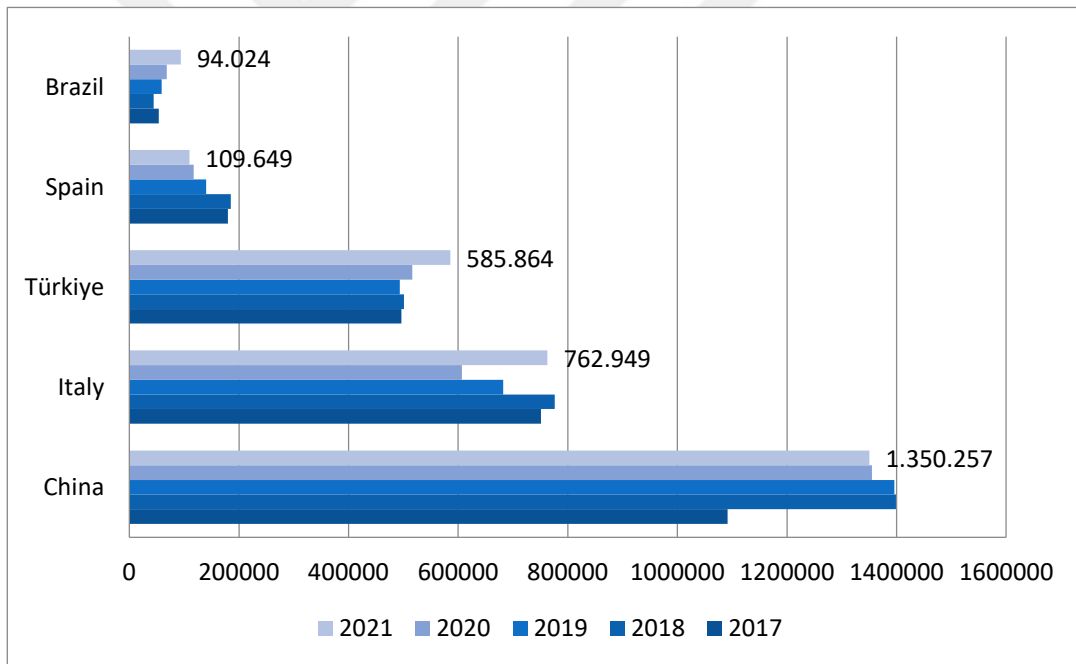
2.1.2.2. Processed Marble Export in The World

While some countries have not evaluated their natural stone reserves yet, some countries both extract and export their natural stone. For instance, Türkiye, Greece, Spain, Portugal, Brazil, Argentina, China, India, Taiwan, South Korea have both extract their natural stone and selling it to the world. China, India, Italy, Egypt Algeria are the countries those import marble block from producing countries in order to process in its own countries. On the contrary, Russia, Central Asian republics, Nepal, Scandinavian and South African countries have not able to evaluate their rich reserves yet (Ünal, 2018).

The export potential of marble is developing rapidly in parallel with the raise in construction sector investments in the world. Additionally, the export of processed marble in the world's market is constantly increasing. In 2021, total marble export in the world raised by 190% compared to 2002 and reached 6 billion 860 million dollars. The export of processed marble is 3 billion 279 million dollars and the export of marble block and slab marble are totally 3 billion 581 million dollars in 2021

The most processed marble exporting countries were respectively China, Italy, Türkiye, Spain, and Brazil in 2021. The total export of processed marble of these five countries constituted 88.5% of world processed marble export. Especially in the last two decades, China significantly increased its processed marble export. While China's processed marble export was 35 million dollars in 2002, this value raised by 3.753% in 2021 and came out to be 1 billion 350 million dollars. Italy's processed marble export reached around 90% in the last 20 years. On the other hand, processed marble export of Türkiye also increased by approximately 218% in the last two decades. In the same period, Spain's processed marble export decreased (International Trade Centre, 2022).

Figure 5: Top 5 Processed Marble Exporting Countries in the World(Thousand Dollar)



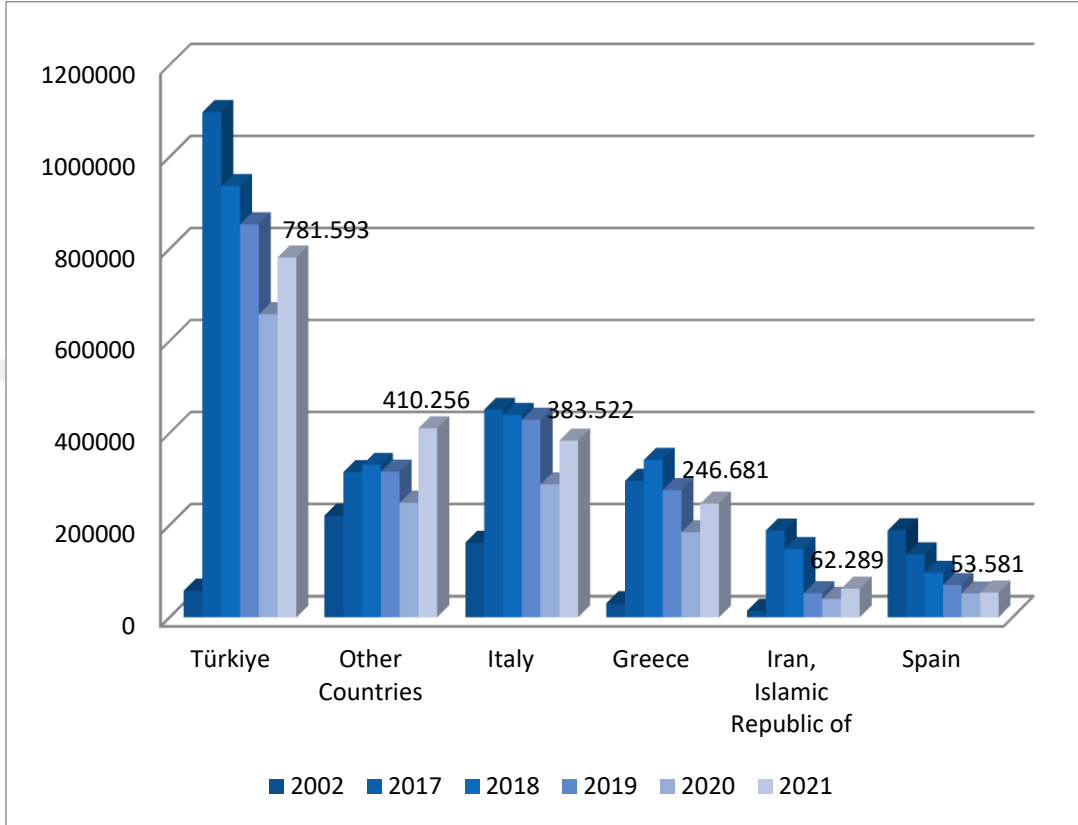
Source: International Trade Center, 2021

2.1.2.3. Marble Block And Slab Marbles Export in the World

Marble block export in the world has significantly boomed over the years. It rose from 674 million dollars in 2002 to 1 billion 938 million dollars in 2021.

Among the marble block exporters, Türkiye has the biggest share of the marble block export with 782 million dollars.

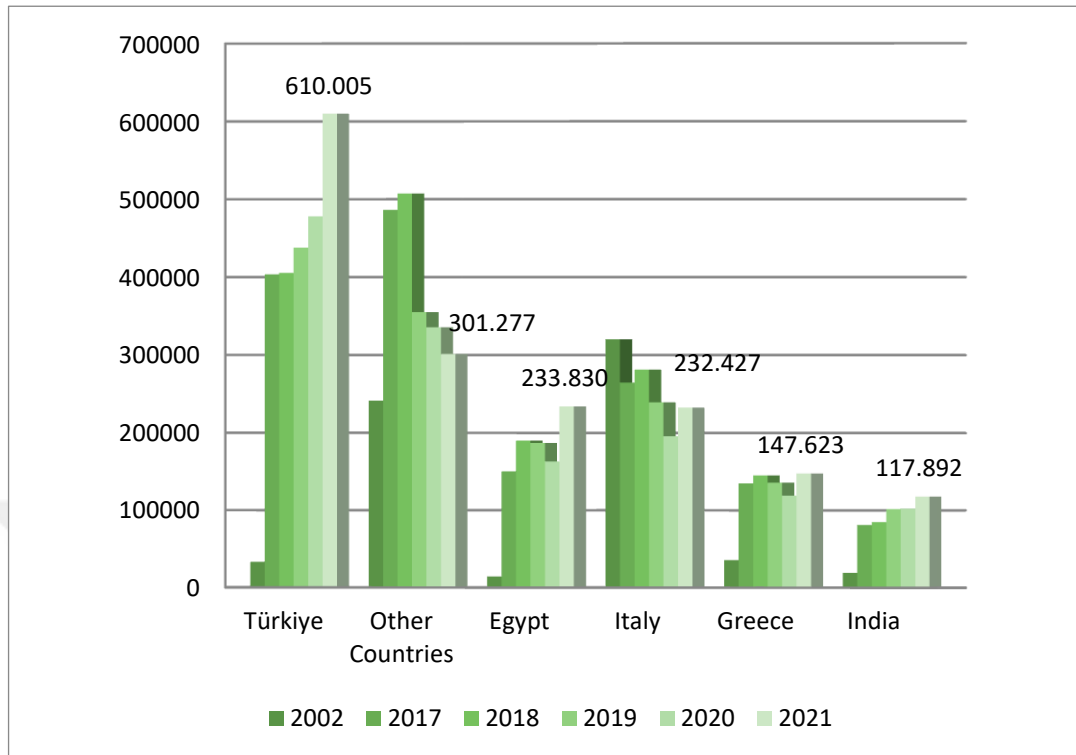
Figure 6: Top 5 Countries in Marble Block Exports in the World (Thousand Dollar)



Source: International Trade Center, 2021

Türkiye's marble block export was composed of 40.3% of the world. In 2021, the export amount of marble blocks in Türkiye reached 782 billion dollars, 1.252% more than in 2002. In addition, Italy, Greece, Iran, and Spain are the countries with the highest marble block export value after Türkiye (International Trade Centre, 2022).

Figure 7: Top 3 Countries in Slab Marble Exports in the World (Thousand Dollar)

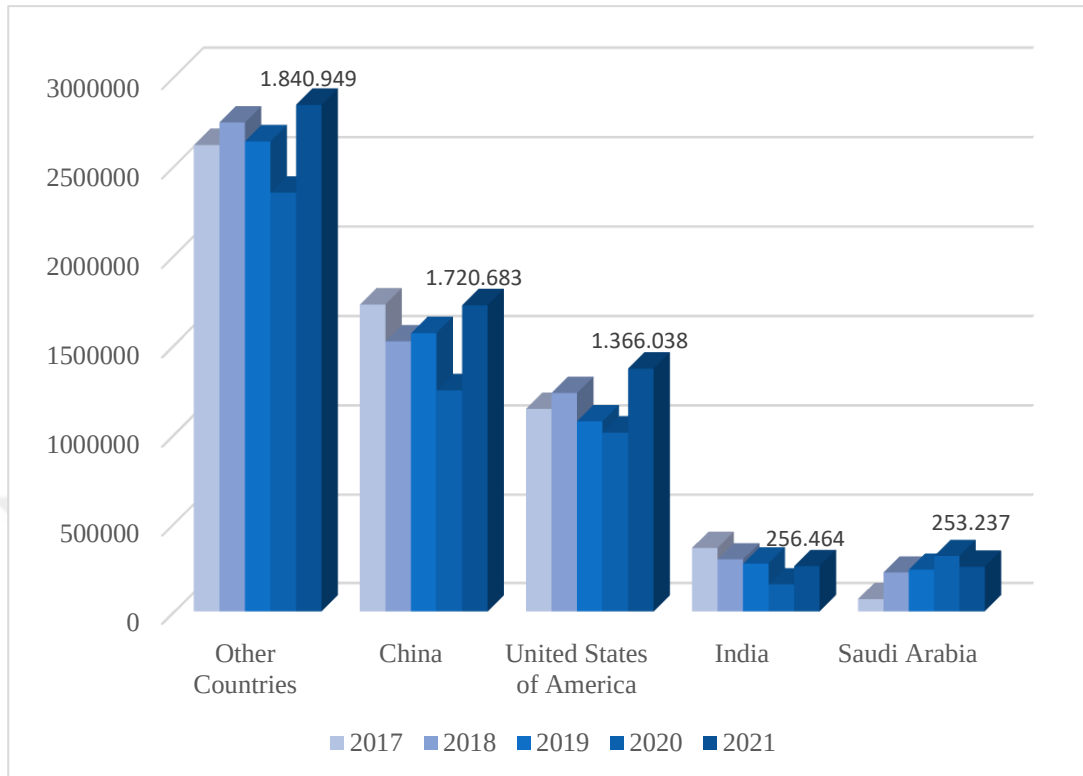


Source: International Trade Center, 2021

2.1.2.4. Marble Import in the World

Marble consumption has been growing very fast due to developments in the construction market in the world. The following figure illustrates that the leading five countries accounted for 57.2% of marble consumption in the world in 2020. The world's largest marble consumption respectively made by China, USA, India, Saudi Arabia, and United Arab Emirates (Hatch, 2018).

Figure 8: Marble Import of First Five Countries in the World(Thousand Dollar)



Source: International Trade Center, 2021

In 2021, nearly 26% of Chinese marble imports equated to 1 billion 721 million dollars making it the leading marble importing country in the world. Chinese marble import amounts obviously demonstrates that how fast China's construction sector grew (Erzan and Taşdemir, 2014). However, the opposite is the case when marble import values of the USA, the second top importing country, are analyzed. So, there is no significant change in marble consumption in the USA except for the 2007-2008 crisis period. In the period 2017-2021, India, Saudi Arabia, and United Arab Emirates are respectively in the top five in marble consumption after China and the USA (International Trade Centre, 2022).

2.1.2.5. Marble Block And Slab Marble Imports in the World

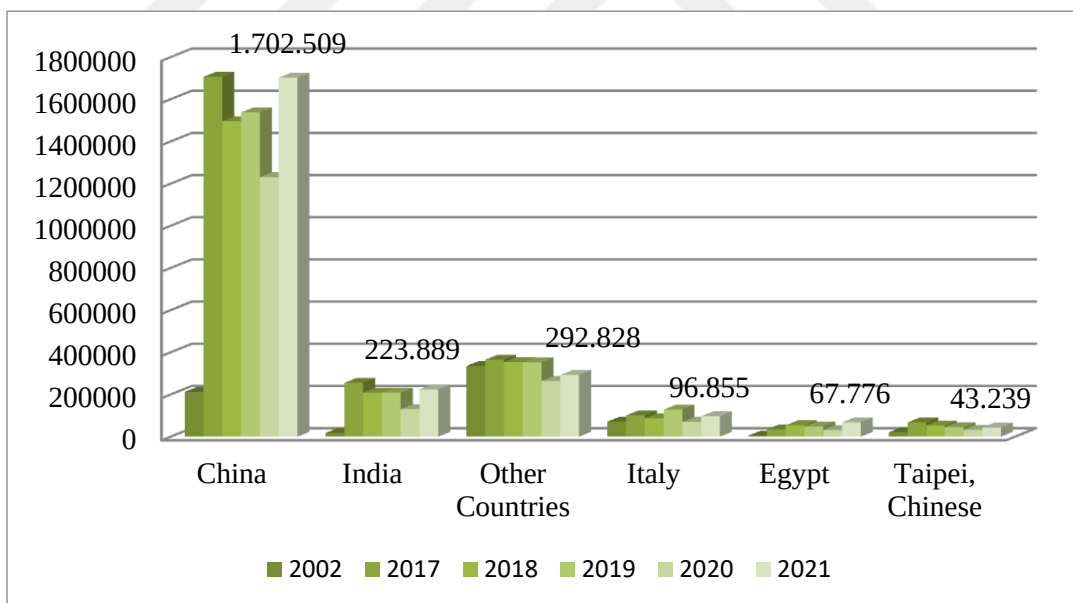
The marble block trade was trebled, rising from 662 million dollars to 2 billion 427 million dollars in 2021 in the last two decades. China's block marble

demand took the lead in this boom. India, Italy, Egypt, and Taipei are the other countries also importing block marble (Kacı, 2017). When examining the top five countries in the world, China and Taipei import marble blocks from Türkiye, while India imports marble blocks from Italy. On the other hand, Egypt imports marble blocks on large scale both from Türkiye and Italy.

Italy has the one of the major resources and is one of the major producers of marble in the world. With its technological infrastructure and experience in marble sector, Italy processes the marble block in its own and exports these processed marbles to the world.

China is the most processed marble exporting country as well as in the first position in the marble block import in the world (Spinetti, 2020). As Figure 9 illustrates, it can be seen that China is by far the most marble block importing country. In 2021, China imported 1 billion 703 million dollars marble blocks.

Figure 9: Marble Block Import of First Five Countries in the World (Thousand Dollar)

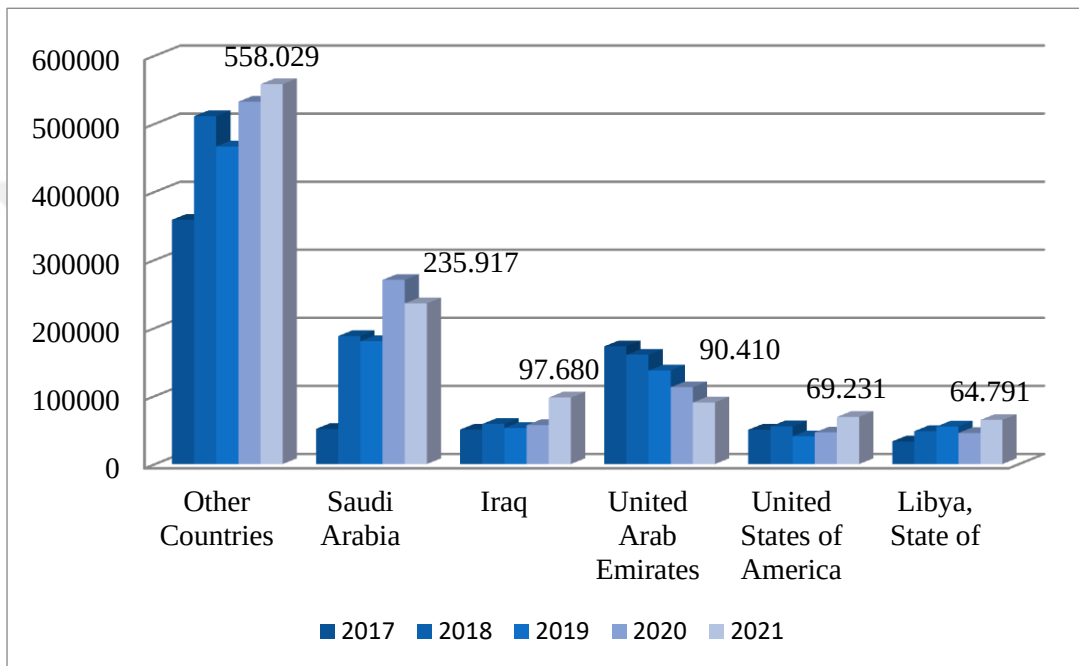


Source: International Trade Center, 2021

China is the most block marble importing country in both 2002 and 2021 in the world. In the last two decades, China's marble block imports proportion raised from 32% in 2001 to 70% in 2021.

As mentioned earlier, slab marble produced from marble blocks is a semi-finished product. Therefore, slab marbles are produced generally by block marble producers in countries such as Türkiye, China, Italy, Greece, and Spain. On the other hand, Saudi Arabia, Iraq, and United Arab Emirates are the most slab marble importing countries in the world (International Trade Centre, 2022).

