MUHASEBE BİLİM DÜNYASI DERGİSİ

THE WORLD OF ACCOUNTING SCIENCE

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DECISION USEFULNESS AND INFLATION ACCOUNTING: THE CASE OF TURKEY*

Res. Assist. Seyfullah SELİMEFENDİGİL**

ABSTRACT

The purpose of this study is to examine the issue of inflation accounting and decision usefulness. As well as having political costs for a country, inflation has financial costs for companies and their stakeholders. To test the necessity of inflation accounting adoption, Ohlson's (1995) pricing model is used and earnings volatility is measured across years. It was concluded that earnings are more volatile and don't explain the changes in company market value when inflation adjustments are required. Furthermore, it has been suggested that stewardship theory can explain the reporting of inflation-adjusted values in conjunction with historical cost values.

Keywords: Inflation Accounting, Decision Usefulness, Stewardship Theory

JEL Classification: M41, N15, G30

KARARA FAYDALILIK VE ENFLASYON MUHASEBESİ: TÜRKİYE ÖRNEĞİ

ÖZ

Bu çalışmanın temel amacı enflasyon muhasebesi ve karara faydalılık konusunu incelemektir. Enflasyonun ülkeye siyasi maliyeti olmasının yansıra, şirketlere ve paydaşlarına finansal maliyeti de bulunmaktadır. Enflasyon muhasebesinin uygulanması gerekliliğini kanıtlamak için Ohlson (1995) tarafından geliştirilen fiyat modeli kullanılmış ve kazançların yıllara göre oynaklığı ölçülmüştür. Sonuç olarak, enflasyon düzeltmesi gerektiği zamanlarda kazançların daha fazla oynaklık gösterdiği ve şirketin piyasa değerini açıklayamadığı görülmüştür. Ayrıca, enflasyon muhasebesi uygulaması sonucu oluşan değerlerin tarihi muhasebe değerleriyle birlikte sunumu temsil teorisi ile açıklanabileceği öne sürülmüştür.

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GENİŞLETİLMİŞ ÖZET

AMAÇ VE MOTİVASYON

Son dönemlerde gündemi sıkça meşgul eden enflasyon sorunu sadece makroekonomik düzeyde sınırlı kalmayıp hayatın her alanına nüfuz ederek işletmeler açısından da büyük bir sorun teşkil etmektedir. Bu bağlamda işletmelerin paydaş gruplara ve yatırımcılara sundukları finansal raporlar enflasyon nedeniyle gerçeği tam olarak yansıtmamaktadır. Enflasyonun yüksek olduğu dönemlerde işletmeler tarafından sunulan finansal tabloların karar vericiler açısından faydalı bilgi sunup sunmadığının incelenmesi önem arz etmektedir. İşletme ilgililerinin doğru karar verebilmesi için daha önce uygulamada bulunan enflasyon muhasebesi enflasyonun yükselmesiyle son zamanlarda tekrar gündeme gelmiştir.

ARAŞTIRMA YÖNTEMİ

Basında kendisinden sürekli söz ettiren enflasyon olgusu, şirketlerin finansal tablolarının görünümünün de etkileyici bir unsurudur. 1950'li yılların ortalarında ortaya koyulan karara faydalılık kavramı daha sonra Uluslararası Muhasebe Standartları Kurulu ve Muhasebe Standartları Komitesi'nin yayınları ile daha da ileri bir düzeye taşınmıştır. Muhasebe literatüründe sıklıkla dile getirilen gerçeğe uygun değer ile tarihi değer konusunun uzantısı olarak görülen enflasyon muhasebesi de yeniden gündemde yer almıştır. Çalışmada, son zamanlarda sıklıkla gündeme gelen enflasyon muhasebesinin, gerçeğe uygun değeri yansıtmada aracı olarak kullanılıp kullanılamayacağı incelenmiştir. Enflasyon muhasebesinin muhasebe literatüründe genişçe yer bulan karara faydalılık konusu ile nasıl bir etkileşimi olduğunu anlatmak üzere yapılan bu çalışmada geçmişten günümüze Türkiye'de enflasyonun gelişim seyri genişçe ele alınmıştır. Ayrıca Türkiye'de kendi düzeyindeki ülkelere kıyasla çok yüksek bir enflasyon görülmesine rağmen neden bu uygulamanın gerçekleştirilemediği ortaya koyulmuş olup, gerçekleştirilmesine yönelik taleplerin ve durumun önemi güncel basından örneklerle detaylandırılmıştır.

Şirketlerin yatırımcılar ve diğer paydaş grupları için sunduğu finansal tabloların şirketin piyasa değerini yansıtıp yansıtmadığı ve bu bilgilerin yüksek ve düşük enflasyonlu yıllarda nasıl şekillendiği, yıllık veriler kullanılarak Ohlson (1995) tarafından geliştirilen fiyat modeli ile incelenmiştir. Bunun dışında kazanç oynaklığı olarak bilinen şirketlerin 1.2.3. ve 4. çeyrekteki kârlılık oranlarının standart sapmaları yıllık düzeyde kârlılığın oynaklığının belirlenmesinde kullanılmıştır.