Figure 10: First 5 Slab Marble Importing Countries in Last Five Years (Thousand Dollar)



Source: International Trade Center, 2021

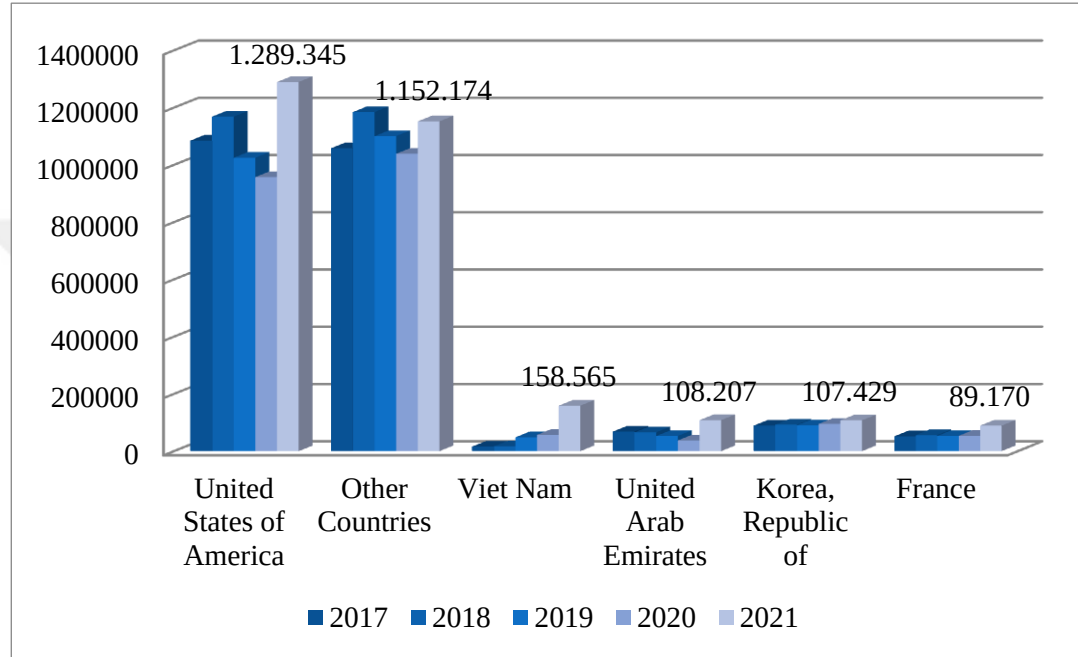
2.1.2.6. Processed Marble Import in the World

Countries, which do not have sufficient natural stone resources and have higher labor costs, incline to import natural stones from other countries in a processed form. To give an illustration, United States of America, Australia, Canada, France and United Kingdom are the countries neither have sufficient natural stone reserves nor qualified labor force in their country.

USA is the leader in the import of processed marble in the world. With 44% share, USA is the by far the most processed marble importing countries in the market (Mansoor et al., 2012). Vietnam, United Arab Emirates, South Korea, and France are

also the major marble importing countries in the world. In addition, processed marble import decreased to 2 billion 905 million dollars from 2 billion 368 million dollars in the world between 2017 and 2021 year (International Trade Centre, 2022).

Figure 11: Shares of the Processed Marble Imports of Countries in 2017-2021 (Thousand Dollar)



Source: International Trade Center, 2018

2.2. GENERAL VIEW OF MARBLE SECTOR IN TÜRKİYE

The underground wealth of a country depends on its geological structure and geological evolution (Ketin, 1983). Türkiye has high potential in terms of the number of mineral deposits, diversity, and reserves thanks to its underground wealth.

Türkiye, situated on the Alpine Belt, is among the world's oldest natural stone producers with four thousand years of production history that starts with Marmara Island. Hundreds of different colors textures and patterns of natural stones can be found in Türkiye in particular in Marmara, Aegean Regions, and all geographical regions from Thrace to Eastern Anatolia (Ministry of Trade of Republic of Türkiye, 2020).

With its developing industry and production technology, Türkiye is also among the most supreme natural stone producers in the world. Turkish natural stone sector has a significant place in the world with its richness of variety and reserves, sector experience, abundance of raw materials, ease of shipment in sea transportation, its dynamic sector structure, the new technologies being utilized, and its broad color spectrum. Furthermore, Türkiye has more than a thousand large and small quarries (Istanbul Mineral Exporters Association, 2018).

Türkiye is also one of the richest countries in natural stone in terms of diversity. There are many kinds of natural stones. Apart from marble and travertine, a considerable amount of granite, onyx, limestone, basalt, andesite, slate stone, and diabase are also produced in Türkiye. Moreover, natural stones are also divided in terms of color variations in themselves. Given these points, there are several thousand kinds of natural stone diversity to trade in the world market.

2.2.1. Marble Reserve of Türkiye

Türkiye enjoys very diverse mineral deposits in consequence of its extremely complex geology (Tamzok and Anaç, 2007). Due to its geological structure, Türkiye possesses a wealthy potential in terms of natural stones.

It has come to light with founding of geological excavation that some important mines were processed for many years in many parts of the world. In Anatolia, it has known that mining started in 7.000s B.C and developed in the Hittite period in 2.000-1.000 B.C. Historians agreed that metal objects were first invented and used as money as early as 5.000 B.C. around 7.000 B.C by Lydians in Anatolia. For this reason, Anatolia is considered the cradle of mining.

Türkiye enjoys 4 billion m³ of exploitable marble, 2.8 billion m³ of exploitable travertine, and 1 billion m³ of granite reserves. In light of this information, Türkiye holds close to 40% of the total natural stone reserves in the world. These reserves spread over a large region throughout Anatolia and Thrace.

There are over 120 different colors, patterns, and over 80 different structures of marble in Türkiye. Afyon, Balıkesir, Denizli, Tokat, Bilecik, Mugla, Eskisehir,

and Canakkale are cities where marble reserves and industry are intensely located in. Supren, Elazığ Cherry, Akşehir Black, Art Cecilliapebble Beige, Manyas white, Bilecik Beige, Leopard Salome, Denizli Travertine, Art Secret Beige, Aegean Bordeaux, Milas Lilac, Gemlik Diabas and Afyon Sugar (golden) are produced in Türkiye and the most well-known marble types in the global market (Uyanık, 2010).

Figure 12: Marble Reserves of Türkiye



Source: Maden Tetkik ve Arama Genel Müdürlüğü, 2018

Turkish marble is used in world-renowned places in many countries thanks to its different color scales and quality. For instance, Afyon-Iscehisar marble was used in the columns and coatings at the entrance of the church of Saint Pierre, which is the one of the most major churches in the Vatican. In the USA, the marble used in the press releases of the authorities in the White House was Rosso Levanto (Elazığ Visne), produced in Elazığ province. The German Parliament, the French Parliament, and the US House of Representatives are other places Rosso Levanyo used. 18.000 m2 of Turkish marble was also used in Disneyland, which is the one of the most important entertainment centers in the world (Uyanık, 2010).

Owing to great variety of colors and textures patterns, Turkish marbles have an irreplaceable position in the marble market in the world. With one of the largest natural stone reserves, Türkiye is among the world's most important natural stone manufacturers. The properties of Turkish marble are seen below.

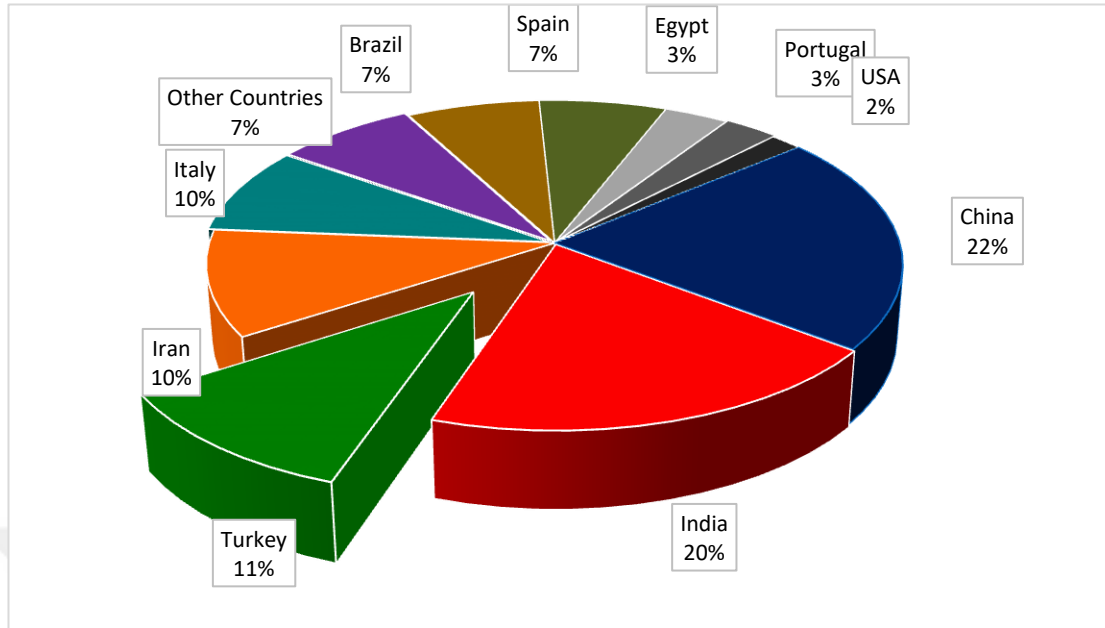
- There is a large variety of colors allowing a large variety of choices. Over 120 different colors, patterns, and over 80 different structures are available.
- There are big blocks due to the homogeneity of the resources
- High quality
- Pattern decorative arrangements of colors and crystal composition are possible (Çapık, 2013)

2.2.2. Marble Production of Türkiye

Marble production in Türkiye have risen since the second half of the 1980s. The marble sector that came under Mining Law in 1985 entered a different process after this period and started to grow rapidly. In companies with the revival of the construction sector and an leap in domestic demand, investments and export started to develop after the second half of the 1980s. Starting a new quarry and extracting marble in the 1980s led to the development of the marble sector in Türkiye (Gürçan et al., 2003).

Türkiye is called among the top three quarry stone producers together with China and India in the world. Türkiye has a share of 10.8% of the total worldwide quarrying output in the world. Figure 13 provides the proportion of each of the top ten quarry stone producers in the world in 2009. The top ten quarry stone producers account for 92% of the total worldwide quarrying output in the world.

Figure 13: Top 10 Global Quarry Stone Producers



Source: Haggag, 2012

Türkiye, which is wealth country in terms of marble resource, has almost one-third of the marble resource of the world. Türkiye has came to the fore in the world market owing to its high quarrying capacity and manufacturing base. The marble industry in Türkiye consists of largely small and medium enterprises.

The Turkish manufactures strive to extract and produce its marble in the best quality so as to be able to compete internationally. Thus, Türkiye has tried to improve their level of technology by using more updated extraction methods in marble production (Haggag, 2012)

2.2.3. Marble Trade of Türkiye

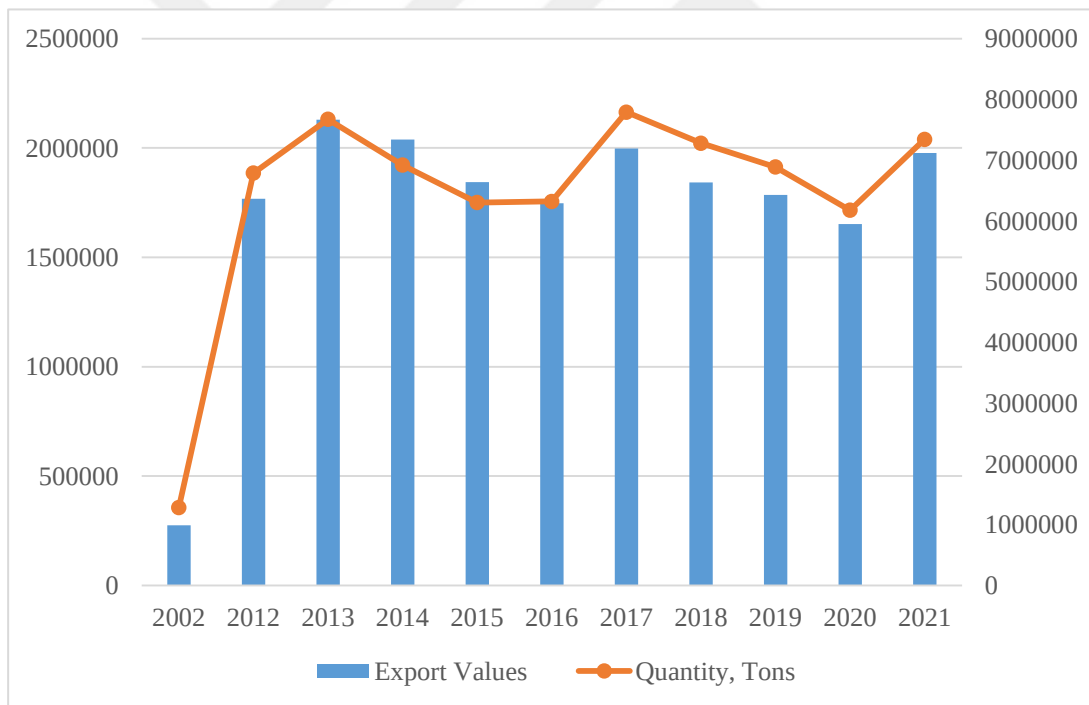
The marble extraction and production have been experiencing a significant improvement after 1985s with Mining Law and expansion in the construction industry. In parallel with the rise in production, there has been a valuable increase in exports in marble sector in Türkiye (Gürcan et al., 2003). In today, Türkiye has the biggest share in marble exports with 29% proportion in the world while

imports remain extremely limited (International Trade Centre, 2022). Following headings reports the marble exports and imports data of Türkiye in detail.

2.2.3.1. Marble Export Values of Türkiye

Türkiye is among the leading countries in marble export: it exported 28.8% of total marble export in 2021 and, therefore, the highest share in the world. As Figure 14 illustrates, Türkiye's marble export rapidly soared since 2002 and was approximately 275 million dollars. Even though Türkiye's marble export faced with recession due to the global economic recession between 2014 and 2016, its marble export came up to almost 2 billion dollars in 2017.

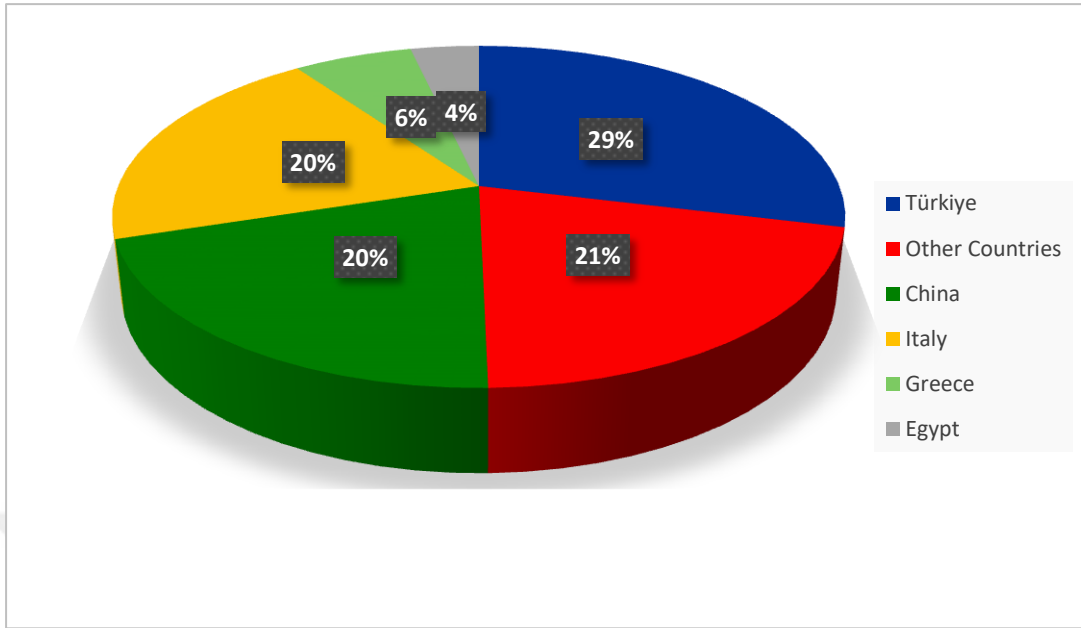
Figure 14: Marble Export Values of Türkiye for 10 Years (2012-2021) (Thousand dollar)



Source: International Trade Center, 2021

Türkiye's marble export structure illustrates that more than half of total marble exports occurred through the sale of marble blocks. China constituted approximately 86% of these marble sales by itself (Stone Ideas, 2018).

Figure 15: Share of Türkiye in Marble Export in 2021 in the World



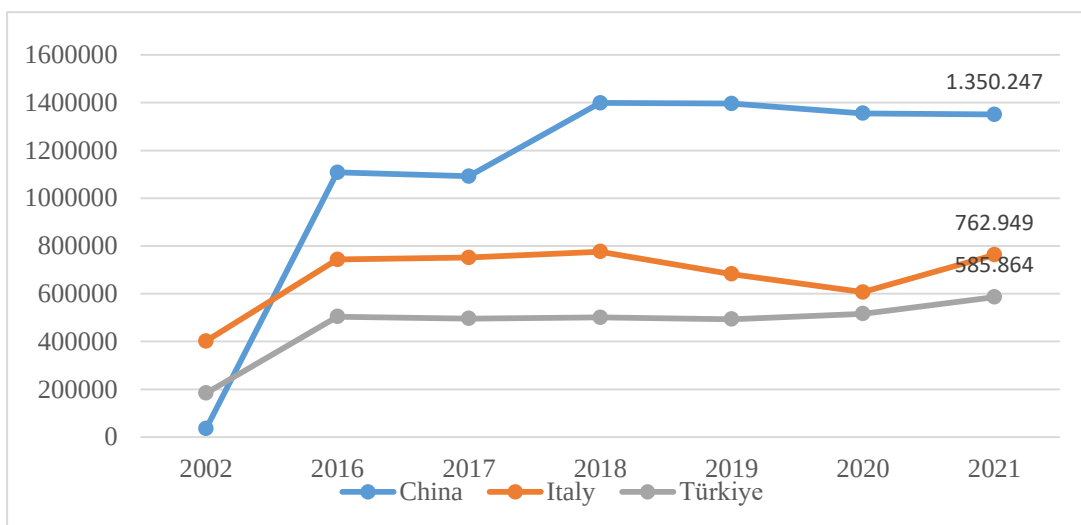
Source: International Trade Center, 2021

In 2021, Türkiye's natural stone export was approximately 1.98 billion dollars: equals to 29% of the proportion of total marble export in the world. Türkiye's exporting partners respectively are China, USA, Saudi Arabia, Iraq, India, India, and France. Among these countries, it is seen that the most remarkable country is China. It is clear that China's construction industry kept showing an increasing pattern for a long years (Martek et al., 2014). As the construction sector grows in China, there is a rising demand for varieties of materials, including marble and travertine, which are needed for top-tier residential and commercial projects (Spinetti, 2020). Additionally, China imported 1.72 billion dollars worth of marble from all over the world, corresponding to 26% of marble traded internationally, on the other hand, 50% of the marble bought by China was imported from Türkiye in 2021. Furthermore, China by itself imported 77.7% of marble blocks that Türkiye exported to all over the world (Atlı, 2021). While China's marble imports from Türkiye were over 35 million dollars in 2002, its marble imports reached nearly 858 million dollars in 2021 (International Trade Centre, 2021).