BULGULAR VE TARTIŞMA

Gelişen ekonomiler arasında oldukça yüksek bir enflasyona sahip olan Türkiye 2004 yılından sonra uygulanması terkedilen enflasyon muhasebesinin uygulanması için gerekli görülen tüm şartların oluşmasına rağmen bu uygulamayı gerçekleştirmemiştir. Gerek Uluslararası Muhasebe Standartlarını uygulayan borsada işlem gören şirketler gerekse Maliye Bakanlığının koyduğu yasaları takip eden halka açık olmayan şirketler bu uygulamadan faydalanamamışlardır. 2021 yılı sonunda enflasyonun yükselişe geçmesi, herhangi bir düzeltme yapılmadan finansal tabloların anlaşılırlığını zorlaştırmıştır. Hazine ve Maliye Bakanlığının belirlediği şartlara göre, enflasyon muhasebesinin uygulamaya geçirilebilmesi için son üç yılın toplam enflasyonunun %100'ü aşması ve içinde bulunulan mevcut yılda enflasyonun %10 veya daha fazla olması gerekmektedir. Hazine ve Maliye Bakanlığı yayınladığı geçici madde ile kendisine tabi olan şirketlerin 2021 ve 2022 yılları için 2 yıl süre ile enflasyon muhasebesini uygulayamayacaklarına hükmetmiş ve 2023 yılı için şartların oluşup oluşmadığına bakılmaksızın uygulanacağını belirtmiştir. Sermaye piyasası araçları borsada işlem gören şirketler için IAS 29'da belirtilen gereklilikler yerine getirilmiş olmasına rağmen, Kamu Gözetimi Muhasebe ve Denetim Standartları Kurumu (KGK) tarafından yayınlanan bildiride, Türkiye İstatistik Kurumu tarafından açıklanan üretici fiyat endeksi yerine tüketici fiyat endeksinin esas alınması gerektiği vurgulanmıştır. Ancak, bu endeks oranının son üç yılın toplamında %100'ü aşmaması nedeniyle uygulamaya geçilmeyeceği belirtilmiştir. Yapılan analizler sonucunda, enflasyon muhasebesi uygulanması şartlarının gerçekleştiği halde uygulanmadığı yıllarda (2021 ile 2022 yıllarında) kazanç oynaklığının daha yüksek olduğu ve fiyat modelinin açıklama gücünün azaldığı görülmüştür. Ayrıca, yapılan gözlemler neticesinde, net kârın şirketlerin piyasa değerini açıklamada yetersiz kaldığı görülmüş, bu duruma karşılık net varlıkların piyasa değeri konusunda daha tutarlı bilgiler sunduğu ve enflasyondan daha az etkilendiği gözlemlenmiştir. Bu anlamda çalışma kendisinden önce yapılan diğer çalışmalarla benzer sonuçlar göstermektedir (Belesis ve diğerleri, 2022; Liu & Sun, 2022).

SONUÇ VE ÖNERİLER

Muhasebede finansal tabloların gerçeğe uygun değer ve tarihi değer ile sunumu konusu, 1960'lı ve 1970'li yıllarda yaşanan yüksek enflasyon olgusu ile şekillenmiştir (Whittington, 2008). Literatürde her iki görüşün tarafları olmasına rağmen, gerçeğe uygun değer ile tarihi değerin birlikte sunulmasının faydalı bilgiler sunması açısından daha önemli olduğu vurgulanmıştır (Kirkulak & Balsari, 2009; Filip & Raffournier, 2010; Chamisa ve diğerleri, 2018). Buna bağlı olarak, gerçeğe uygun değerin tarihi değerler ile birlikte gösterilmesi, kurumsal yönetimin önemli teorilerinden biri olan temsil teorisi ile açıklanmaktadır. Vekâlet teorisine dayalı olarak, işletmelerde temsilciler ile paydaşlar arasındaki bilgi eşitsizliği, enflasyon muhasebesinin tarihsel ve güncel değerleri içeren raporlama özelliği ile azaltılabilir. Enflasyonun yüksek olduğu dönemlerde sunulan muhasebe bilgilerinin şirketin piyasa değerini yeterince

yansıtmadığı ve kâr oynaklığının yüksek olduğu gözlemlenmiştir. Yapılan analizler sonucunda, 2018 yılından sonra enflasyonun yükselmesiyle beraber finansal tablolarda bulunan bilgilerin, şirketin gerçek değerini belirlemede 2000 yılından beri hiç görülmediği kadar yetersiz kaldığı gözlemlenmiştir. Ayrıca, enflasyon muhasebesi, şartların oluşup oluşmadığına bakılmaksızın, 2023 yılı için tekrar uygulanacaktır. 2023 yılı için bu alanda yapılacak olan çalışmalarda, enflasyona göre düzeltilmiş muhasebe değerleri ile düzeltilmemiş muhasebe değerlerinin karşılaştırılması, literatüre önemli katkı sağlayacaktır.

1. INTRODUCTION

In the accounting discipline, the appropriate asset and liability measurement concept is still a contentious issue (Frank, 2019). The origin of this controversial discussion goes back to the 1960s and 1970s when there was a discussion about the implementation of inflation accounting (Whittington, 2008). Nonetheless, both FASB and IASB require to use of fair value accounting for monetary assets and liabilities to provide more reliable and useful information with regard to decision usefulness (Gassen & Schwedler, 2010; Kieso et al., 2019). In this manner, both FASB and IASB consider presentation of fair values be an objective of financial reporting (Hitz, 2007). According to the Conceptual Framework, the usefulness is enhanced if the provided information represents true and reliable information and if it can be compared with financial information of previous years (IASB, 2018). The high inflation rate, however, makes it difficult to compare financial information over time. In this way, IAS 29 requires the restatement of financial statements in accordance with the relevant price index to reflect companies' real financial situation when a firm's functional currency is that of a hyperinflationary economy (IASB, 1989). The IAS 29 defines five characteristics of hyperinflation and identifies countries with hyperinflation if they have those characteristics:

a) The general public chooses to hold their money in nonmonetary assets or in reasonably stable foreign currencies. Amounts retained in local currency are promptly invested to preserve purchasing power.

b) In the general public's eyes prices are not quoted in terms of local currency, but rather in terms of a foreign stable currency.

c) Short-term credit sales and purchases take place at prices which compensate for the loss of purchasing power.

d) Salary, wages, and prices change in relation to the price index.

e) Cumulative inflation rate over three years approaches, or exceeds, 100%.