2.2.3.1.1. Processed Marble Export of Türkiye

Türkiye's processed marble export has followed a fluctuating course for years. During 2006-2017, processed marble exports in the world came out to be 3.035 billion dollars from 4.28 billion dollars. Türkiye experienced a significant decline in processed marble exports in 2009 (Erzan et al., 2014). The decrease in processed marble in Türkiye was approximately 37% in 2009. In the same year, Italy's processed marble export fell by over 29%. In contrast to the significant decline in exports of these two countries, China's processed marble export continued to rise in the same year. These differences were due to the different export markets of the countries. While the major market in processed marble for Türkiye and Italy was the USA, where economic crises and recession arose in 2009, China exported mostly its processed marble to South Korea. More importantly, Türkiye's marble export to the USA shrank by around 51.6% in 2009. In 2008, almost one-quarter of China's processed marble was exported to South Korea. On the other hand, the share of the USA in China's processed marble export was only 12.8% in the same year. In addition, China's processed marble export to the USA fell by nearly 9.5% in 2009 compared to 2008. Its export to South Korea, on the other hand, rose by 17%.

Figure 16: Top Three Processed Marble Exporting Countries in the World (Thousand dollar)



Source: International Trade Center, 2021

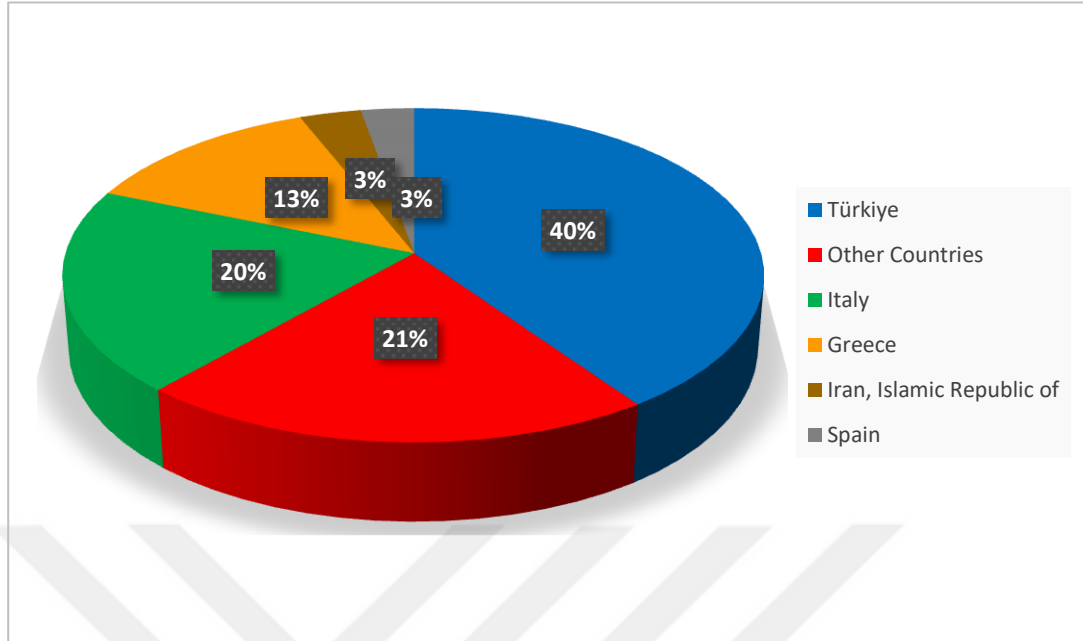
During the period of economic recession in the USA, Türkiye's processed marble export decreased. In 2009, total processed marble imports of USA shrink by approximately 38% compared to 2008.

In the period 2007-2008 financial crisis, USA's total processed marble imports went down, while Türkiye's proportion in USA's processed marble imports rose. However, Türkiye's share in USA's marble market enters into the process of reduction after 2010. On the other hand, Italy and China started to extend its market proportion in this market. Consequently, Türkiye lost its market share to China and Italy. Türkiye's market shares in USA shrank from 39% in 2010 to 27% in 2021. On the other side, China extended its market proportion from 17% to 19% and Italy boosted its market share from 20% to 26% in the same period (International Trade Centre, 2022).

2.2.3.1.2. Marble Block And Slab Marble Export of Türkiye

Türkiye is by far the most marble blocks exporting country in the world. Türkiye reached its peak in marble block export with 1.111 billion dollars in 2013. Italy, Greece, Iran, and Spain are the other leading countries in marble block export in the world. The following figure demonstrates that Türkiye's share in block marble export is approximately 40% of the world in 2021. While Türkiye was the third most marble block exporting country in 2002, it is far above the curve in 2021 with 40% of total export of the world.

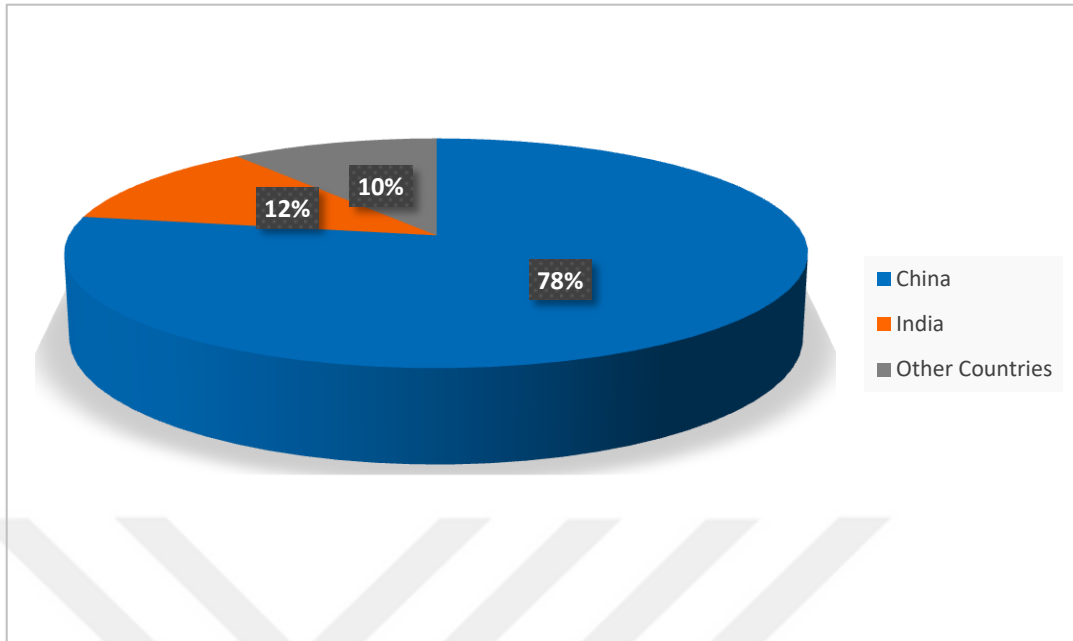
Figure 17: Share of Block Marble Exporting Countries in 2021 in the World



Source: International Trade Center, 2021

China is the country that has dominance over block marble trade in the world. China's rapid economic growth has been greatly boosted the construction industry over the last two decades. Thus, block marble trade increased in parallel with China's demand for it (EU SME Center, 2015). In 2021, Türkiye's marble block exports were approximately 782 million dollars. These amounts were composed of about 40% of the total marble export of Türkiye this year. However, China is very dominant in Türkiye's marble block export. In fact, China constitutes 78% of total marble block exports of Türkiye by itself.

Figure 18: Share of Countries in Marble Block Exports of Türkiye in 2021

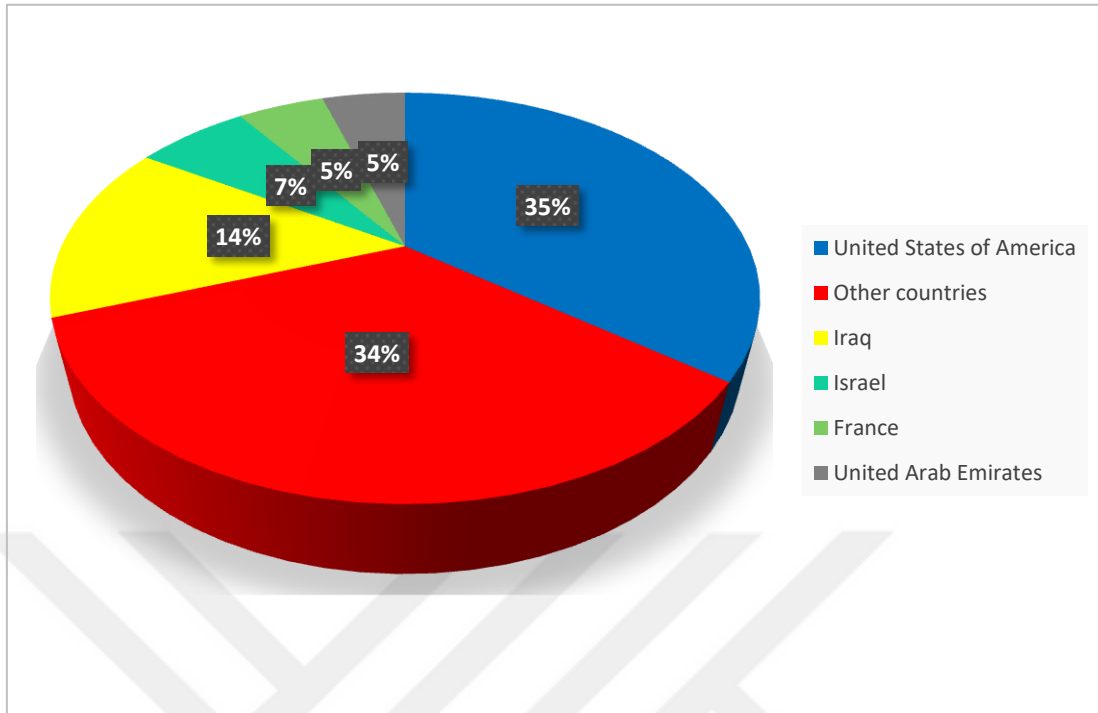


Source: International Trade Center, 2021

As the construction sector grew, China's marble consumption rose in parallel. Since marble is used as a facing stone in buildings, residences, pillars, colonnades, paneling, wainscoting, and floor tiles in the construction sector, China imports block marble and process them in their factories. China processed imported marbles in their factories and used both in interior and exterior decoration in all constructions (EUSME Center, 2013).

China's block marble imports from Türkiye have risen steeply since 2002. China's marble block imports came out to be 607 billion dollars in 2021, while it was 21 million dollars in 2002. To sum up briefly, these data show us how China's construction sector boomed. On the other hand, Türkiye has also substantial competitive power in sliced marble as in marble block. Türkiye's sliced marble export is 610 million dollars in 2021 (International Trade Centre, 2022).

Figure 19: Share of Countries in Sliced Marble Exports of Türkiye in 2021

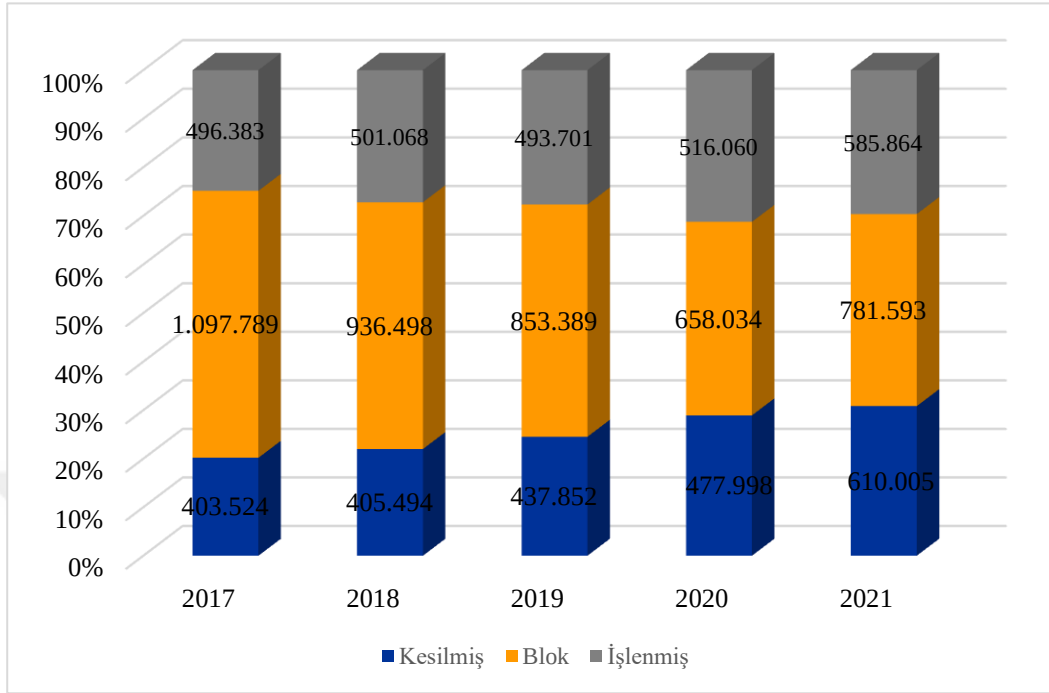


Source: International Trade Center, 2021

2.2.3.2. Marble Imports Values of Türkiye

The composition of imports in Türkiye's natural stone sector reveals that Italy ranks first with a share of 39%. Türkiye's natural stone imports from Greece generated 20% of total natural stone imports. Besides, Iran is in third place in natural stone import of Türkiye with a 16% proportion (International Trade Centre, 2022).

Figure 20: Marble Export Values of Türkiye Between the Period of 2017 and 2021(Thousand Dollars)



Source: International Trade Center, 2021

2.3. MARBLE SECTOR IN AFYONKARAHISAR AND SECTOR'S POSITION IN PROVINCIAL ECONOMY

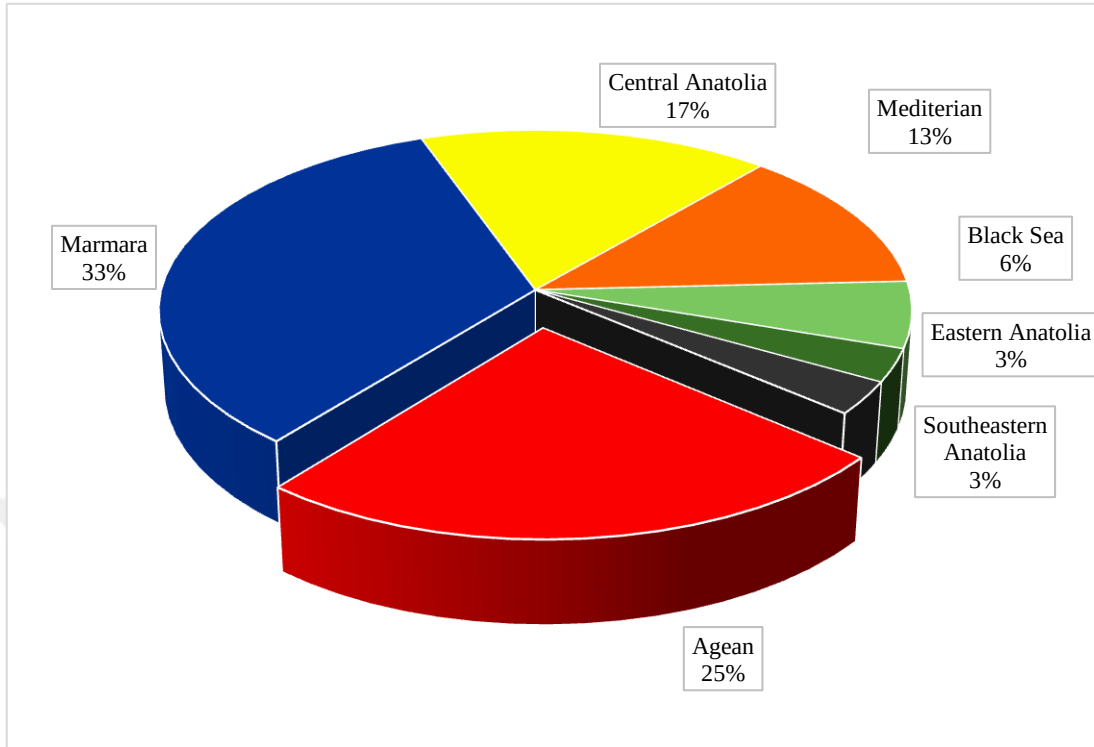
2.3.1. Marble Reserve in Afyonkarahisar

Due to the geological structure, Afyonkarahisar is suitable for the formation of various mineral deposits. Therefore, it is a rich city in terms of both mineral reserves and mineral varieties (Maden Tetkik ve Arama Genel Müdürlüğü, 2018)

The most important richness in Afyonkarahisar is marble reserves. It is one of the wealthiest cities in terms of marble potential with its various patterns, colors, and quality both in Türkiye and the world. Due to the development of industry in the region, the marble sector kept showing an increasing pattern in the 1960s. After 1986, the number of firms suddenly boomed in Afyonkarahisar. Between 1960 and 1985, there was no rise in the number of marble firms due to Turkish Mining Law. Following Mining Law, firms were able to have 3-5 years license for operating in marble quarries. Due to limited licenses, investors kept away from investment. After the new Turkish Mining Law came into force, marble companies' number started to increase (Gürcan et al., 2003).

While there was a slow growth in natural stone production between 1976 and 1996 in the world, the first boom period occurred in 2006. Slow growth took place until 2010 due to financial crises in these periods. Then, natural stone production significantly raised again after the global financial crises of 2007-2008 (International Trade Centre, 2021).