Turkey, as an emerging economy, has the second highest inflation rate (% 57.7) following Argentina among G-20 countries as of January 2023 (OECD, 2023). Turkish economy has been plagued by high inflation rates for a considerable period. Although the governments attempted to reduce high inflation, they were not successful in maintaining a stable and low inflation rate for many years. Governments delayed stable economic policies to prevent low tax earnings for the State since low inflation would reduce tax expense reported by companies. Turkey has experienced high inflation from 1950 to the 2000s. In order to eliminate the devastating impact of high inflation on the financial statements, companies protect themselves by using LIFO (Last in first out) method for the cost of sales, diminishing balance method for amortization, and allocating higher reserves (Gençoğlu & Ertan, 2012). Companies following Capital Markets Law were allowed to adjust their financial statements based on the inflation rate at the end of 2003 (Karasioğlu & Erdemir, 2005). Other companies that don't follow the Capital Markets Law and are governed by the Ministry of Finance are also allowed to adjust their financial statements. Since this date, Turkish entities have been able to properly compare their financial statements with those of foreign entities. Ministry of Finance accepted adjusted income as taxable income in case the inflation rate of the three consecutive years exceeds or approaches %100 (Arsoy & Gücenme, 2009).

Although the inflation rate between 2004 and 2017 was more stable and lower than previous years, it started to rise again after 2018 and continues to rise today. Studies have argued for the negative impact of high inflation rates on financial reporting quality, and consequently on the investment decisions of investors (Durak & Gürel, 2014; Higson et al., 2007; Leuz et al., 2003; Scholtens & Kang, 2013). Inflation accounting mitigates the problem of over taxation and fictitious profits while providing fair value information (Arzova & Şahin, 2022).

As fair value measurements provide timely and relevant information to analysts, they may also impact their information environment positively. This allows analysts to relate earnings expectations to overall movements in other variables (e.g. macroeconomic variables) that affect asset performance and pricing. This enhances their ability to make accurate predictions, as well as increasing the consistency of forecasts (Ayres et al., 2017). In this respect fair-value information is believed to provide valuable information to analysts in terms of forecasting earnings (Magnan et al., 2015).

This study's main objective is to explain the interaction between decision usefulness and the phenomenon of inflation accounting and to explain how it influences earnings forecasts and stock prices. This paper aims to contribute to the growing body of literature by examining topics that are currently being discussed. It also illustrates the application of inflation accounting which has been suspended for many years.

The study is organized as follows: the second section is devoted to decision usefulness and the third section deals with the inflation dynamics and its history in Turkey. Following this, the fourth section explains the application and implementation of inflation accounting. Moving forward, the fifth section reviews relevant prior research and presents hypothesis development. The sixth section explains the research design and methodology and the last section discusses the findings and includes the closing remarks.

2. DECISION USEFULNESS

The decision usefulness theory was formulated in the mid-1950s in accounting. This theory is based on the usefulness of information obtained from financial statements. The theory took on a real meaning with the publications of the International Accounting Standards Board in 1973 and the Accounting Standards Committee in 1975 (Berry & Robertson, 2006). The conceptual framework defines information as useful when it meets the relevance and reliability criteria. Relevance refers to the influence the financial statement measure has on a user's decision, whereas reliability refers to the measure's ability to represent what it is designed to represent. In order to evaluate the usefulness of decisions, a measurement and information perspective is essential.

The measurement perspective embodies the traditional view of information. The basic information required by investors should be reported truthfully from this perspective (Hitz, 2007). Overall, this perspective measures its usefulness by evaluating how accurately a financial statement captures the true financial situation of an entity (Barth, 2000). According to this perspective, fair value measurement depicts an entity's financial status and represents decision useful information properly only in a utopian world. The reality is that in the real world there are some deficiencies, and these deficiencies are also part of the financial reporting process. When the market is illiquid, fair value is viewed as a measurement of procyclicality and contagion. During the financial crisis, illiquid markets did not reflect future returns, but merely the cash available to the investor. From the perspective of measurement, fair value measurement does not seem to be very useful. Thus, the value in use is more appropriate from this perspective.

On the other hand, the information perspective has a broader view. In this perspective, useful information is regarded as a signal that converts a priori expectations into insights, thereby enhancing better judgment and revision. Using this perspective, the information provided to investors is critical for influencing the decisions of the investors. It is therefore relevant to consider how fair value information influences investors' decisions (Hitz, 2007). The literature survey conducted by Sapkauskiene & Orlovskij (2017) has revealed that in terms of providing useful information to investors, fair value accounting is considered a superior method, although it has some limitations. On the other hand,

historical costs can be easily verified and are less subjective, which is why they have been used in bookkeeping for centuries. Accounting conservatism prevents assets from being written up when the market value of the asset increases. In contrast, a decline in market value is not treated the same way and, instead, is written down. Therefore, historical cost accounting is more protective than fair value accounting (Wang, 2012). In addition, historical cost accounting allows for the determination of the carrying value of items in financial statements.

As stated before, fair value accounting reports assets and liabilities based on their current market value. As a result, it reflects the firm's true and relevant financial position. Whenever the market fluctuates, stakeholders are better informed about the financial statements of an entity. Creditors and stakeholders can use updated information to learn more about the firm's prevalent risks and can take more effective action. However, the use of fair value measurement results in increased subjectivity. In this manner, FASB has developed a hierarchy of fair value measurements. Fair value accounting consists of three different hierarchical tiers. Level 1 includes adjusted prices for identical assets and liabilities in the active market at the measurement date. Level 2 includes assets and liabilities that are not included in Level 1 and observed either directly or indirectly. Inputs of Level 3 are not observable and are used when observable data is unavailable. For instance, the mortgage assets of a subprime ledger are not easily evaluable because the market is no longer active (Kieso et al., 2019).

Fair value accounting advocates believe that it reflects the company's current status and provides more useful information (Laux, 2012; Adwan et al., 2020). Fair value is defined as "the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date" (IASB, 2018, par. 6.12). As per IASB, fair value should provide information on future cash flow, which can serve as a decision aid (Whittington, 2008). It is believed that investors make less favourable financial decisions when they are provided solely with historical cost information. Therefore, fair value information is believed to improve investors' asset allocation decisions as well as their stewardship judgments (Anderson et al., 2015).