Figure 21: Regional Distribution of Marble in Türkiye



Source: Yılmaz and Safel, 2004: 11

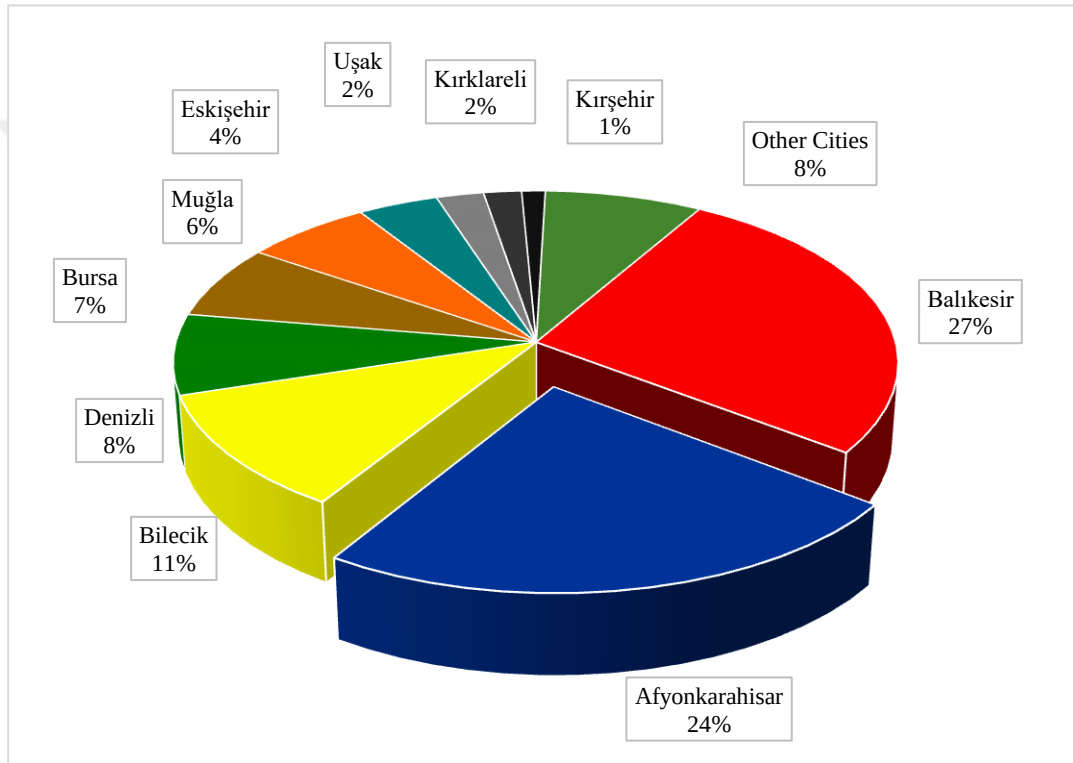
As exhibited in Figure 21, the Marmara Region is in the first place in terms of distribution of marble reserves with 33%. Almost 90% of the marble quarries in Türkiye are in the Aegean and Marmara regions (Yılmaz et al., 2004). There are 2.468 marble quarries, 2.000 factories, and 9.000 workshops in the marble sector, employing approximately 300.000 people. Almost all of the production is carried out by the private sector (Republic of Türkiye Ministry of Energy and Natural Sources, 2018)

As a city, Afyonkarahisar stands out against the rest of the cities in the TR33 region (Afyonkarahisar, Manisa, Uşak, and Kütahya). Approximately 73% of the marble reserves of the region are located in Afyonkarahisar. It also has nearly 11% of Türkiye's marble reserves. Furthermore, according to the capacity reports prepared by Afyonkarahisar Chamber of Commerce and Industry between 2011-2013, there were 59 firms producing marble blocks, 57 firms producing decorative natural stone, 131 firms producing marble slabs, and 3 firms producing natural stone except for marble (andesite, onyx, granite). The number of firms, including the quarries, was

294 in 2008. These firms located in Afyonkarahisar account for 59.5% of the enterprises operating in this sector in the TR33 region (Özkara et al., 2014).

The marble reserves in Türkiye are divided into four main regions: Marmara Region, Central, and North Anatolia Region, Western Anatolia Region, and Southern Anatolia Region. Among these regions, the most marble quarries are in Balıkesir and Afyonkarahisar (Çetin, 2005).

Figure 22: Distribution of the Marble Quarries by Cities of Türkiye



Source: Çetin, 2003

In Afyonkarahisar, there are two important areas, where marble activities are located. The heartland of the marble sector in Afyonkarahisar and Türkiye is Iscehisar province. The other one is the Afyonkarahisar Organized Industrial Zone located in the central district of the city.

Due to a lack of technology, Afyonkarahisar exported marble as an unfinished products before 1980. This situation gave rise to ineffective usage of marble reserves and damaged marble industry in Afyonkarahisar. However,

processed marble products have started to be sold depending very much on the development of technology in the city since 1983. These developments conducted to an attractive for other investors in the region and enabled raising the value-added from marble. In today, marble companies are able to produce marble processing machines and contribute to reducing foreign dependency on it. Therefore, it can be understood that the money and real capital development for the marble industry in the region depends on the development and implementation of technology (Çakır, 2014).

2.3.2. Geographical Distribution of Marble Resource

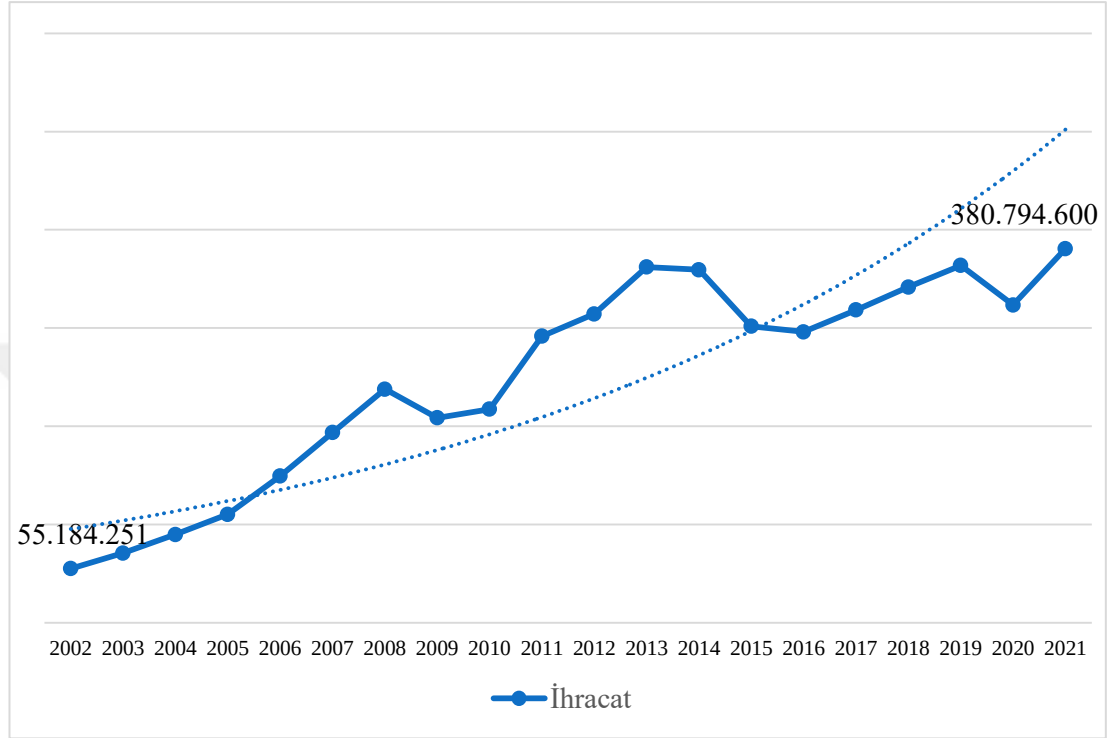
In Afyonkarahisar, there are two critical areas where marble activities are gathered. The first of these and most predominant one is the Iscehisar district. The other one is the Afyon Organized Industrial Zone. Besides, Iscehisar is such a significant district that it is the heart of the marble sector in both Afyonkarahisar and Türkiye in terms of export values. The marble activities in Iscehisar have taken place for two thousand years. The marbles extracted from this area provide aesthetic beauty to the most unique historical monuments and structures in the world (Çakır, 2014)

2.3.3. Export Values of Afyonkarahisar

In 2021, the export amount of Afyonkarahisar reached 381 million dollars, 17,8% more than in 2020. Its exporting products received by 130 countries and 5 free zones around the world (Türkiye İhracatçılar Meclisi, 2021). Figure 23 documents the impressive export performance driven by Afyonkarahisar in the last decades. Its export reached their peak with 381 million dollars in 2021. In addition, Afyonkarahisar was the 36th most exporting city among 81 cities in Türkiye in 2021. In addition to that the number of exporters in the city was down to 369 in 2021, while there were 339 exporter companies in 2019 (Ege İhracatçılar Birliği, 2020). The USA, France, and China are the city's main export partners. They respectively

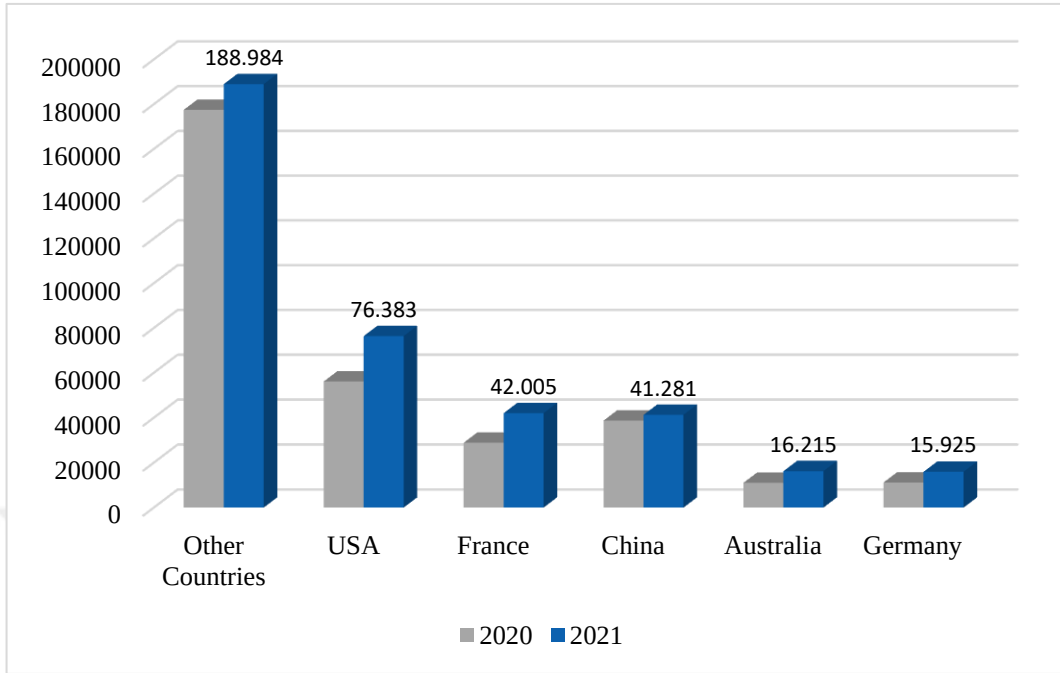
are composed of 20%, 11%, and 11% of total exports of the city (Türkiye İhracatçılar Meclisi, 2020).

Figure 23: Export Values of Marble by Years in Afyonkarahisar (Dollar)



Source: Türkiye İhracatçılar Meclisi, 2020

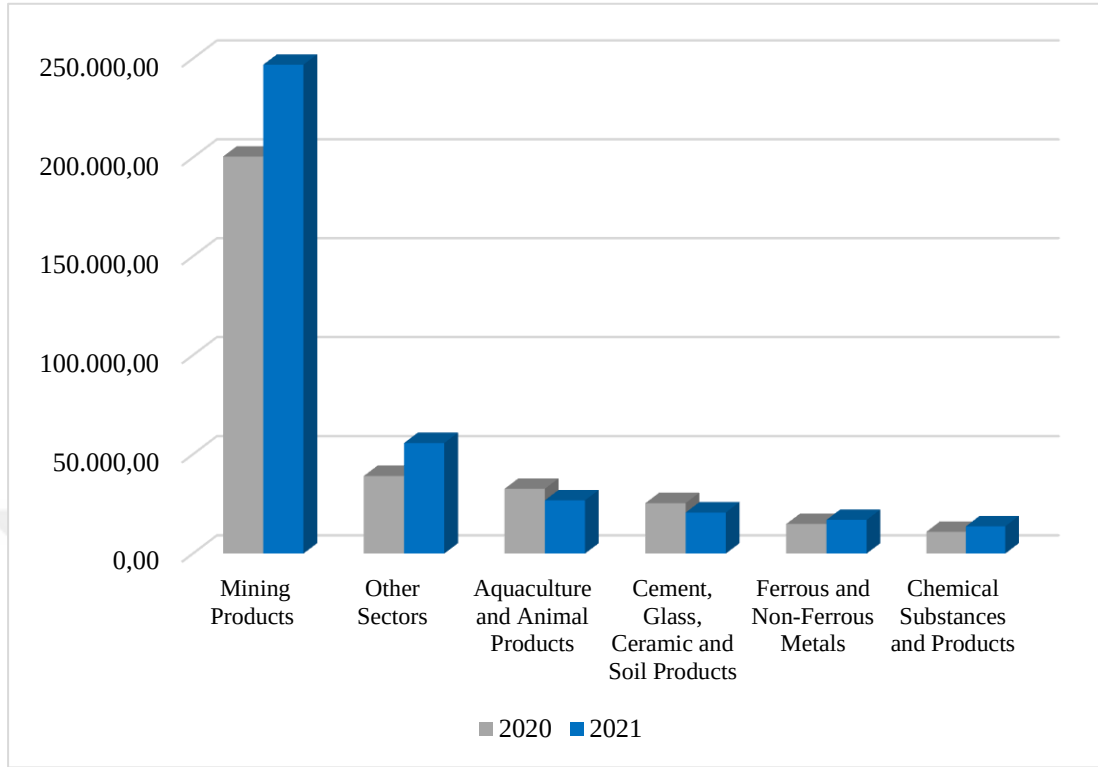
Figure 24: Afyonkarahisar's Top Exporting Partners (Thousand Dollar)



Source: Türkiye İhracatçılar Meclisi, 2021

In fact, Afyonkarahisar's export is heavily based on the mining sector. The mining sector accounts for 65% of the city's export income in 2021. The second largest exporting sector is fishery and animal products, representing more than 7% of total export (Türkiye İhracatçılar Meclisi, 2020).

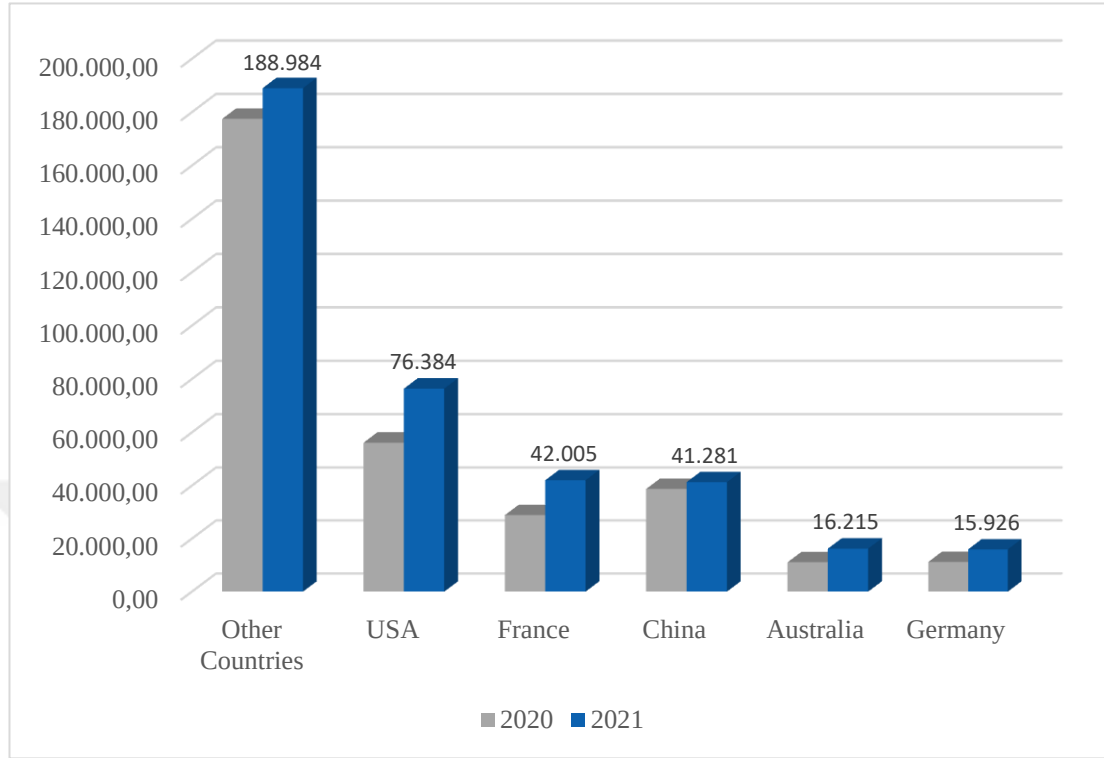
Figure 25: Afyonkarahisar's Top Exporting Sectors (Thousand Dollars)



Source: Türkiye İhracatçılar Meclisi, 2019

When examining value-added in the export of Afyonkarahisar, the marble sector stands out above all others. It is clear that processed marble's export decrease, while marble block's export increase. Without a doubt, this leads to a further decline in value-added marble products export in the city. It is an obvious fact that distinctive features based on natural resources (such as Turkish marble and Afyonkarahisar marble) are not enough to rise the value-added. On the other side, USA and China are the two major marble buyers of Afyonkarahisar. This gives rise to being dependent on limited customers. Hence, the marble sector may go through a crisis due to China's research on finding new raw material sources or encouragement for direct foreign investment. In particular, in recent years, the increase in China-based companies in the city will give rise to a decrease in the export share of value-added products in the sector. Therefore, it is extremely important to focus on processed marble and to find markets for processed marble (Özkara et al., 2014).

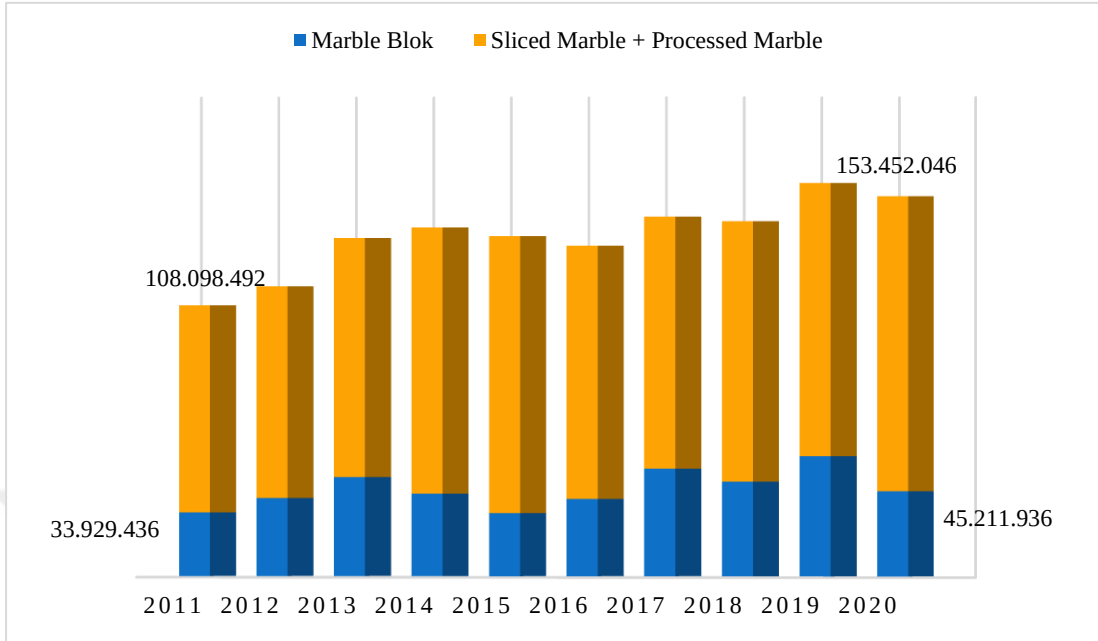
Figure 26: Top Exporting Countries in Mining Industry in Afyonkarahisar (Thousand Dollar)



Source: Ege İhracatçılar Birliği, 2021

As Figure 26 illustrates, the United States ranked first with 76 million dollars in 2021 and France, China, Australia, and Germany respectively followed to United States.

Figure 27:Marble Block, Sliced and Processed Marble Export Values of Afyonkarahisar (Dollar)

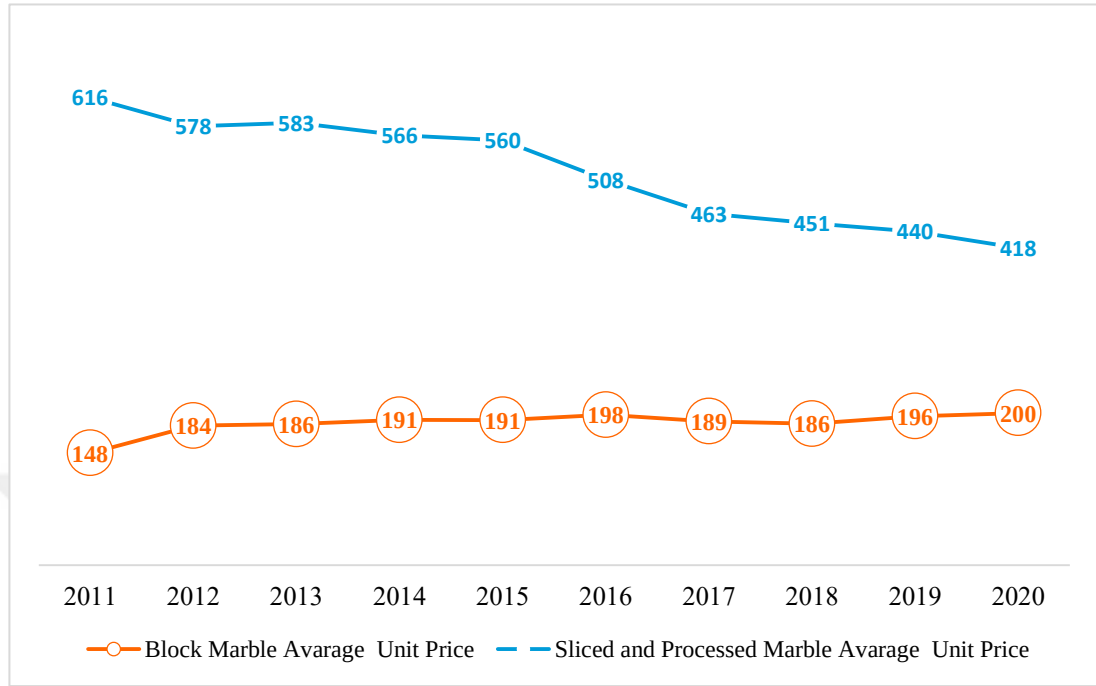


Source: Ege İhracatçılar Birliği, 2020

The latest figure reports us that sliced marble and processed marble export constitute 153 million dollars, while 45.2 million dollars is block marble export in Afyonkarahisar. According to the data received from the Aegean Exporters' Association, sliced and processed marble data were compiled together (Ege İhracatçılar Birliği, 2020).

Türkiye's mining sector, whose indirect contribution to the economy amounted to 40 billion dollars due to its raw material supply to all sectors, completed 2020 with a loss of 0.9% decrease and exported 4.27 billion dollars. It should be noted that the marble sector underwent a recession in the beginning of the Covid-19 out breaks in China, where is a key market for marble sector. In particular, all representatives of the sector have put in a feverish effort to compensate for the decline in the sector, which is in the process of recovering in June 2020 (İstanbul Maden İhracatçılar Birliği, 2020).

Figure 28: Average Unit Price of Afyonkarahisar's Block, Sliced and Processed Marble (Dollar)



Source: Ege İhracatçılar Birliği, 2020

As seen in the Table above, the unit price of block marble export of Afyonkarahisar has increased by degrees in the last 10 years, otherwise, the unit price of sliced and processed marble export has gradually decreased on a ton basis. As of 2020, Afyonkarahisar's block marble export amounted to 200 dollars, and sliced and processed marble export came up to 418 dollars on a ton basis (Ege İhracatçılar Birliği, 2020). While sliced marble constitutes large part of the average price of 418 dollars, processed marble has a very low part of the average price.

CHAPTER THREE

DATA AND METHODOLOGY

3.1. IMPORTANCE OF RESEARCH

Intensifying competition in the rapidly globalizing world economy, which is in a major structural transformation, is the most important phenomenon. The main way that countries can raise the welfare of their citizens is to improve their competitiveness and transform it into a sustainable structure (Karaaslan and Tuncer, 2010). In summarize, value-added products are expressed as light in weight but heavy in value. A kilo of exported products from Türkiye equals 1.5 dollars, whereas Germany, Japan, and South Korea respectively export their products for 4, 3.5, and 3 dollars per kilo. In today, countries are doing various studies to increase the export value per kilo.

Afyonkarahisar is a region with rich natural stone resources. The city constitutes approximately 11% of Türkiye's total natural stone exports. However, the percentage of the value-added product in the sector is rather low. Therefore, it is quite important to export its natural stone by creating value-added. There is no doubt that the creation of a value-added in the marble sector in the Afyonkarahisar will bring significant competitive advantages to companies in the global market (Özkara et al., 2015).

3.2. PURPOSE AND SCOPE OF THE RESEARCH

Afyonkarahisar is a crucial city in terms of both natural stone reserves and the number of companies operating in the marble sector in Türkiye. Consequently, the scope of the research covers Afyonkarahisar marble sector. Quality, marketing, design, and production problems in the sector are barrier for value-added export. Quality does not mean only product quality, but also input, labor, technology, process, output, after-sales services, and general management quality. For this scope, the study focuses on determining the problems faced by the companies for value-added production in the marble sector. Additionally, the study aims to reveal

Afyonkarahisar's marble sector problems and suggest solutions for these problems. A survey conducted on 60 companies focused on determining the production structure, export structure, and marketing problems of companies. Another aim of this study is to create an infrastructure for the studies conducting on value-added production in the marble sector in the future. Furthermore, the study revealed the obstacle for companies to produce value-added product in the sector. The results obtained in virtue of the research will constitute a resource for people who conduct scientific research in this field. In addition, the results of the research conducted on 60 companies will be an important resource for individuals and institutions studying in this field.

3.3. METHODOLOGY OF THE RESEARCH

3.3.1. Process of Sample Questionnaire

The sample of the research encompasses marble quarry enterprises, marble factories, and trader companies operating in Afyonkarahisar province. Information about 285 companies provided by Afyonkarahisar Chamber of Commerce and Industry created the universe of the survey.

Survey covers 60 companies operating in both production and exportation of marble in Afyonkarahisar. The study concentrated on the current structure of companies, sector problems, and obstacles to producing value-added production were determined by using face-to-face survey method. In addition, in-depth interviews with some of these enterprises are important for interpreting the findings of the research.

3.3.2. Method of Collection of Data and Information

The survey covers a data collection method, and made up of pre-prepared questions and applied to president of executive board, owner, manager or foreign trade manager of companies within the scope of the research. The survey was conducted using 60 companies that are both manufacturing and exporting marble.

Respondent companies located in Afyonkarahisar Organized Industrial Zone (OIZ) and İscehisar district. Afyonkarahisar OIZ is 6 km, on the other hand, İscehisar district is 24 km to city center. 58 of survey applied face to face, and 2 of them were online interview. Survey covers totally 60 questions, 31 of them are about general information of companies and the sector, and 34 questions are about sector problems. Most of the sector problem questions constitute 5-point Likert scale questions. On the other hand, in-dept interview was conducted to participants, and survey questions took approximately 45 minutes to answer. Survey took place between May of 2021 and September of 2022. In addition, the researcher carried out survey in companies' offices. Information about the purpose and method of the survey explained to participants in detail.

3.3.3.Limitation of the Research

The thesis encountered three limitations. Firstly, the study focuses on determining value-added production problems faced by companies that are manufacturer and exporter in the same time in the marble sector in Afyonkarahisar. In addition, the study aims to reveal Afyonkarahisar's marble sector problems and suggest solutions for these problems as well. The study was conducted on only both manufacturer and exporter companies, and it is the limitation of the study. Secondly, the study covers the companies operating in Afyonkarahisar Organized Industrial Zone and İscehisar district. Although there are marble companies in different districts and different regions throughout Afyonkarahisar, only the marble companies in Afyonkarahisar OIZ and İscehisar district are the universe of the study. Third, the study results whether there is a difference between value-added production and sector problems in terms of the size of the firm. As it is known, one of the most important criteria for measuring company size is financial criteria. However, due to the fact that the financial information of the companies is not publicly available for access and the companies do not want to share their financial information, size of firms could not be determined from the financial data. For this reason, the size of the company is based on the number of employees of the companies.

3.3.4. Reliability of Research

Reliability indicates consistency between respondents' answers to survey questions. Reliability reveals how accurate the scale is. The Cronbach Alpha (α) number takes a value between 0 and 1, and the closer a number is to 1, the more reliable the scale is. The general acceptance value for Cronbach Alpha, which shows the total reliability of the questionnaire, is 0.70 and above (Kalaycı, 2008). The findings show that the Cronbach Alpha internal consistency coefficient of the scales is at a sufficient level.

Table 1: Reliability of Survey Scales

	Obstacles for Companies to Produce Value-Added Product Scale	Problems in the Marble Sector Scale
Number of Variables of Scales	11	13
Cronbach's Alpha	0.708	0.750

3.3.5. Descriptive Statistics and Normality Tests for Statistical Data

In the study, the validity of the normality assumption was measured with the Jarque-Bera test. The Jarque-Bera is a test to reveal whether set of data (n) follows normal distribution or not within the scope of skewness (S) and kurtosis (K). The test statistic equation is " $JB = n/6 (S^2 + 1/4(K-3)^2)$ ".

If the p value is greater than the standard 0.05, it is assumed that data follow a normal distribution, while if the p value is less than 0.05, the data do not follow a normal distribution. In addition, one sample T-test, Anova test, Kruskal Wallis-H test, Mann Whitney U-Test, Correlation and Chi-Square test answered the questions of the study. As a conclusion, the Table 2 figures out J-B test results of the study.

Table 2:Jarqua Bera Test Result for Scales

”The Most Important Obstacles for Companies to Produce Value-Added Product”		
	Scale	
	Jarqua-Bera	p-value
Insufficient production infrastructure in companies	14.67	0.00
Existing productions meet the demands of the companies	2.78	0.25
High cost of value-added product production	8.53	0.02
High labor cost	17.38	0.00
Lack of technology- automation	14.76	0.00
The problem of finding qualified staff	235.40	7.29
Lack of financial resources	4.14	0.13
Managers do not need to develop new products	7.13	0.03
Insufficient investment incentives	5.99	0.05
Low demand for designed products	3.04	0.22
International competition	1.93	0.38
“The Most Important Problems in the Marble Sector”		
	Scale	
Costs (energy, labor, production)	266.10	1.68
Lack of technology- automation	3.51	0.17
Bureaucratic procedures	9.15	0.01
Long mining license processes	90.95	1.77
High taxes	16.94	0.00
Financing problems	4.96	0.08
Lack of qualified labor force	116.40	5.18
Inability to compete in the international market	1.65	0.44
Lack of clustering	45.97	1.04
Lack of incentives	6.77	0.03
Currency volatility	63.04	2.04
High freight cost	41.38	1.03
Low price due to unfair competition	17.57	0.00

Table 3:Jarque Bera Test for Scale “number of employess of the companies compared to the pre-pandemic period and “Number of Exporting Countries”

	Jarqu-Bera	p-value
The effect of the pandemic process on the number of employees of the companies compared to the pre-pandemic period	23.84	6.62
Number of Exporting Countries	248.80	9.42

3.4. HYPOTHESIS OF RESEARCH

3.4.1. Major Resource Questions

Major resource questions cover the analysis of obstacles for companies to produce a value-added product in the marble sector. In this context, there are four different hypotheses to reveal the results. The hypotheses are as follows.

H₀₁: The obstacles for companies to produce value-added products in the marble sector are same for companies of different sizes.

H₁₁: The obstacles for companies to produce value-added products in the marble sector are not same for companies of different sizes.

H₀₂: The obstacles for companies to produce value-added products in the marble sector are similar for companies that export directly or indirectly.

H₁₂: The obstacles for companies to produce value-added products in the marble sector are not same for companies that export directly or indirectly.

3.4.2. Minor Resource Questions

Minor resource questions consist of hypotheses that indirectly affect the obstacles for companies to produce value-added products in the marble sector and include the analysis of the problems in the sector. Minor effects are as follows.

H₀₃: Marble industry problems are same for companies of different sizes.

H₁₃: Marble industry problems are not same for companies of different sizes.

H₀₄: The problems of the marble sector are same for the companies that export directly and indirectly.

H₁₄: The problems of the marble sector are not same for the companies that export directly and indirectly.

H₀₅: The problems faced in the firms in increasing export markets differ from company to company

H₁₅: The problems faced in the firms in increasing export markets does not differ from company to company

H₀₆: The impact of the pandemic on companies depends on whether the having a sales/marketing department.

H₁₆: The impact of the pandemic on companies does not depend on whether the having a sales/marketing department.

H₀₇: There is a positive relationship between the situation of participation in a fair and the number of exporting countries of companies.

H₁₇: There is no positive relationship between the situation of participation in a fair and the number of exporting countries of companies.

3.5. LITERATURE REVIEW

In the existing literature, there are not many studies focused on investigating the value-added in the marble sector. However, the most important work in this field is the project prepared within the scope of the “Increasing Value Added and Exports in the Marble Sector Project” that is supported by T.C. Zafer Development Agency. According to Özkara et al. (2014), the decrease in the sales of processed/designed marble, and as well as the increase in the sales of block marble (raw material) in Türkiye and especially in Afyonkarahisar cause a further decrease in the value-added in the marble sector. It is argued that the distinctive features based on natural resources (such as Turkish marble and Afyonkarahisar marble) are not sufficient to increase the added value by itself. According to Özkara et al., it is necessary to establish a research center for increasing added value in Afyonkarahisar in order to solve the problems that companies faced in value-added production. With the studies to be carried out in this center, it is planned that the sector will be removed from being a low value added sector in the medium and long term within the framework of a strategic plan, and instead it will be transformed into an innovative, branded and high added value production center.

All sectors aim to increase their profits by selling products with high value-added. In order to increase the value-added in the marble sector, design and innovation in marble are highly important. Machines such as Waterjet, 3D CNC, and 5D CNC are used by manufacturer to increase the added value in marble. Study conducted by Güneş et al (2015) reveals that value-added products are an important argument for competitive advantage in the international market. Accordingly, companies have the technology to produce value-added products provides a great advantage in the global markets. Born et al. (2006) stated that long-term planning is required for value-added production. Long term planning makes possible for companies to inclining to value-added production and be successful in this field., marbles sector has to focus on the strategy to decrease the block marble trade because sales of value-added marble products can be increased by solving the sector problems such as lack of qualified staff, lack of technology in marble sector. In the coming years, more efficient marble block production and diversification of high

value-added products with new technologies will accelerate the sector in terms of value-added production. In addition, incentives for the dissemination of modern production technology systems such as CNC for marble workshops will enable marble to bring more value-added in global market. According to data, the income gained from the export of marble blocks, which exceeds 50%, significantly reduces the income that can be obtained from the sale of processed marble. (Hacımustafaoğlu et al., 2018).

Apart from the marble sector, added value is investigated in different sectors. Manufacturing sector is the one of sector that the value-added and innovation were examined. Kanber (2010) reveals in her study that costs, legislation, regulations, standards, tax policy and high risk perception are the main obstacles for companies not inclining to produce value added products. Study by Persson (2015) in agricultural sector suggest that good service, high quality and branding activities is the decisive opportunity for differentiation within the sector and create a value-added. According to Born and Bachmann(2006), value-added products help to reach new markets and provide a competitive advantage for firms in international market. Moreover, Collis and Montgomery (2008) argue that creating value-added in the products is the most valuable factors for companies to compete in global market. It is highly important to efficiently benefit from resources, and it is basic of entrepreneurial strategy (Morgan et al., 2010). As Dhliwayo states, companies that accept entrepreneurial strategies are more successful in identifying the needs of the market, increasing service quality, increasing customer satisfaction and seizing opportunities. Thus, the high cost of R&D and design activities necessitates effective use of existing resources for value-added production. In this respect, the current market structure determines the necessity of R&D and design activities, and if it is needed, the enterprises make investment decisions based on the input costs and value-added (Günel et al., 2015).

The primary objective of this study is to investigate the value-added and, hereby detect main problems to produce value-added products in the sector. Table 4 provides literature review on marble sector problems.

Table 4: Previous Studies for Marble Sector Problems

Author(s)	Title of the Study	Findings
Pıçak et al., 2020	Field Research on The Current Status And Problems Of Diyarbakir Marble Sector	Lack of qualified staff, export problems, R&D activities and laboratory infrastructure problems, problems experienced in the evaluation of marble waste, legislation and bureaucracy, currency volatility, lack of clustering, lack of capacity utilization, financial problems, logistics cost, lack of marketing and promotion, insufficient incentives, taxes, problems on obtaining mining lands
Demirtaş et al., 2018	Anaylsis of Marble and Natural Stone Sector in Isparta	Low productivity in the sector, high manufacturing costs, legislation and policies, lack of R&D activities, lack of long-term master plan, increase in alternative business lines, inadequacy of university-industry cooperation, presence of inexperienced companies, lack of institutionalization, problems at the ports, lack of clustering.
BEBKA, 2017	Bilecik Marble Sector Report	Inadequate sectoral education infrastructure, lack of qualified staff, underdevelopment of the processed marble sector, energy costs, taxes, lack of technological investment, low productivity, low capacity utilization rate
Özkara et al., 2014	Increasing Value-Added and Export in Marble Sector	High energy costs, lack of incentives, lack of qualified staff, lack of capital, high taxes, lack of inventory, lack of communication with design and architectural organizations, logistics problems, absence of the Ministry of Mining, bureaucracy for permits in institutions, the tendency to use imported natural stone in public institutions, problems in the judicial process, unconscious environmentalist approach, the inability to search for new resources in some regions due to terrorism, anti-mining regulations.

Aycan, 2007	Suggestion for Today and Future of the Marble Sector	Marketing problems, industrialization problems, quality problems, financing problems, currency volatility, qualified personnel problems, high transportation fees, lack of modern technology, lack of incentives
Şatırer, 1999	Problems and Solutions of the Marble Sector in Türkiye	Inability to determine the marble reserves, lack of modern technology, administrative and organizationsl problems, marketing problems, financing problems, deficiency of communication and promotion, occupational health and safety.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1.FINDINGS OF RESEARCH

4.1.1.Data Analysis of General Information about Companies and Sectors

In the first part of the survey, questions contain general information about companies and the sectors. In the second part, there are questions to determine the significance level of sector problems.

Table 5 highlights age of the companies. The age of the companies is categorized as less than 10, between 10-24, and over 25 years old. More than half of surveyed companies are over 25 years old and they are called as well-established firms. Companies under the age of 10, described as micro companies, constitute 26.7% of all companies. 20% of the companies participating in the survey are between the ages of 10-24. Table 5 indicates the detail information about age of companies.

Table 5: Age of Companies

	Under 10	10-24	25+
Frequency	16	12	32
Percentage	26.7%	20%	53.3%

When examining the fields of activity of the surveyed companies, block and sliced marble producers accounted for 41.7% of the companies. While sliced producer companies make up 20%, the ratio of companies producing both sliced and processed marble is 15%. On the contrary, the percentage of companies producing only processed marble is 8.3%, and the share of companies producing block marble is 1.7%.

As is seen in Table 6, most of the companies are block and sliced marble producers. In addition to exporting the block marble, which they extract from companies' own quarries, in its raw form, they also produce their products in the sliced and dimensional form in their factories and export them to all over the world. It is clear that the largest production facilities in the sector are in the field of sliced marble. These companies, on the other hand, supply marble blocks from other quarries and process these products in their factories. Additionally, number of companies producing only processed marble is at low levels. Generally, large companies incline to produce processed marble in an attempt to create alternative production in addition to sliced or block marble production.