As a result, fair value has been associated with decision usefulness by many scholars. However, fair value is insufficient to provide a comprehensive analysis of the company. As part of the stewardship oriented perspective, historical costs should be integrated with fair value (Whittington, 2008; Palea, 2014; Anderson et al., 2015; Andrejcik et al., 2021). The study conducted by Anderson et al.(2015) demonstrate that the fair values presented on the face of the financial statements and the historical costs in the footnote created better stewardship judgement than vice versa.

The stewardship theory relies on the statements of Donaldson (1990) and Donaldson & Davis (1991) in the academic literature. It provides a sociological and psychological explanation of the organization of corporate administration. Since stewardship is defined as accountability to investors it has an equal

ranking with decision usefulness (Whittington, 2008). Stewardship theory calls for getting timely information about the financial performance of a company.

Moreover, it has been argued that the fair value method also reduces the agency costs that arise between shareholders and managers as a result of their asymmetric information possession (Barlev & Haddad, 2003). In agency theory, both fair value accounting and historical cost accounting are evaluated according to whether they isolate managers' benefits and support investors. As a result, the usefulness of the information should be assessed according to its informativeness about the manager's contribution or value-added to the firm (Anderson et al., 2015).

3. INFLATION DYNAMICS IN TURKEY

Inflation means swelling or expansion as a word derived from Latin (Karapınar & Eflatun, 2022). Inflation is defined as a general increase in prices of products and services in a market (Aydoğan, 2004; Ayvaz Güven & Ayvaz, 2018; Kibritçioğlu, 2002; Varol, 2022). The Turkish economy is seen as an exemplary laboratory for the study of inflation dynamics. In contrast to other developed countries, the inflation rate in Turkey is highly volatile (Kantur & Özcan, 2022). Due to frequent Turkish lira devaluations in the 1970s and two major oil crises in 1973 and 1978, Turkey experienced high inflation rates. However, there was a sharp acceleration of inflation in the 1980s, which has continued to this day (Kibritçioğlu, 2002). The reason for the high inflation during this period can be attributed to an increase in the money supply caused by wrong economic policies. In addition, the increase in public sector deficits, and the continuous increase in domestic and foreign interest debt led to high inflation. The government of the period signed an agreement with International Monetary Fund (IMF) to implement significant changes in the economy by securing the support of foreign capital. In 1994, Turkey experienced the highest inflation rate. The high inflation rate on this date can be attributed to Turkey's monetary growth and inefficient taxation policy. This means that taxes could not be raised to a level to cover government expenditures (Aydoğan, 2004). Turkish inflation was very high in the 1990s and was reduced by solid and successful economic policies in early 2000s. The implemented disinflation program was prepared under the supervision and consultancy of the IMF in 1999. In this program, the goal was to reduce inflation to a predetermined level, 10% for wholesale prices and 12% for consumer prices. Moreover, the primary balance of the public sector was supposed to increase from a deficit of 2.8 percent to +3.07 percent of Gross National Product (GNP). The sources used to generate this percentage increase are income taxes, indirect taxes and value added taxes. Apart from the privatization process, taxes in general constitute a major part of monetary sources (Yeldan, 2001). Following this, inflation soured again during the economic crisis in 2001. The Law of the Central Bank of the Republic of Turkey guaranteed its formal independence and prevented state owned enterprises from being directly

liable. Therefore, the Central Bank aimed to keep inflation low and maintain price stability. In 2004, the inflation rate fell to single digits. Following the global crisis in 2008, excessive volatility and capital flows in emerging markets were triggered by the expansionary monetary policies of the Federal Reserve (Fed). The reason for the increase in capital flows was the economic downturn in developed countries (Bilici & Çekin, 2020). In 2017 the inflation rate reached double digits again (Kantur & Özcan, 2022). Inflation in Turkey was negatively affected by the novel Corona virus that emerged in Wuhan province at the end of 2019 (TURMOB, 2020). After the military intervention launched by Russia against Ukraine at the beginning of 2022, the global economy, which is trying to recover from the effects of the pandemic, has again entered a difficult period (Bakan, 2022). Turkey had the second highest inflation rates as of 2022 and it had the second highest inflation rate among G-20 countries as of January 2023 (OECD, 2023). The Producer Price Index (PPI) in Turkey between 1990-2022 is presented in Table 1.

Table 1. Annual Inflation Rates (PPI) in Turkey
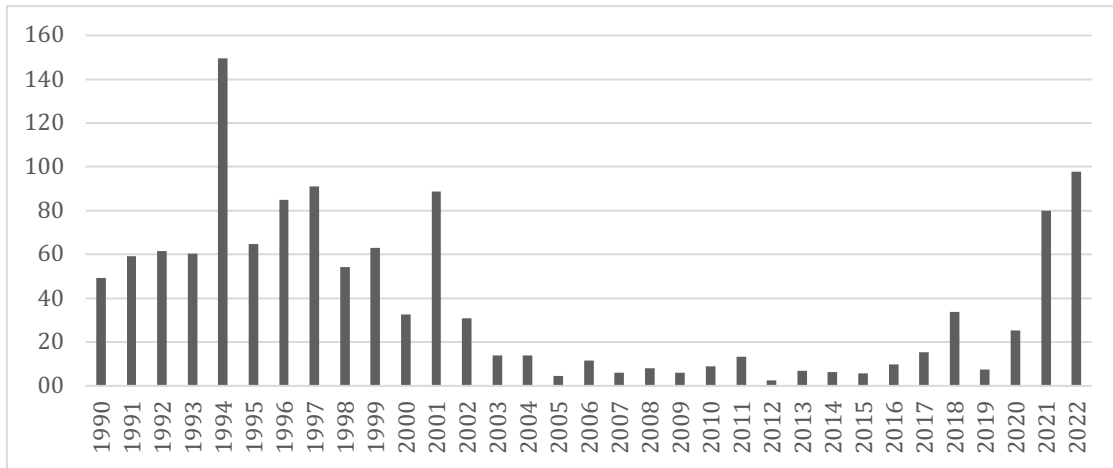
Source: Turkish Statistical Institute (TÜİK, 2022)

Developing countries are particularly affected by inflation, as are nations that are vulnerable to its negative effects (Yilmazkuday, 2022). Numerous research articles have documented the negative impact of inflation on economic growth and high tax rates (Faria & Carneiro, 2001; Sweidan, 2004; Erbaykal & Okuyan, 2008; Seleteng et al., 2013).

However, the impact of inflation is not limited solely to negative economic growth or high tax rates. The high rate of inflation also affects the financial statements of a company that inform stakeholders through accounting numbers. By the end of the fiscal year, data generated on the date of transaction will have no meaning, due to dramatic changes in the purchasing power of the currency. Therefore, the financial statements should be recalculated to reflect the changing purchasing power of the currency.

In terms of balance sheet items, the impact of inflation can be classified into two different groups of assets and liabilities, namely monetary and non-monetary items. As a result of inflation, monetary items

such as cash, marketable securities, accounts receivable and payable lose value. The nominal values of monetary items remain unchanged while their fair values change with inflation. In contrast, non-monetary items such as fixed assets, copyright, and goodwill will protect their real values and move in line with inflationary changes (Varol, 2022).

The income statement, which depicts the company's sales, costs of sales, other expenses and consequently profit or loss, is also vulnerable to inflation. Over time, the importance of the income statement increased, and it became an essential tool for communicating with stakeholders through numbers. Though all items listed in income statements are non-monetary items, they are also subject to high rates of inflation. Sales are recorded at current value while sales related costs are recorded at historical cost (Altınışık, 2019). The depreciation amount of an asset is recorded less than its actual value in the event of hyperinflation. This situation occurs due to the enormous difference between the purchasing price and the current value of assets. Further, this results in a higher level of income (known as fictitious profits) and, accordingly, a high rate of tax and dividend payments. Additionally, a fictitious profit is the result of the difference between the current value of the product or service and the prepaid expenses associated with it. The liability portion of bonds or notes payable may also differ from their real values in a hyperinflationary environment. Recording the historical costs of these liabilities and paying them at fair value could potentially result in cost savings for firms. Additionally, when these debts are settled at their recorded value, it has the potential to positively impact the company's equity. The company's equity which consists of retained earnings, common stocks and preferred shares, is also affected by inflation. Equity held in non-monetary items will increase in value during an inflationary period, whereas equity mostly invested in monetary items will diminish in value during an inflationary period (Öncel, 1995).

4. INFLATION ACCOUNTING

Inflation accounting became mandatory between 2001 and 2004 in Turkey (Yücel, 2023). Initially, it was adopted by the Banking Regulation and Supervision Agency for financial entities, followed by the Capital Markets Board, for BIST (Borsa İstanbul) firms in 2003 and 2004. Eventually, it was incorporated into the Tax Procedure Law regulations in 2004. Several studies have documented the significant impact of inflation on key financial ratios that are calculated to evaluate the companies' performance and facilitate comparisons with one another (see Özkan, 2005; Patjoshi, 2020; Kantar et al., 2021). Studies have shown that inflation has a significant impact on financial statements and the information provided. Inflation accounting is considered an efficient tool to decrease the impact of inflation on financial statements and to prevent over taxation. In light of the partial regulations (i.e., LIFO, renewal fund, accelerated depreciation methods, revaluation, and indexation in investment

allowance) not being sufficient to eliminate the impact of inflation, the Ministry of Finance enacted Law No. 5024. This law regulates the inflation adjustment to financial statements. Inflation adjustment is subject to certain conditions according to law No. 5024. According to this law, the cumulative inflation rates of the previous three years should be above 100% and at least 10% for the current year. In case neither of these conditions exist, inflation accounting cannot be applied (Altınışık, 2019). The application process begins with non-monetary items that are multiplied by the inflation adjustment rate. The adjustment rate is determined by the Turkish Statistical Institute as the Wholesale Price Index. The inflation differences account and inflation adjustment account are used to record the recalculated financial amounts of non-monetary items in the financial statements. While the first account is used to record the difference in the non-monetary items before and after the inflation adjustment the latter account is regarded as an adjustment account to correspond to the inflation differences account and it will be offset through transferring it to the income statement (Arsoy & Gucenme, 2009). A company cannot opt out of this method; rather, they must implement inflation adjustment when the predetermined conditions are met. As of December 2021, the three consecutive year inflation rate has reached 113%, and the current annual inflation rate has reached 80%. Though these predetermined conditions existed by the end of 2021, inflation accounting was not implemented. An interim article of the TPL prevented companies from adopting inflation accounting in 2021, 2022. Further it was stated that regardless of the conditions that are required to implement inflation accounting, it will be implemented at the end of the year 2023.

As a result, inflation accounting cannot be implemented for the years 2021 and 2022 but only for 2023 (https://www.resmigazete.gov.tr/eskiler/2022/01/20220129-9.htm, 2022). The companies not subject to TPL have also been deprived of the opportunity to implement inflation accounting. According to the announcement made by the KGK in January 2022, companies subject to International Financial Reporting Standards (IFRS), rather than TPL are obliged to follow the regulations and rules of the KGK. Furthermore, these companies are not allowed to use inflation accounting. Turkish Statistical Institute, however, considers the consumer price index as a general price level index that reflects changes in purchasing power. The cumulative consumer price index for three consecutive years, is 74,41%, as of 2021. In this respect, the businesses that apply IFRS do not need to make any adjustments in their financial statements for 2021 within the scope of IAS 29. However, the standard does not provide a precise ratio for determining whether hyperinflation exists.