Table 6: Type of Marble Companies

	Block Marble	Sliced Marble	Processed Marble	Block + Sliced Marble	Sliced + Processed Marble	Block+Sliced +Processed Marble
Frequency	1	12	5	25	9	8
Percentage	1.7%	20%	8.3%	41.7%	15%	13.3%

Table 7 summarizes the categorization of the number of employees of companies. According to Table 7, companies are divided into four categories in terms of their number of employees; micro enterprises (less than 10), small enterprises (between 10 and 49), medium-size enterprises (between 50 and 249) and large enterprises (more than 250) (OECD, 2023). In addition, Table 6 reports that more than half of the companies' staff numbers are between 10 and 49. Companies, which have 50 or more employees, make up 31% of the surveyed companies. As can be seen here, a significant proportion of the surveyed companies are small enterprises.

The total number of employees in 60 companies in the survey is 4.493. According to report of the Ministry of Industry and Technology of Türkiye published in 2019, non-metallic mineral products sector employs 7.188 people in Afyonkarahisar (T.C. Sanayi ve Teknoloji Bakanlığı, 2019). Apart from the marble sector, non-metallic mineral product sector employs hundreds of workers. It is an

obvious fact that the survey conducted only in marble sector represents an important part of the marble industry in Afyonkarahisar.

Table 7: Number of Employees

	Micro Enterprises	Small Enterprises	Medium Size Enterprises	Large Enterprises
Frequency	11	31	10	8
Percentage	18.3 %	52.7 %	16.7 %	13.3

Table 8 reports the results of what is the export type of companies mostly are. It is clearly documented that the companies that make export-registered sales predominantly constitute approximately 52%, while the companies that directly export make up roughly 48% of the all companies. On the other hand, Table 8 indicates that the share of export-registered sales of companies in total exports is more than direct exports. It is important to emphasize that export registered sales figure is roughly 125 million dollars while marble export of Afyonkarahisar is 245 million dollars in 2022. Table 8 also represents that the export share in total sales of 61.7% of the surveyed companies is 80% and above.

Table 8: Information about Export Structure of Companies

		Frequency	Percentage
Export type	Export Registered Sales	31	51.7%
	Direct Sales	29	48.3%
The percentage of export-registered sales in total export	0-50%	29	48.3%
	51-100%	31	51.7%
The percentage of export in total sales	0-80%	23	38.3%
	81-100%	37	61.7%

Table 9 indicates the results of the number of exporting countries of firms in a current year. Analysis displays that the outcome is the rate of companies exporting to less than ten countries is 63.3%. Moreover, the rate of companies exporting to 25 or

more countries is 10%, while 26.7% of the surveyed firms export to 10-24 different countries.

Table 9: Number of Exporting Countries

	Under 10	10-24	25+
Frequency	38	16	6
Percentage	63.3 %	26.7 %	10 %

Table 10 represents the participation status of the companies in the international natural stone fair. 65% of the surveyed companies attend international fairs as an exhibitor. On the other hand, it is observed that 91.7% of the companies stated that they attend international fairs as visitors. It should be noted that the "Marble İzmir Fair" is one of the three largest international fairs in the world, and is held in İzmir, the rate of companies participating in international fairs as visitors is quite high.

Table 10: Participation in International Marble/Natural Stone Fair

		Frequency	Percentage
Participation as an exhibitor	Yes	39	65.0 %
	No	21	35.0 %
Participation as an visitor	Yes	55	91.7 %
	No	5	8.3 %

Table 11 illustrates the status of companies whether they make a business trip abroad or not. The output of the study shows that the 80% of the companies make a business trip abroad. This approves that the vast majority of companies conduct foreign market research and have intense contact with international markets.

Table 11: Business Trip Abroad

	Yes	No
Frequency	48	12
Percentage	80%	20%

As can be seen in Table 12, 48.3% of the companies have a sales department, while 51.7% do not. However, important conclusion is that: absence of sales departments of the companies in the marble sector causes the high rate of export-registered sales (Table 8). The absence of a sales department of the companies is notable factor for the companies not to have difficulties in finding customers in global market.

Table 12: Companies with Sales Departments

	Yes	No
Frequency	29	31
Percentage	48.3%	51.7%

Table 12 demonstrates the answers to the question of how companies find customers mostly. Looking at the responses received, 40% of the companies stated that they received direct contact from customer. This situation inclines companies not to give sufficient importance to establish a sales department in their firm. The most important cause of this situation is that Türkiye has the most important natural stone reserve in different color and pattern, and the prices are cheaper than the marble exporting countries such as Italy, Spain and Greece.

Table 13: How did you get new customers?

	Fair	Mail	Call	Business Trip	Direct Contact From Customer	Other
Frequency	21	5	4	4	24	2
Percentage	35%	8.3%	6.7%	6.7%	40%	3.3%

Table 14 reveals the answers given to the question of whether there has been an increase in the exports of firms between 2018 and 2020. The Turkish currency and debt crisis, in 2018 led to the depreciation of the Turkish lira, which had a significant impact on the economy. Thus, the following question will help determining the possible effects of this crisis on the marble sector.

In consequence of the adverse effects of the policy changes of the central banks of developed countries on developing countries since the beginning of 2018, there was a large-scale fluctuation in the Turkish financial markets in August 2018. Increasing risk perceptions in global markets, the tendency to withdraw from developing countries, the increase in oil prices, and the US sanctions against Türkiye were the external factors that supported the negative developments in the domestic markets (Sezal, 2020). Due to these reasons, Turkish Lira has depreciated against the dollar approximately by 60%.

It has been determined that 73% of the surveyed companies increased their exports between the 2018-2020 periods, and 26.7% did not have any increase in their exports. The following comment can be made with regard to this result: the depreciation of the Turkish Lira caused a dollar-based cheapening of marble products and this situation increased marble exports.

Table 14: Did Your Company's Export Value Increase between 2018 and 2020?

	Yes	No
Frequency	44	16
Percentage	73.3%	26.7%

The current thesis attempts to investigate the rate of social media platform usage of companies. The study shows that 96.7% of the companies have a website. In addition, the study reveals that 91.7% of surveyed firms have social media accounts (Instagram, Facebook, Twitter etc.). The Table 15 also reports the situation of companies' sales of their product on e-commerce platforms. In the study, 80% of the companies declare that they do not make sales on e-commerce. This is one of the main reasons of why there are few companies selling them through e-commerce; marble is not suitable products for e-commerce sales because of its structure. Due to quality of the marble patterns and texture can be determined by touching and examining them in detail, the sale of marble on e-commerce remains limited.

Table 15: Social Platform Informations

		Frequency	Percentage
Does your company has websites?	Yes	58	96.7%
	No	2	3.3%
Does your company has social media accounts(Instagram, Facebook, Twitter etc.)?	Yes	49	91.7%
	No	11	8.3%
Does your company sell its products online?	Yes	12	20%
	No	18	80%

Companies need R&D activities in order to produce products with high value-added. Companies carry out R&D activities in order to maintain their existence, increase their profit margins and have a position within top brands. In the marble

sector, it is inevitable to carry out R&D activities in order for companies to grow and become brands. The survey documents that 33.3% of the companies have R&D activities to increase the value-added in marble production. The rate of companies that do not have any studies on this subject is 66.7%.

Table 16: Companies with R&D Activities to Produce Value-Added Products

	Yes	No
Frequency	20	40
Percentage	33.3%	66.7%

Table 17 reports that 60% of the companies benefit from government support. On the contrary, 40% of the companies state that they have not yet benefited from the government supports provided to exporters and producers. Table 17 displays that 76.7% of the companies declare that the incentives for the production of value-added products are not sufficient, while 23.3% of companies state that they are sufficient.

Table 17: Opinions on Government Support

		Frequency	Percentage
Does your firm receive government supports for export?	Yes	14	60%
	No	46	40%
Status of Whether Companies Find Government Incentives Sufficient for Value- Added Products Productions	Yes	14	23,3%
	No	46	76.7%

This section summarizes the Covid-19 epidemic, which brought the world economy to a standstill, on the mining sector, the effects of the pandemic on exports, employment, and turnover.

Table 18 aims to reveal the findings for the effects of the pandemic on the exports of the companies. It is determined that 68.3% of the companies' export in pandemic period did not affect negatively. While 55% of the firms stated that their

exports increased during the pandemic period, 18.3% of the companies pointed out that their exports increased by more than 50%. It is clear fact that pandemic period did not affect the marble sector adversely in terms of exports; on the contrary, there was a significant increase in exports in the sector.

Table 19 provides the results of the answers given to the questions about the working status of the companies during the pandemic period. According to Table 18, 80% of the companies continued full-time work during the pandemic process, and 20% of them continued as part-time work. It is necessary here to clarify exactly that restrictions for manufacturing firms during the pandemic period have been flexible compared to other sectors. Consequently, the study shows that manufacturing companies continue full-time work. On the other hand, some companies continued part-time work on their own will.

Table 20 reports that 61.7% of the surveyed firms increased their turnover during the pandemic period, while 20% of them decreased compared to the pre-pandemic period. On the other hand, 15% of the companies increased their turnover by more than 50% compared to the pre-pandemic period. When the impact of the pandemic process on the marble sector is evaluated, pandemic period did not affect firms negatively, on the contrary, their turnover increases during this period. The most considerable reason for this is the depreciation of the Turkish Lira against the USA dollar during pandemic period, and the increase in the demand for marble for interior and exterior design. Due to the increase in the demand for cottages and villas project abroad during pandemic period give rise to enhance demand for marble.

Table 18: The effect of the pandemic on the export values of companies compared to the pre-pandemic period

	Frequency	Percentage	Chi-Square Sig.
50% + decrease	2	3.3%	0.08
40-49% decrease	4	6.7%	
30-39% decrease	4	6.7%	
20-29% decrease	6	10.0%	
10-19% decrease	2	3.3%	
1-9% decrease	2	3.3%	
No Change	8	13.3%	
1-9% increase	2	3.3%	
10-19% increase	5	8.3%	
20-29% increase	8	13.3%	
30-39% increase	5	8.3%	
40-49% increase	2	3.3%	
50%+ increase	10	16.7%	

Table 19: Effect of Pandemic on Marble Sector

		Frequency	Percentage	Ci-Square Sig.
Working status of companies during the pandemic period	Full Time Working	48	80%	0.00
	Part Time Working	12	20%	

Table 20: The effect of the pandemic process on the turnover of companies compared to the pre-pandemic period

	Frequency	Percentage	Chi-Square Sig.
50% + decrease	1	1.7%	0.00
40-49% decrease	2	3.3%	
30-39% decrease	4	6.7%	
20-29% decrease	2	3.3%	
10-19% decrease	2	3.3%	
1-9% decrease	1	1.7%	
No Change	13	21.7%	
1-9% increase	1	1.7%	
10-19% increase	5	8.3%	
20-29% increase	13	21.7%	
30-39% increase	7	11.7%	
40-49% increase	2	3.3%	
50%+ increase	7	11.7%	

4.1.2.Data Analysis of Sectoral Problems

In Table 22 explains the question of whether companies have difficulties finding an export markets. It is marked out that 33.3% of the firms stated that they had difficulty in finding new customers, while 66.7% stated that they did not face any difficulties to find new customers.

Table 21: Does Your Companies Have Difficulties Finding an Export Market?

	Yes	No
Frequency	20	40
Percentage	33.3%	66.7%

4.1.3.Hypothesis Testings

In the study, the participants answered the 5-point Likert scale which containing 13 questions about the obstacles to produce value-added products in the marble sector. In this context, the first hypothesis reveals whether the relationship between the obstacles to produce value-added production in the marble sector and the size of the firms. The sizes of the firms are based on the criteria of micro, small, medium and large firms categorized by the OECD. Below hypotheses have been proposed in an attempt to explain between the obstacles to produce value-added products in the marble sector and the size of the companies.

H₀₁ The obstacles for companies to produce value-added products in the marble sector are same for companies of different sizes.

H₁₁: The obstacles for companies to produce value-added products in the marble sector are not same for companies of different sizes.

The study examines 11 questions that are about the obstacles to produce value-added production. 10 out of 11 questions reports that there is no difference between size of companies and obstacles for companies to produce value-added products ($p > 0.05$). Kruskal Wallis and Anova tests were used in the analysis. Table from 23 to 33 helps interpreting the first hypothesis and illustrates that H_{01} is accepted because p value is more than 0.05 in 10 out 11 variables, therefore H_{11} is rejected. As Table 32 illustrates, one of the striking findings of the study shows that there are differences in terms of size of companies in the opinions of whether the lack of demand for value-added products in marble sector is an obstacle for companies inclining to produce value added products ($p = 0.05$). As Table 32 reports, it has been documented that micro-scale companies do not assert that the lack of

demand for value-added products in marble sector is not an obstacle for companies inclining to produce value-added products. On the other hand, small-scale and large size companies declare that the lack of demand for value-added products is an obstacle to value-added products. It is seen that medium-sized enterprises do not have a clear opinions on whether the lack of international demand is an obstacle to produce value-added products. It is an obvious fact that micro-enterprises assert that designing and marketing in marble in order to create value-added is so important, and a marble that is successfully designed and be effectively marketed will not have any problems in finding buyers. Similarly, micro enterprises state that a successful design product will create its own demand, and therefore, the inadequacy of international demand is not an obstacle inclining to produce value-added products in marble sector. Micro enterprises, mostly composed of young businessmen, are engaged in value-added production more than small, medium and large enterprises. Five out of 11 micro-enterprises participating in the survey are engaged in the value-added/designed products in marble. Compared to small, medium and large enterprises, which have traditionally produced and exported blocks and slabs marble for years, micro-enterprises assert that successfully designed, be efficiently marketed and promoted marble products can create its own demand in the international market. Table from 22 to 32 illustrate the analyzes of 13 questions, in which the size of the firm and the obstacles to produce value-added products in marble sector are compared, and the answers given according to the test results were reported.

Table 22: Comparison of “Size of companies” and “ Insufficient production infrastructure in companies is an obstacle for value added production in marble sector”

		Insufficient production infrastructure in companies is an obstacle for value added production in marble sector.						Kruskal Wallis Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	3	1	-	2	5	11	0.89
	Small	1	1	-	15	14	31	
	Medium	1	1	-	2	6	10	
	Large	0	2	-	1	5	8	
Total		5	5	-	20	30	60	

Table 23: Comparison of "Size of companies" and "The current production amount and sales are sufficient for companies is an obstacle for value added production in marble sector "

		The current production amount and sales are sufficient for companies is an obstacle for value added production in marble sector.						Anova Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	1	3	2	4	1	8	0.28
	Small	1	2	9	13	6	33	
	Medium	0	0	5	1	4	11	
	Large	0	1	1	5	1	8	
Total		2	6	17	23	12	60	

Table 24: Comparison of "Size of companies" and “High cost of value-added product production is an obstacle for value added production in marble sector”

High cost of value-added product production is an obstacle for value added production in marble sector.								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Kruscal Wallis Sig
Size of Companies	Micro	0	2	0	4	5	11	0.98
	Small	0	3	8	8	12	31	
	Medium	1	0	1	3	5	10	
	Large	0	0	1	4	3	8	
Total		1	5	10	19	25	60	

Table 25: Comparison of "Size of companies" and “High labor cost is an obstacle for value added production in marble sector”

High labor cost is an obstacle for value added production in marble sector.								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Kruscal Wallis Asymp. Sig
Size of Companies	Micro	0	0	2	3	5	11	0.88
	Small	1	0	7	8	15	31	
	Medium	0	1	0	5	4	10	
	Large	0	0	2	1	6	8	
Total		1	1	11	17	30	60	

Table 26: Comparison of "Size of companies" and Lack of technology- automation is an obstacle for value added production in marble sector.

		Lack of technology- automation is an obstacle for value added production in marble sector.						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Kruskal Wallis Asymp. Sig
Size of Companies	Micro	1	2	2	2	4	11	0.27
	Small	1	1	5	9	15	31	
	Medium	0	0	0	3	6	10	
	Large	0	4	2	3	3	8	
Total		2	4	9	17	28	60	

Table 27: Comparison of "Size of companies" and “The problem of finding qualified staff is an obstacle for value added production in marble sector”

		The problem of finding qualified staff is an obstacle for value added production in marble sector.						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	Micro	1	-	1	0	9	11	0.90
	Small	0	-	1	10	20	31	
	Medium	0	-	1	4	5	10	
	Large	0	-	0	2	6	8	
Total		1	0	3	16	40	60	

Table 28: Comparison of "Size of companies" and “Lack of financial resources is an obstacle for value added production in marble sector”

Lack of financial resources is an obstacle for value added production in marble sector.								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	Micro	0	1	5	2	3	11	0.60
	Small	2	4	5	16	4	31	
	Medium	1	2	2	4	1	10	
	Large	0	0	3	3	2	8	
Total		3	7	15	25	10	60	

Table 29: “Comparison of "Size of companies" and “Managers do not need to develop new products is an obstacle for value added production in marble sector”

Managers do not need to develop new products is an obstacle for value added production in marble sector.								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Kruskal Wallis Asymp. Sig
Size of Companies	Micro	0	0	7	3	1	11	0.23
	Small	1	2	5	14	9	31	
	Medium	0	0	1	5	4	10	
	Large	0	0	1	3	4	8	
Total		1	2	14	25	18	60	

Table 30: “Comparison of "Size of companies" and “Insufficient investment incentives are an obstacle for value added production in marble sector”

Insufficient investment incentives are an obstacle for value added production in marble sector.								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig
Size of Companies	Micro	0	2	2	1	6	11	0.16
	Small	1	3	6	13	8	31	
	Medium	1	2	2	4	1	10	
	Large	0	0	1	4	3	8	
Total		2	7	5	20	30	60	

Table 31: Comparison of "Size of companies" and “Low demand for designed products is an obstacle for value added production in marble sector”

Low demand for designed products is an obstacle for value added production in marble sector.								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	Micro	4	3	1	1	2	11	0.05
	Small	2	4	8	13	4	31	
	Medium	1	2	5	2	0	10	
	Large	0	2	1	2	3	8	
Total		7	11	15	18	9	60	

Table 32: Comparison of "Size of companies" and "International competition is an obstacle for value added production in marble sector"

		International competition is an obstacle for value added production in marble sector.						Anova Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	2	2	3	3	1	11	0.24
	Small	1	7	10	8	5	31	
	Medium	1	1	3	3	2	10	
	Large	0	0	3	2	3	8	
Total		4	-	5	20	30	60	

Export types are divided into two; direct sales and export registered sales. Export registered sales in the marble sector are quite high. The high level of export registered sales is an important indicator that there is a lack of marketing, branding, promotion and foreign language-speaking staff in the marble sector. Second hypothesis tests whether the obstacles inclining to produce value-added products differ according to the export type of the companies. Mann Whitney U-Tests and T Tests were performed in the analysis. In the second hypothesis, which includes 11 questions, the p value is greater than 0.05 in all, and therefore the H_{02} is accepted. As a result, the second hypothesis reports that the obstacles for companies to produce value-added products do not differ according to the export type of the companies. Table from 33 to 43 are used to interpret and explain second hypothesis. Hypothesis are in below.

H_{02} The obstacles for companies to produce value-added products in the marble sector are similar for companies that export directly or indirectly.

H_{12} : The obstacles for companies to produce value-added products in the marble sector are not same for companies that export directly or indirectly.