The phenomenon of inflation accounting has brought heated debate in the press and media nowadays. The president of Bursa Commodity Exchange asked for urgent application of inflation accounting in the year 2022. The objective is to minimize the damaging effect of inflation on businesses in order to maintain production and investments (www.bursa.com/haber/bursa-is-dunyasindan-ekonomi-yonetimine-quot-enflasyon-muhasebesi-quot-cagrisi-530794.html, 2022). The president of Union of

Chambers and Commodity Exchanges of Turkey has also called for the implementation of inflation accounting. He mentioned that inflation accounting is now a mandatory requirement in Turkey. In this context, it is expected that the necessary steps will be taken. In previous months, the president of the Ankara Chamber of Industry also said that high inflation melts profits and capital, and thus it can cause serious damage to companies. The chairman of Ankara Chamber of Commerce, who visited the Treasury and Finance Minister in August, said, that inflation accounting has become a necessity for businesses. Moreover, the chief financial officer of Sabancı Holding, one of the biggest industrial and financial conglomerates in Turkey, said in an official speech that they are preparing their companies for the use of inflation accounting (https://www.bloomberght.com/sabanci-da-enflasyon-muhasebesine-gecis-hazirligi-2312812, 2022).

As a result, inflation accounting was implemented only for the financial statements of 2003 and 2004 and since then it hasn't been applied (Kargin, 2013). There are three different methods of inflation methods of adjusting the financial statement accounts for inflation; namely, General Price Level Accounting method, Current Cost Accounting method and General Price-Current Cost Accounting (Mixed Method). An illustration of an inflation adjustment example can be found in Appendix A. However, it should be noted that this study focuses on the implications and effects of inflation accounting in financial reporting and does not address the detailed calculation methodology of inflation accounting.

4.1. General Price Level Accounting Method

The purpose of this method is to ameliorate the impact of price changes on financial statements. This method is utilized to adjust the financial statements according to the purchasing power of the currency at the time of adjustment. The financial statements should be adjusted to accurately disclose financial information. So, the gain and loss arising from holding monetary items as well as liabilities should be included in the financial statements. This method uses either the Wholesale Price Index (WPI), the General Consumer Price Index (CPI), or the national income deflator to approximate historical values to current values. Profit or loss is determined after all costs and revenues are expressed with the same purchasing power. The benefit of this method is to be able to compare useful information over time. This is to protect the purchasing power of capital, and to ensure that inflation gains are reflected in the financial statements. The items on the balance sheet are classified as monetary and non-monetary items under this method. However, only non-monetary items are adjusted since monetary receivables and other monetary items already reflect the real purchasing power in an inflationary environment. Furthermore, the loss arises from holding monetary items and the gain arises from monetary liabilities during an inflationary period, recorded as income or loss on the income statement (Altınışık, 2019). This model has some limitations since it hinders the comparison of the company's old financial statements

with the current period financial statements. Moreover, the financial statements are adjusted with price indices derived from the business and its activities. Despite the fact that it is not necessary to show the historical values of the items in the financial statements, it may be done in conjunction with their current values (Karapınar & Eflatun, 2022).

4.2. Current Cost Accounting Method

This method involves the evaluation of financial statements based on current cost instead of historical cost. As part of this method, the business should include capital costs incurred during the process of asset repurchases. Unlike the general price level accounting method this method considers the cost of each item depending on their specific price changes. This method assumes that each item in the balance sheet is affected differently by price changes, since each item is not affected by inflation at the same rate. These companies specialize in a particular type of product in general. Therefore, the price increase is different for each product and for each company. With this method, the real performance of the company is reflected without regard to any monetary losses or gains (Karapınar & Eflatun, 2022).

To apply the current cost accounting method properly it is essential to identify the adjustment rate correctly. In this manner, the special price indices announced by the official institutes, the indices developed based on the entity's own experience, or the valuation made by experts can all be utilized to calculate the correct rate. However, these rates are determined differently by each company and cannot offer a useful solution since a comparison is not possible between the entities. Although this method provides more realistic financial information compared to general price level accounting, it is more difficult to audit and apply it (Altınışık, 2019).

4.3. General Price-Current Cost Accounting Method

The main purpose of the mixed method is to utilize both the general price level accounting method and current cost accounting method together. This will enable the companies to benefit from both of these methods. In this sense, it is believed that the mixed method provides more useful and reliable information. However, the application of this method is difficult and it entails the disadvantages of both methods and thus, this method has not been put in practice and advocated by any institutions or organization (Karapınar & Eflatun, 2022).

5. PRIOR RESEARCH AND HYPOTHESES

To measure the informativeness of the financial statements various methods are available in the literature. In this way many studies used earnings management, earnings volatility, analysts' forecast errors, value relevance of earnings, etc. These methods are used to compare financial statements'

informativeness under diverse economic cycles or under different reporting standards (i.e., different reporting requirements).

A company's financial statements serve the purpose of providing a true and fair picture of its operations and financial position. In the absence of any relationship between firm value and numbers in the financial statements, such statements are not relevant. If financial statements lose their relevance no one will be interested in them. Therefore, the investigation of firms accounting information is a direct check of the reliability and validity of financial statements (Pathirawasam, 2013).