Table 33: Comparison of "Export Types" and “International competition is an obstacle for value added production in marble sector”

		Insufficient production infrastructure in companies is an obstacle for value added production in marble sector.					Mann Whitney U-Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	
Export Types	Export- Registered Sales	2	-	1	14	14	31
	Direct Export	3	-	4	6	16	29
Total		5	-	5	20	30	60

Table 34: Comparison of "Export Types" and “The current production amount and sales are sufficient for companies is an obstacle for value added production in marble sector”

		The current production amount and sales are sufficient for companies is an obstacle for value added production in marble sector.					T-test Sig.
		Not Impor tant	Slightly Important	Moderately Important	Important	Very important	
Export Types	Export- Registered Sales	1	1	9	13	7	31
	Direct Export	1	5	8	10	5	29
Total		2	6	17	23	12	60

Table 35: Comparison of "Export Types" and “High cost of value-added product production is an obstacle for value added production in marble sector”

		High cost of value-added product production is an obstacle for value added production in marble sector.						Mann Whitney U-Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	1	3	5	10	12	31	0.54
	Direct Export	0	2	5	9	13	29	
Total		1	5	10	19	25	60	

Table 36: Comparison of "Export Types" and “High labor cost is an obstacle for value added production in marble sector”

		High labor cost is an obstacle for value added production in marble sector.						Mann Whitney U-Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	0	1	6	8	16	31	0.89
	Direct Export	1	0	5	9	14	29	
Total		1	1	11	17	30	60	

Table 37: Comparison of "Export Types" and “Lack of technology- automation is an obstacle for value added production in marble sector”

		Lack of technology- automation is an obstacle for value added production in marble sector.						Mann Whitney U-Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	2	2	3	11	13	31	0.61
	Direct Export	0	2	6	6	15	29	
Total		2	4	9	17	28	60	

Table 38: Comparison of "Export Types" and “The problem of finding qualified staff is an obstacle for value added production in marble sector”

		The problem of finding qualified staff is an obstacle for value added production in marble sector.						T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	-	1	2	6	22	31	0.84
	Direct Export	-	0	1	10	18	29	
Total		-	1	3	16	40	60	

Table 39: Comparison of "Export Types" and “Lack of financial resources is an obstacle for value added production in marble sector”

		Lack of financial resources is an obstacle for value added production in marble sector.						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	T-test Sig.
Export Types	Export-Registered Sales	2	3	6	15	5	31	0.92
	Direct Export	1	4	9	10	5	29	
Total		3	7	15	25	10	60	

Table 40: Comparison of "Export Types" and “Managers do not need to develop new products is an obstacle for value added production in marble sector”

		Managers do not need to develop new products is an obstacle for value added production in marble sector.						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Mann Whitney U-Test Sig.
Export Types	Export-Registered Sales	0	0	7	16	8	31	0.75
	Direct Export	1	2	7	9	10	29	
Total		1	2	14	25	18	60	

Table 41: Comparison of "Export Types" and “Insufficient investment incentives are an obstacle for value added production in marble sector”

		Insufficient investment incentives are an obstacle for value added production in marble sector.					T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	
Export Types	Export- Registered Sales	1	3	3	12	12	0.18
	Direct Export	1	4	8	10	6	
Total		2	7	11	22	18	60

Table 42: Comparison of "Export Types" and “Low demand for designed products is an obstacle for value added production in marble sector”

		Low demand for designed products is an obstacle for value added production in marble sector.					T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	
Export Types	Export- Registered Sales	3	3	7	13	5	0.76
	Direct Export	4	8	8	5	4	
Total		7	11	15	18	9	60

Table 43: Comparison of "Export Types" and “International competition is an obstacle for value added production in marble sector”

		International competition is an obstacle for value added production in marble sector.					T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	
Export Types	Export-Registered Sales	3	3	5	13	7	0.15
	Direct Export	1	7	14	3	4	
Total		4	10	19	16	11	60

The Likert type scale that includes the problems in the marble sector and consists of 13 different questions covers the problems experienced by the companies in the sector. These problems are costs (energy, labor, production), lack of technology- automation, bureaucratic procedures, long mining license processes, high taxes, financing problems, lack of qualified labor force, inability to compete in the international market, lack of clustering, lack of incentives, currency volatility, high freight costs and low price due to unfair competition. The study obviously revealed that three biggest problems for the marble industry are high freight prices, costs (energy, labor force, production), and labor force. It is necessary here to clarify exactly why freight price is the most serious problem. The deterioration of the supply-demand balance in global trade with the new type of coronavirus (Covid-19) epidemic brought along logistics problems in maritime transport, and the problems that started with the container bottleneck continued with increases in freight prices. Moreover, freight prices doubled, and it became difficult to find containers in the pursuit of increased demand for goods. Freight prices on the Far East-Europe line, which were at the level of two thousand dollars before Covid-19, reached 20 thousand dollars. Hence, increase in freight prices draws attention as the most important problem in the marble sector. On the contrary, competitiveness and financial problems in international markets do not appear as primary problems.

In the third hypothesis of the study, it is tested whether the sector problems differ according to the size of the companies. Table from 44 to 56 indicate that the

sector problems do not differ according to the size of the companies ($p>0.05$). In this analysis, the hypotheses are as follows;

H₀₃: Marble industry problems are same for companies of different sizes.

H₁₃: Marble industry problems are not same for companies of different sizes.

H₁₃ is rejected because the sector problems do not differ according to the size of the companies ($p>0.05$). Therefore, H₀₃ is accepted. However, Table 46 demonstrates that the p value is measured as 0.08 in the “lack of technology and automation is a one of the most important sector problems in marble industry” question. In this respect, answers to the related questions are examined, micro and small-sized companies claim that there is a lack of technology and automation in the sector, while medium and large-sized companies claim that there is no lack of technology and automation in the sector.

Table 44: Comparison of “Size of Companies” and “Costs (energy, labor, production) are one of the most important sector problems in marble industry”

		Costs (energy, labor, production) are one of the most important sector problems in marble industry						Anova Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	1	-	1	1	8	11	0.46
	Small	1	-	3	3	24	31	
	Medium	-	-	-	1	9	10	
	Large	-	-	-	1	7	8	
Total		2	-	4	6	48	60	

Table 45: Comparison of “Size of Companies” and “Lack of technology- automation is one of the most important sector problems in marble industry”

Lack of technology- automation is one of the most important sector problems in marble industry								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	Micro	1	1	5	4	-	11	0.08
	Small	-	4	7	8	12	31	
	Medium	-	2	1	4	3	10	
	Large	-	-	1	4	3	8	
Total		1	7	14	20	18	60	

Table 46: Comparison of “Size of Companies” and “Bureaucratic procedures are one of the most important sector problems in marble industry”

Bureaucratic procedures are one of the most important sector problems in marble industry								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Kruscal Wallis Asymp. Sig
Size of Companies	Micro	-	2	1	1	7	11	0.44
	Small	3	-	7	7	14	31	
	Medium	-	2	3	2	3	10	
	Large	-	-	2	1	5	8	
Total		3	5	13	11	29	60	

Table 47: Comparison of “Size of Companies” and “Long mining license processes are one of the most important sector problems in marble industry”

		Long mining license processes are one of the most important sector problems in marble industry						Anova Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	1	-	1	1	8	11	0.68
	Small	1	2	1	6	21	31	
	Medium	-	-	2	2	6	10	
	Large	-	-	-	1	7	8	
Total		2	2	4	10	42	60	

Table 48: Comparison of “Size of Companies” and “High taxes are one of the most important sector problems in marble industry”

		High taxes are one of the most important sector problems in marble industry						Kruscal Wallis Asymp. Sig
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	-	1	-	4	6	11	0.32
	Small	-	-	6	9	16	31	
	Medium	-	-	1	1	8	10	
	Large	-	-	-	2	6	8	
Total		-	1	7	16	36	60	

Table 49: Comparison of “Size of Companies” and “Financing problems are one of the most important sector problems in marble industry”

		Financing problems are one of the most important sector problems in marble industry						Anova Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	0-9	-	-	6	2	3	11	0.54
	10-49	2	1	9	11	8	31	
	50-249	1	-	5	3	1	10	
	250+	-	-	2	4	2	8	
Total		3		22	20	14	60	

Table 50: Comparison of “Size of Companies” and “Lack of qualified labor force is one of the most important sector problems in marble industry”

		Lack of qualified labor force is one of the most important sector problems in marble industry						Anova Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	1	-	1	2	7	11	0.73
	Small	-	-	3	7	21	31	
	Medium	-	-	1	4	5	10	
	Large	-	-	-	4	4	8	
Total		1	-	5	17	37	60	

Table 51: Comparison of “Size of Companies” and “Inability to compete in the international market is one of the most important sector problems in marble industry”

Inability to compete in the international market is one of the most important sector problems in marble industry								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	0-9	-	3	4	3	1	11	0.47
	10-49	1	4	7	14	5	31	
	50-249	-	1	2	5	2	10	
	250+	-	-	5	3	-	8	
Total		1	8	18	25	8	60	

Table 52: Comparison of “Size of Companies” and “Lack of clustering is one of the most important sector problems in marble industry”

Lack of clustering is one of the most important sector problems in marble industry								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	Micro	1	1	-	2	7	11	0.25
	Small	-	-	3	10	18	31	
	Medium	-	1	2	4	3	10	
	Large	-	-	1	1	6	8	
Total		1	2	6	17	34	60	

Table 53: “Comparison of “Size of Companies” and “Lack of incentives are one of the most important sector problems in marble industry”

Lack of incentives are one of the most important sector problems in marble industry								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Kruscal Wallis Asymp. Sig
Size of Companies	0-9	-	1	3	3	4	11	0.44
	10-49	1	-	8	13	9	31	
	50-249	1	1	3	4	1	10	
	250+	-	-	3	2	3	8	
Total		2	2	17	22	17	60	

Table 54: “Comparison of “Size of Companies” and “Currency volatility is one of the most important sector problems in marble industry”

Currency volatility is one of the most important sector problems in marble industry								
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Anova Test Sig.
Size of Companies	Micro	-	-	-	5	6	11	0.42
	Small	1	2	4	11	13	31	
	Medium	1	-	-	2	7	10	
	Large	-	-	-	4	4	8	
Total		2	2	4	22	30	60	

Table 55: “Comparison of “Size of Companies” and “High freight cost is one of the most important sector problems in marble industry”

		High freight cost is one of the most important sector problems in marble industry						Kruskal Wallis Asymp. Sig
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	-	-	2	3	6	11	0.26
	Small	-	-	1	7	23	31	
	Medium	-	-	-	1	9	10	
	Large	-	-	-	2	6	8	
Total		-	-	3	13	44	60	

Table 56: “Comparison of “Size of Companies” and “Low price due to unfair competition is one of the most important sector problems in marble industry”

		Low price due to unfair competition is one of the most important sector problems in marble industry						Kruskal Wallis Asymp. Sig
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Size of Companies	Micro	-	-	2	-	9	11	0.41
	Small	-	2	4	10	15	31	
	Medium	-	-	1	3	6	10	
	Large	-	-	1	2	5	8	
Total		-	2	8	15	35	60	

The fourth hypothesis is interpreted and explained through the survey questions as following. The fourth hypothesis investigates whether sector problems differ according to export types of companies. The hypothesis tested by 13 different questions. These questions that are tested from Table 57 to Table 69 shows that

sector problems do not differ according to export types of companies ($p>0.05$). In this analysis, the hypotheses are as follows;

H₀₄: The problems of the marble sector are same for the companies that export directly and indirectly.

H₁₄: The problems of the marble sector are not same for the companies that export directly and indirectly.

To sum up, H₀₄ is accepted because sector problems do not differ according to export types of companies ($p>0.05$).

Table 57: Comparison of “Export Types” and “Costs (energy, labor, production) are one of the most important sector problems in marble industry”

		Costs (energy, labor, production) are one of the most important sector problems in marble industry					T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	
Export Types	Export-Registered Sales	1	-	-	2	28	0.12
	Direct Export	1	-	4	4	20	
Total		2	-	4	6	48	60

Table 58: Comparison of “Export Types” and “Lack of technology- automation is one of the most important sector problems in marble industry”

		Lack of technology- automation is one of the most important sector problems in marble industry						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	T-test Sig.
Export Types	Export-Registered Sales	1	6	4	12	8	31	0.17
	Direct Export	0	1	10	8	10	29	
	Total	1	7	14	20	18	60	

Table 59: Comparison of “Export Types” and “Bureaucratic procedures are one of the most important sector problems in marble industry”

		Bureaucratic procedures are one of the most important sector problems in marble industry						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Mann Whitney U-Test Sig.
Export Types	Export-Registered Sales	-	3	7	6	15	31	0.81
	Direct Export	3	1	6	5	14	29	
	Total	3	4	13	11	29	60	

Table 60: Comparison of “Export Types” and “Long mining license processes are one of the most important sector problems in marble industry”

		Long mining license processes are one of the most important sector problems in marble industry						Mann Whitney U-Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	1	-	2	6	22	31	0.52
	Direct Export	1	2	2	4	20	29	
Total		2	2	4	10	42	60	

Table 61: Comparison of “Export Types” and “High taxes are one of the most important sector problems in marble industry”

		High taxes are one of the most important sector problems in marble industry						Mann Whitney U-Test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	-	1	2	11	17	31	0.61
	Direct Export	-	-	5	5	19	29	
Total		-	1	7	16	36	60	

Table 62: Comparison of “Export Types” and “Financing problems are one of the most important sector problems in marble industry”

Financing problems are one of the most important sector problems in marble industry							
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total
Export Types	Export-Registered Sales	1	1	11	9	9	31
	Direct Export	2	-	11	11	5	29
	Total	3	1	22	20	14	60
							0.79

Table 63: Comparison of “Export Types” and “Lack of qualified labor force is one of the most important sector problems in marble industry”

Lack of qualified labor force is one of the most important sector problems in marble industry							
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total
Export Types	Export-Registered Sales	1	-	3	8	19	31
	Direct Export	-	-	2	9	18	29
	Total	1	-	5	17	37	60
							0.52

Table 64: Comparison of “Export Types” and “Inability to compete in the international market is one of the most important sector problems in marble industry”

		Inability to compete in the international market is one of the most important sector problems in marble industry						T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	-	5	5	15	6	31	0.61
	Direct Export	1	3	13	10	2	29	
Total		1	8	18	25	8	60	

Table 65: Comparison of “Export Types” and “Lack of clustering is one of the most important sector problems in marble industry”

		Lack of clustering is one of the most important sector problems in marble industry						T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export- Registered Sales	-	2	2	9	18	31	0.75
	Direct Export	1	-	4	8	16	29	
Total		1	2	6	17	34	60	

Table 66: Comparison of “Export Types” and “Lack of incentives are one of the most important sector problems in marble industry”

		Lack of incentives are one of the most important sector problems in marble industry						T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export-Registered Sales	1	1	5	13	11	31	0.11
	Direct Export	1	1	12	9	6	29	
Total		2	2	17	22	17	60	

Table 67: Comparison of “Export Types” and “Currency volatility is one of the most important sector problems in marble industry”

		Currency volatility is one of the most important sector problems in marble industry						T-test Sig.
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	
Export Types	Export-Registered Sales	1	1	2	11	16	31	0.85
	Direct Export	1	1	2	11	14	29	
Total		2	2	4	22	22	60	

Table 68: Comparison of “Export Types” and “High freight cost is one of the most important sector problems in marble industry”

		High freight cost is one of the most important sector problems in marble industry						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	T-test Sig.
Export Types	Export-Registered Sales	-	-	-	9	22	31	0.72
	Direct Export	-	-	3	4	22	29	
	Total	-	-	3	13	44	60	

Table 69: Comparison of “Export Types” and “Low price due to unfair competition is one of the most important sector problems in marble industry”

		Low price due to unfair competition is one of the most important sector problems in marble industry						
		Not Important	Slightly Important	Moderately Important	Important	Very important	Total	Mann Whitney U-Test Sig.
Export Types	Export-Registered Sales	-	2	1	11	17	31	0.91
	Direct Export	-	-	7	4	18	29	
	Total	-	2	8	15	35	60	

In Table 70 displays the answers given to the most considerable obstacles for companies to increase their export markets. 5 Point Likert scale analysis was used since respondents can easily answer questions. The answers are; not important (1), slightly important (2), moderately important (3), slightly important (4), and not important (5). As can be seen in Table 72, the lack of marketing and promotion, not participating in fairs and business trips, and the price-oriented sales seem to be the

most important factors in increasing the export markets for companies. There are nine questions to measure problems to increase export markets for companies.

Ci-square test is used to test whether the problems of firms in increasing their export markets in the marble sector differ in terms of companies (Table 71). Accordingly, the problems faced in the firms in increasing export markets do not differ from company to company except one problem. Below is the hypothesis to measure this relationship.

H₀₅: The problems faced in the firms in increasing export markets differ from company to company

H₁₅: The problems faced in the firms in increasing export markets does not differ from company to company

According to Table 70, it is seen that the p value is less than 0.05 in seven questions. On the other hand, the p value is 0.14 and 0.77 in two questions. It means that “Insufficient international demand” and “Insufficient participation of Turkish architects in international projects” problems do not differ from firm to firm. Surveyed companies have same view for “Insufficient international demand” and “Insufficient participation of Turkish architects in international projects” problems faced in the firms in increasing export markets for, while they have different view for seven out of nine different problems. To sum up, the H₀₅ hypothesis is accepted for seven out of nine different questions, thus H₁₅ is rejected for the question of insufficient international demand and insufficient participation of Turkish architects in international projects problem.

Table 70: The Most Important Obstacles for Companies to Increase Export Market

	Not Important (%)	Slightly Important (%)	Moderately Important (%)	Important (%)	Very important (%)	Chi Square	P-value
Lack of marketing and promotion	1.7	15	25	35	58.3	42.13	0.00
Insufficient participation in international fairs and lack of international business trips	5	6.7	16.7	26.7	45	32.50	0.00
Insufficient participation of Turkish architects in international projects	8.3	18.3	28.3	20	25	7.00	0.14
Lack of foreign language speaking staff	6.7	11.7	18.3	21.7	41.7	21.67	0.00
The prevalence of price-based sales	0	1.7	20	40	38.3	23.33	0.00
Negative image of Turkish marble due to negative examples in exports	8.3	5	23.3	28.3	35	20.00	0.00
Recession in the markets	11.7	13.3	30	35	10	16.17	0.00
High international competition	8.3	11.7	31.7	38.3	10	23.33	0.00
Insufficient international demand	18.3	20	18.3	26.7	16.7	1.83	0.77

The current study has been investigated the effects of pandemic to marble sector. Table 72 reports whether there is a relationship between companies having a sales/marketing department and number of employees in before & after pandemic. In the study, it is determined that 51.7% of the companies had the same number of employees during the pandemic period, while the number of employees of 36.7% of the companies increased. Namely, the number of employees of 88.3% of the surveyed companies did not decrease during the pandemic period. There are two main reasons: government incentives that provide company loans with low rates on

the condition that companies do not make redundant workers, and layoff prohibition several months later after the pandemic starts.

The 2019–2020 Covid-19 outbreak in mainland China negatively affected trade volume between China and Türkiye. Marble sector is one of the most affected sectors between two countries. Thus, marble exporter in Türkiye, especially marble block exporters, was inclined to expand into new markets. Table 72 shows the relationship between negative effects of Covid-19 pandemic on companies that they have sales/marketing departments or not have. The impact of the Covid 19 pandemic on companies was measured by the number of employees. According to respondent companies, 29 firms have sales/marketing departments, while 31 companies do not have sales/marketing departments. In light of this information, it is a clear fact that the absence of a sales/marketing department in more than half of the companies has a negative impact on firms. To investigate the relationship between negative effects of Covid-19 pandemic on companies that they have sales/marketing departments or not have, following hypothesis is tested.