Inflation adjusted accounting information and historical cost amounts have been largely benchmarked in the literature in terms of providing value relevant information. In many studies, it has been documented that inflation diminishes the value of relevant accounting information and inflation accounting adjustment prevents this reduction of useful information. In this sense, Barviv (1999) investigates the usefulness of accounting information during high inflationary periods in Israel. The study concludes that the adjusted financial statements are more value relevant than non-adjusted ones. To build on this Bublitz et al. (1985) document incremental explanatory power of inflation adjusted accounting information. Further a study conducted by Hughes et al. (2004) shows that inflation adjusted book values are more value relevant than information based on historical cost. In a similar vein, Ashton et al. (2011) numerically explore the value relevance of accounting information under inflationary conditions. They find that inflation adjusted book values are more value relevant than historical cost ones. Davis-Friday & Rivera (2000) investigate the same relationship for Mexican firms. They find that both inflation accounting adjustments and accounting information based on U.S. GAAP are value relevant. Furthermore, Konchitchki (2013a) benchmark both inflation adjusted and non-adjusted accounting information to examine their association with U.S. stock values. The study shows that inflation adjusted book value is more value relevant. Another study conducted by Konchitchki (2013b) investigates the same relation and concluded that investors who don't possess inflation adjusted information are more exposed to abnormal returns. Anandarajan et al. (2006) and Adwan et al., (2020) which used 3761 firm years observations between 1992 and 2001 for BIST-listed companies and a sample of European listed financial companies between 2005-2011 reach similar conclusions. They argue that value relevance of earnings has declined over time with rising inflation. In contrast, book value has remained relevant to reflect companies' value over time. In the context of recent events such as the COVID-19 pandemic that led to high inflation rates all over the world, similar patterns of declining earnings relevance can be observed. Similarly, Belesis et al (2022) uses a sample of European companies for the period 2010-2020 to explore the value relevance of accounting information. They reveal that during the COVID-19 period earnings lost its relevance to the market while book value remained relevant. To strengthen this standpoint Liu & Sun (2022) examine the value relevance of

accounting information for the US companies during and before the COVID-19 period. They show that earning lost its relevance during COVID-19 period.

Transitioning to the Turkish context, several studies reveal the negative impact of economic downturns on the value relevance of earning as noted by (Ertuğrul, 2020). For example, Türel (2009) examine the value relevance of earnings, considering 2001-2005 and 2005-2006 as two different time periods to be compared. From the first to the second period, value relevance of earnings turned from negative to positive, while value relevance of book values declined. In a parallel vein, Kargin (2013) investigates the value relevance of accounting information during 1998-2007. The study shows that the importance of book value declined over 2001-2004 and it started to improve after 2005 while the value relevance of earnings stayed non-significant through the 2001-2006 period. Similar results are obtained by Bilgic and İbis (2013). They report a decline in earnings' value relevance and an increase in book values' relevance after 2005. Considering the Global Financial Crisis experienced in 2008, Dinçergök (2013) explores the value relevance of earnings for BIST companies over 2003-2009 and concludes that the financial crisis has a detrimental impact on the value relevance of earnings. Another study conducted by Ozkan & Kaytmaz Balsari (2010) documents that the financial crisis experienced in 1994 in Turkey decreased the value relevance of earnings and improved the value relevance of book value of equity, whereas due to the different nature of the crisis, the one experienced in Turkey in 2001 decreased the value relevance of earnings and did not impact the book value of equity. Furthermore, a recent study conducted by Bilgic et al.(2018) shows that value relevance shifts from earnings to book values after the adoption of International Financial Reporting Standards (IFRS) in 2005. Additionally, the global financial crisis in 2008 and 2009 has diminished earnings and book value relevance.

Other studies have found that combining inflation adjusted accounting data with historical costs provides a more comprehensive insight during inflationary periods. Kirkulak & Balsari (2009) investigated the value relevance of inflation adjusted and non-adjusted financial statements of Turkish firms for 2003. They find that providing both inflation adjusted and historical cost amounts together is more value relevant. Similar results are obtained by Filip & Raffournier (2010). They examine the value relevance of financial statements of Romanian firms during the period 1998–2004. They document that inflation adjusted financial statements should be reported as supplementary information, instead of supplanting historical cost information. Consistent with these studies Chamisa et al. (2018) explore the same issue in Zimbabwe under hyperinflationary conditions. They compare inflation adjusted financial statements with historical costs for the period 2000-2005. As they noted, these two sets of amounts provide equivalent values and offer additional information beyond what is provided by the other. To test the relevance of accounting information to stock prices, the pricing model developed by Ohlson (1995) is utilized in this study. This model is used in the literature especially to compare financial statements under different reporting requirements or conditions (Wang et al., 2020; Busari & Bagudo, 2021;

McGregor, 2022). In line with this model, book value per share and earnings per share reported in financial statements are regressed against the stock prices of the companies.

It has been shown in most studies that financial statements lose value during periods of high inflation and need inflation adjusted statements. Thus, the first hypothesis can be expressed as follows;

H_1: High rates of inflation decrease the reliability of accounting information.

Our second hypothesis involves the measurement of earnings volatility that can be defined as a measure of the level of uncertainty or variability in a company's profits, indicating the degree of business risk it faces (Fiechter, 2011). Additionally, higher earnings volatility associated with uncertainty, discourages investors from investing in such companies (Özcan, 2022). A study conducted by Basu et al. (2010) investigate how analysts consider inflation risk when forecasting earnings. They find that analysts don't take inflation risk into account which leads to incorrect earnings forecasts. Consequently, they argue that inflation exposure can affect earnings volatility and forecasts. According to the author's understanding, despite the fact that no study has examined the impact of inflation on earnings volatility or compared earnings volatility based on historical cost versus inflation adjusted values, many studies have indicated that inflation increases stock volatility (see Aggarwal et al., 1999; Yaya & Shittu, 2010; Aliyu, 2012; Hatipoğlu, 2016; Kılıç & Dilber, 2017). Further, several studies employed earnings volatility to compare financial statements under different reporting requirements or conditions or to assess earnings predictability (Jermakowicz et al., 2007; Dichev & Tang, 2009; Frankel & Litov, 2009; Ballas et al., 2010; Iatridis, 2010; Özcan, 2022). Following the literature, the standard deviation of return on assets (ROA)) based on the accounting information is calculated to determine earnings volatility as an indicator of decision usefulness based on the accounting information. Earnings volatility for firm i in year t is computed as the standard deviation of ROA for the four quarters of a given year. Investors and analysts are believed to make less effective financial decisions when inflation rates are high. As a result, the following hypothesis was developed;

H_2: High rates of inflation increase earnings volatility.