H₀₆: The impact of the pandemic on companies depends on whether the having a sales/marketing department.

H₁₆: The impact of the pandemic on companies does not depend on whether the having a sales/marketing department.

As Table 72 indicates H₀₆ is accepted because the calculated p value is less than 0.05, thus H₁₆ is rejected. As Table 71 represents, only one firm with a sales department experienced decrease in the number of workers, on the other hand, number of workers of six companies without a sales department decreased compared to pre-pandemic period. As a result, it is observed that the firms that do not have a marketing/sales department are more negatively affected than the companies that have a sales department.

Table 71: Comparison of “The effect of the pandemic process on the number of employees of the companies compared to the pre-pandemic period” and “Having a sales department of companies”

		Do you have sales department?			T-test Sig.
		With Sales Department	Without Sales Department	Total	
The effect of the pandemic process on the number of employees of the companies compared to the pre-pandemic period	20-29% decrease	-	3	3	0.01
	10-19 decrease	-	2	2	
	1-9% decrease	1	1	2	
	Remain Same	15	16	31	
	1-9% increase	4	6	10	
	10-19% increase	4	3	7	
	20-29% increase	2	-	2	
	40-49% increase	2	-	2	
	50+% increase	1	-	1	
Total		29	31		

One of the most important ways to increase exports in almost all sectors is to participate in international fairs. In the marble sector, there are three biggest exhibitions; Marble İzmir (Türkiye), Marmomac (Italy) and Xiamen Stone (China). These fairs attract exhibitors, buyers, visitors and retails from all over the world and latest innovation and products are exhibited in these fairs. Exhibitors in these fairs have the opportunity to meet with buyers from all over the world and to make potential exports. Hence, participating in international fairs as an exhibitor in the marble sector has an important role in increasing the export markets.

Table 72 reveals whether there is a correlation between the companies participating in international fairs as an exhibitor and the number of exporting countries of firms. Here is the hypothesis for two variables:

H₇: There is a positive relationship between the situation of participation in a fair and the number of exporting countries of companies.

H₁₇: There is no positive relationship between the situation of participation in a fair and the number of exporting countries of companies.

Pearson correlation analysis identified strong relationship between companies participating in international fairs as an exhibitor and the number of exporting countries of firms ($p < 0.05$). According to analysis, it is determined that the companies participating in international fairs as an exhibitor export more countries than the firms that did not participate in the fairs as an exhibitor. As Table 72 highlights, it is tested and confirmed that 19 firms that participated in the fair as an exhibitor exported to 10 or more countries, while only 3 companies that did not participate in the fairs as an exhibitors exported to 10 or more countries. Table 72 reports that H_{07} is accepted because p value is 0.01, thus H_{17} is rejected. To sum up, the participation of companies in international fairs as an exhibitor contributed positively to expand into new markets in export.

Table 72: Comparison of “Number of Exporting Countries” and “Participation in international marble fair”

		Do you participate in international marble fair?			Pearson Correlation Sig.
		Yes	No	Total	
Number of Exporting Countries	Under 10	20	18	38	
	10-24	13	3	16	0.01
	25+	6	-	6	
Total		39	21	60	

CONCLUSIONS AND RECOMMENDATIONS

The main purpose of this study is to investigate the value-added in marble industry. In the study, obstacles in increasing value-added in the marble industry are deeply examined. For this purpose, survey was conducted on 60 companies in Afyonkarahisar. Due to its geological structure, Afyonkarahisar has very rich natural stone reserve. Rich and high quality marble deposits in Afyonkarahisar have enabled the marble sector to develop rapidly. However, although Afyonkarahisar has rich resources, it lags behind the world and average of Türkiye in terms of export amount per kilo. Developing high-value-added products and expanding the foreign market share in the marble sector depends very much on solving quality, design, and marketing problems in the sector.

First section of the thesis reports details of the concept of value-added and the importance of value-added in the marble sector. Second section provides the historical development and economic structure of the marble industry in the world, Türkiye and Afyonkarahisar. Third section provides data and methodology. Lastly, fourth section describes results and discussions. In line with the purpose of the study, the universe of the research is 285 enterprises, and 60 companies from these enterprises accepted to conduct a survey. The survey covers a data collection method, and made up of pre-prepared questions and applied to president of executive board, owner, manager or foreign trade manager of firms within the scope of the research.

This study reveals many conclusions. The findings of the thesis suggest that obstacles for firms to produce value-added products do not differ according to size of companies. However, opinion of “lack of demand for value-added products in marble sector is an obstacle for firms inclining to produce value added products” differs according to size of companies. Results of the hypothesis reveal that micro-scale firms claim that lack of demand for value-added products in marble sector is not an obstacle for companies inclining to produce value-added products, while small-scale and large size firms are opposite.

The empirical evidence regarding the second hypothesis shows that the obstacles for companies to produce value-added products do not differ according to export type of the firms. It reveals that companies that do direct sales and export

registered sales have same opinion for value-added production problems in the sector. The descriptive statistics document that three problems come to the fore in increasing value-added in the marble industry. These problems are obviously as a result of lack of qualified staff, lack of production infrastructure in firms and high labor costs. It is important to emphasize that staff is a key factor to produce value-added marble products for firms. Therefore, training qualified personnel for the sector stands out as the most important obstacle for companies to convert their production infrastructure to value-added production.

The study also focused on relationship between sector problems and size of the firms. The study further finds that sector problems does not differ according to size of the firm except one problem, which is lack of technology and automation. Lack of technology and automation is one of the biggest problems according to micro and small-sized companies, on the contrary, medium and large-sized firms claim that technology and automation is not a serious problem for marble sector.

The thesis also documents whether sector problems differ according to export types of companies. The current study shows that there is no difference in opinion for sector problem according to export types of firms. The study obviously revealed that marble sector suffer from three main problems; high freight prices, costs (energy, labor force, production), and labor force. Numerous other problems plague the marble industry. These problems are costs, lack of qualified staff, the long duration of mining license processes, high taxes, lack of clustering, low prices due to unfair competition, currency volatility due to the depreciation of TL. On the contrary, competitiveness and financial problems in international markets do not appear as primary problems in the sector.

Another finding of the study is to test and explain whether the problems of firms in increasing their export markets in the marble sector differ in terms of companies. Test result shows that problems in increasing export markets differ from company to company. However, surveyed companies have same opinion on the problems of "insufficient international demand" and "insufficient participation of Turkish architects in international projects", which are among the problems experienced in increasing the export market.

The thesis sheds light on effect of pandemic to marble sector. The findings emerged in this thesis strongly suggest that firms that have a sales/marketing department does not negatively affected by pandemic compared to companies that they do not have a sales/marketing.

Lastly, the study obviously reveals whether there is a correlation between the firms participating in international fairs as an exhibitor and the number of exporting countries of firms. The results report strong relationship between companies participating in international fairs as an exhibitor and number of exporting countries. it is documented that 19 firms that attended in the fair as an exhibitor exported to 10 or more countries, while only 3 companies that did not participate in the fairs as an exhibitors exported to 10 or more countries.

Although the study covers Afyonkarahisar, the results are important for the Turkish marble sector as it represents a significant part of the province's marble sector. The findings and the results regarding marble sector will contribute to making up-to-date evaluations for researchers and practitioners in marble sector. In light of the above-mentioned issues, the findings of this thesis could be used for individuals and institutions studying in this field.

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APPENDIX

Appendix 1: Questionnaire

MERMER SEKTÖRÜ ANKET SORULARI

Gönüllü katılımın esas olduğu bu formdaki sorulara vereceğiniz yanıtlar yalnızca araştırma amacıyla kullanılacak ve başkalarıyla paylaşılmayacaktır. Bu formdaki sorulara vereceğiniz içten yanıtlar bu çalışmanın sağlıklı sonuçlandırılması açısından önem taşımaktadır.

A) FİRMA VE SEKTÖR HAKKINDA GENEL BİLGİLERİ İÇEREN SORULAR

1. Firmanızın kuruluş yılı:
2. Firmanın faaliyet alanı nedir?
☐ Blok mermer üretici
☐ Plaka ve ebatlı mermer üreticisi
☐ Tasarım ürünü üreticisi
☐ Blok mermer/ Plaka ve ebatlı mermer üreticisi
☐ Plaka ve ebatlı mermer üreticisi / Tasarım mermer üreticisi
☐ Blok mermer üreticisi/ Tasarım mermer üreticisi
☐ Blok mermer/ Plaka ve ebatlı mermer üreticisi/Tasarım mermer üreticisi
3. Firmanızın üretim yapısını yüzdelik olarak belirtiniz.
(%) Blok mermer üretimi
(%) Plaka ve ebatlı mermer üretimi
(%) Tasarım ürünü üretimi
4. Firmanızda çalışan personel sayısı:
5. İhracat şekliniz yoğunluklu olarak hangisidir?
☐ İhraç Kayıtlı Satış ☐ Müşteriye Doğrudan Satış
6. İhraç kayıtlı ürünler ihracatınız yüzde kaçını oluşturuyor?
☐ % 0-9 ☐ %10-19 ☐ %20-29 ☐ %30-39 ☐ %40-49 ☐ %50-59 ☐ %60-69
☐ %70-79 ☐ %80-89 ☐ % 90-100
7. Ürettiğiniz ürünlerin yüzde kaçını ihraç ediyorsunuz?
☐ % 0-9 ☐ %10-19 ☐ %20-29 ☐ %30-39 ☐ %40-49 ☐ %50-59 ☐ %60-69
☐ %70-79 ☐ %80-89 ☐ 90-100
8. Yapmış olduğunuz ihracatta en yüksek paya sahip alıcı profilini en yüksekten en düşüğe göre sıralayınız? (1- en yüksek, 5- en düşük olacak şekilde işaretleme yapınız)
☐ İmalatçı firmalara doğrudan satış
☐ Aracı firmalar aracılığıyla satış
☐ Depocu firmalara doğrudan satış
☐ Proje firmalarına doğrudan satış
☐ Nihai tüketiciye doğrudan satış
9. İhracat yaptığınız ülke sayısı kaçtır?:
10. Uluslararası mermer/doğaltaş fuarlarına stantlı katılım sağlıyor musunuz?
☐ Evet ☐ Hayır
11. Uluslararası mermer/doğaltaş fuarlarına ziyaretçi olarak katılım sağlıyor musunuz?
☐ Evet ☐ Hayır
12. Yurtdışı iş gezileri gerçekleştiriyor musunuz?
☐ Evet ☐ Hayır
13. Pazar bulma, pazar geliştirme ve satış desteği sağlama konusunda bir ekibiniz veya çalışanınız var mı?
☐ Evet ☐ Hayır

Diğer Sayfaya Geçiniz.

14. İhracat yaptığınız firmalara genellikle hangi yollarla ulaşıyorsunuz?
() Fuar katılımı ile () Mail yoluyla () Arama yoluyla () Yurtdışı İş Gezisi ile
() Alıcı firma bize ulaştı () Diğer
15. İhracat pazarlarınızda 2018-2020 yılları arasında herhangi bir artış oldu mu?
() Evet () Hayır
16. Doğaltaş ihracatınızda en yüksek paya sahip ürün hangisidir?
() Blok İhracatı
() Plaka ve ebatlı ürün ihracatı
() Tasarım Ürünü İhracatı
() Blok, plaka ve ebatlı ürün ihracatı
() Plaka, ebatlı ve tasarım ürün ihracatı
() Hepsi
17. Web siteniz var mı?
() Evet () Hayır
18. Sosyal medya hesaplarınız var mı? (Facebook, instagram, twitter vs.)
() Evet () Hayır
19. Ürünlerinizin e-ticaret siteleri üzerinden satışı var mı?
() Evet () Hayır
20. Firmanızın tasarım ürünü üretimine yönelik AR-GE çalışması var mı?
() Evet () Hayır
21. Son 5 yıl içerisinde firmanızın teknolojik altyapısına yönelik olarak en çok hangi tür yatırım yaptınız? En yüksek paya sahip olan yatırım türünü en aza göre sıralayınız. (1- en yüksek, 4- en düşük olacak şekilde 1'den 4'e kadar işaretleme yapınız)
() Yatırım yapmadık.
() Blok devirme ve Mermer Ocağı'nda kullanılan makineler
() Blok kesme makineleri (Este, Katrak vs.) ve ebatlama makinesi
() Tasarım makineleri (Waterjet, 3 boyutlu CNC, 5 boyutlu CNC Tezgahı)
22. Tasarıma dayalı mermer üretimi konusunda çalışmalarınız var mı?
() Evet () Hayır
23. Tasarıma dayalı mermer üretimi yapmanın en önemli nedeninin ne olduğunu önem sırasına göre sıralayınız? (1- en yüksek, 4- en düşük olacak şekilde 1'den 4'e kadar işaretleme yapınız)
() İhracatı artırma
() Yeni pazarlara açılma
() Kar oranının yüksek olması
() Piyasadaki rekabet düşüklüğü
24. Tasarıma dayalı mermer üretimine yönelimin önündeki en önemli engelin ne olduğunu önem sırasına göre sıralayınız? (1- en önemli, 8 en önemsiz olacak şekilde işaretleme yapınız)
() Yatırım olanaklarının yetersiz olması
() Blok veya işlenmiş mermer satışının taleplerimizi karşılaması
() Piyasadaki rekabet yüksekliği
() Teknoloji tedarikindeki maliyet yüksekliği
() Kalifiyeli eleman bulma sorunu
() Müşteri bulma sorunu
() Üretim giderlerinin yüksek olması
() Piyasalardaki belirsizlik

25. T.C. Ticaret Bakanlığı, KOSGEB ve diğer kurum/kuruluşların üreticiye ve/veya ihracatçıya sağlamış olduğu desteklerden faydalıyor musunuz?
() Evet () Hayır
26. Katma değerli ürün üretimine yönelik devlet teşviklerinin yeterli olduğunu düşünüyor musunuz?
() Evet () Hayır
27. Mermer sektöründe uluslararası rekabette engelleri önem sırasına göre sıralayınız? (1- en önemli, 10- en önemsiz olacak şekilde işaretleme yapınız)
() Kalifiyeli personel eksikliği
() Finansal kaynak eksikliği
() Bürokratik engeller
() Devlet teşvik sisteminin eksikliği
() Kur hareketlilikleri
() Kurumsal yapı eksikliği
() Üretim altyapısının yeterli olmaması
() İhracatta yaşanan olumsuz örnekler sebebiyle Türk mermerine yönelik olumsuz imaj
() Türk mimarların uluslararası projelerde yeteri düzeyde yer alamaması
() Düşük kalitede üretim yapılması
28. Pandemi sürecinde ihracatınız nasıl etkilendi?
() %50'den fazla düşüş
() %40-49 arası düşüş
() %30-39 arası düşüş
() %20-29 arası düşüş
() %10-19 arası düşüş
() %1-9 arası düşüş
() Aynı kaldı
() %1-9 arası artış
() %10-19 arası artış
() %20-29 arası artış
() %30-39 arası artış
() %40-49 arası artış
() %50'den fazla artış
29. Pandemi sürecinde işletmenizin çalışma durumu nedir?
() Normal çalışma düzeninde devam edildi
() Kendi inisiyatifi ile kapatıldı
() Kısmi çalışma ile işe devam edildi

30. Pandemi döneminde cironuz bir önceki döneme göre nasıl etkilendi?

- () %50'den fazla düşüş
() %40-49 arası düşüş
() %30-39 arası düşüş
() %20-29 arası düşüş
() %10-19 arası düşüş
() %1-9 arası düşüş
() Aynı kaldı
() %1-9 arası artış
() %10-19 arası artış
() %20-29 arası artış
() %30-39 arası artış
() %40-49 arası artış
() %50'den fazla artış

31. Pandemi döneminde çalışan sayınız bir önceki döneme göre nasıl etkilendi?

- () %50'den fazla düşüş
() %40-49 arası düşüş
() %30-39 arası düşüş
() %20-29 arası düşüş
() %10-19 arası düşüş
() %1-9 arası düşüş
() Aynı kaldı
() %1-9 arası artış
() %10-19 arası artış
() %20-29 arası artış
() %30-39 arası artış
() %40-49 arası artış
() %50'den fazla artış

B) SEKTÖR SORUNLARINA YÖNELİK SORULAR

1. İhracat pazarı bulma konusunda zorluk yaşıyor musunuz?

- () Evet () Hayır

2. İhracat pazarlarını artırmanın önündeki en önemli engelleri önem sırasına göre belirtiniz?

1- Çok Önemli 2- Önemli 3- Ne Önemli, Ne Önemli 4- Önemli 5- Çok Önemli

Pazarlama ve tanıtım eksikliği	1	2	3	4	5
Uluslararası fuarlarda yeteri düzeyde yer alınmaması ve yurtdışı iş gezilerinin yapılmaması	1	2	3	4	5
Türk mimarların uluslararası projelerde yeteri düzeyde yer alamaması	1	2	3	4	5
Yabancı dil bilen personel eksikliği	1	2	3	4	5
Fiyat odaklı satışların yaygın olması	1	2	3	4	5
İhracatta yaşanan olumsuz örnekler sebebiyle Türk mermerine yönelik olumsuz imaj	1	2	3	4	5
Piyasalardaki durgunluk	1	2	3	4	5
Uluslararası rekabet yüksekliği	1	2	3	4	5
Uluslararası talep yetersizliği	1	2	3	4	5

3. Mermerde katma değerli ürün /tasarım ürünü üretiminin önündeki engellerin neler olduğunu önem sırasına göre belirtiniz?

1- Çok Önemli 2- Önemli 3- Ne Önemli, Ne Önemli 4- Önemli 5- Çok Önemli)

Firmalarda üretim altyapısının yeterli olmaması	1	2	3	4	5
Mevcut üretimlerin firmaların taleplerini karşılaması	1	2	3	4	5
Tasarım ürünü üretim maliyetlerin yüksekliği	1	2	3	4	5
İş gücü maliyetinin yüksek olması	1	2	3	4	5
Teknoloji- otomasyon yetersizliği	1	2	3	4	5
Kalifiyeli personel bulma sorunu	1	2	3	4	5
Finansal kaynak yokluğu	1	2	3	4	5
Yöneticilerin yeni ürün geliştirmeye ihtiyaç duymamaları	1	2	3	4	5
Yatırım teşviklerinin yetersiz olması	1	2	3	4	5
Tasarım ürünü talebinin az olması	1	2	3	4	5
Uluslararası rekabet yüksekliği	1	2	3	4	5

4. Sektörde yaşanan sıkıntıları önem sırasına göre belirtiniz.

(1- Çok Önemli 2- Önemli 3- Ne Önemli, Ne Önemli 4- Önemli 5- Çok Önemli)

Maliyetler(enerji, işgücü, üretim)	1	2	3	4	5
Teknoloji- otomasyon yetersizliği	1	2	3	4	5
Bürokratik işlemler	1	2	3	4	5
Maden ruhsat süreçlerinin uzun sürmesi	1	2	3	4	5
Vergilerin yüksek olması	1	2	3	4	5
Finansman sorunları	1	2	3	4	5
Kalifiye iş gücü eksikliği	1	2	3	4	5
Uluslararası pazarda rekabet edememe	1	2	3	4	5
Kümelenme (birlikte hareket etme) anlayışı olmaması	1	2	3	4	5
Teşviklerin yetersizliği	1	2	3	4	5
Kur hareketlilikleri	1	2	3	4	5
Navlun fiyatlarının yüksek olması	1	2	3	4	5
Haksız rekabetten kaynaklanan düşük fiyat	1	2	3	4	5