6. RESEARCH DESIGN

6.1. Data and Methodology

This study uses data consisting of 388 non-financial companies listed in BIST during the period 2000 and 2022. The data used in this study was obtained from the Refinitv-Eikon database. The initial sample of 388 non-financial companies is reduced to 155 due to missing data for some companies. Since inflation accounting was adopted only for a limited time period in Turkey both annually and the quarterly data are used. In order to investigate the impact of inflation accounting on financial statements properly

the longest possible period was chosen. When retrieving the data from the Refinitiv-Eikon database, the data for 2022 was incomplete for many firms and thus, the final year of the dataset has gaps. The number of observations in 2022 consist of 21 companies. All data used in this study consists of 13724 firm-quarter and 3431 firm-year observations.

In this study it is aimed to investigate the impact of inflation accounting on the decision usefulness of accounting numbers. First, to test the impact of inflation and the mitigating power of inflation accounting on decision usefulness, value relevance of earnings is measured and compared in periods when inflation accounting is used and when it is not used. Second, earnings volatility is used to evaluate the forecast accuracy of financial statements from investors' and analysts' perspectives. The variables utilized in this study are provided below in Table 2.

Table 2. Variables Employed

Variable Name	Description	Abbreviation
Return on Assets	Profitability ratio (Net income divided by Total Assets)	ROA_{it}
Return on Equity	Profitability ratio (Net income divided by Total Equity)	ROE_{it}
Earnings Volatility	Standard deviation of return on assets.	-
Stock Price	Closing price of the stock on earnings announcement day	SP_{it}
Book value per share	Shareholders' equity divided by total shares outstanding	$BVPS_{it}$
Earnings per share	Net income divided by total shares outstanding	EPS_{it}

6.1.1. Value Relevance of Earnings

To test hypothesis H_1, the pricing model developed by Ohlson (1995) is utilized and the results are shown in Table 3 below. The model employed is $SP_{it} = \alpha_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \varepsilon_{it}$

Where, SP represents stock price of firm i in year t, BVPS is book value per share for firm i in year t EPS is earnings per share for firm i in year t and ε is the error term respectively.

Table 3. Pricing Model Across Years (Dependent Variable: Stock Price)

	$SP_{it}=\alpha_0+\beta_1 BVPS_{it}+\beta_2 EPS_{it}+\varepsilon_{it}$						
Years	**β_1**	**p**	**β_2**	**p**	**R^2**	**F-stat**	**p**
2000	4.211	0.023**	3.1301	0.006***	0.5468	36.64	0.000***
2001	5.285	0.011**	.1492	0.013**	0.5422	16.25	0.001***
2002	5.294	0.014**	-.494	0.567	0.1643	3.54	0.039**
2003	1.667	0.037**	1.120	0.011**	0.4773	21.00	0.000***
2004	.623	0.005***	3.332	0.083*	0.5897	35.22	0.000***
2005	.610	0.003***	3.693	0.058*	0.5903	206.66	0.000***
2006	.614	0.034**	.6818	0.559	0.8213	119.51	0.000***
2007	.121	0.041**	.4623	0.063*	0.3260	14.99	0.000***
2008	.716	0.000***	.5034	0.615	0.5412	27.13	0.000***
2009	1.377	0.000***	1.747	0.331	0.5107	29.23	0.000***
2010	.7186	0.000***	1.842	0.005***	0.5361	47.38	0.000***
2011	1.061	0.002***	1.829	0.026**	0.4818	30.48	0.000***
2012	.4523	0.049**	5.196	0.000***	0.3805	29.48	0.000***
2013	1.257	0.010**	4.558	0.003***	0.6529	78.08	0.000***
2014	1.237	0.012**	4.337	0.000***	0.4598	42.56	0.000***
2015	.5806	0.001***	2.358	0.000***	0.7899	85.61	0.000***
2016	.8338	0.000***	6.215	0.000***	0.7034	122.90	0.000***
2017	.2229	0.024**	3.604	0.000***	0.7940	221.63	0.000***
2018	.9445	0.000**	3.380	0.006***	0.9519	102.54	0.000***
2019	.2638	0.855	14.270	0.000***	0.5762	101.97	0.000***
2020	-1.102	0.728	11.511	0.123	0.0973	11.32	0.000***
2021	10.274	0.000***	-2.5001	0.506	0.5460	25.87	0.000***
2022	5.6165	0.000***	-.33548	0.547	0.1254	21.17	0.000***
*Legend * p < 0.10; ** p < 0.05; *** p < 0.01*							

As shown in Table 3, the value relevance of earnings started to decline following financial crisis experienced in 2001 in Turkey. During 2003, both the value relevance of earnings and book value improved as the inflation rate declined. In the years of 2004 and 2005, the continually decreasing

inflation rates and the voluntary and compulsory implementation of IFRS in these years contributed to improving the value relevance of earning. These results are consistent with the findings of other studies conducted in Turkey (Türel, 2009; Suadiye, 2012). In 2006 the inflation rate reached double digits again and this led to a decrease in the value relevance of earnings. In 2008 and 2009, the value relevance of earnings and book values deteriorated due to the global financial crisis. This observed pattern corroborates with the findings of (Bilgic et al., 2018). The global financial crisis slightly affected Turkish economy compared to developed economies. Therefore, Turkey received excessive liquidity, leading to a market boom especially after 2010 (Demir, 2019). Earnings and book value relevance remains high from 2010 to 2017 since these time periods include neither local nor global crises that deflate the informativeness of financial statements. In addition, there were no sharp increases in the inflation rate during that time. Even though the inflation rate in 2018 increased sharply the relevance of book and earnings values continues to be significant. With a sharp decline in inflation rate in 2019, the book value lost its informativeness, whereas earnings remained relevant.

A global pandemic was witnessed in 2020 called COVID-19, which devastated both commodity and equity markets (Özdemir, 2020). In 2020 the annual inflation rate increased and due to the uncertainty, BIST was negatively affected by the pandemic (Ilgın & Sarı, 2020). During 2020, the informativeness of both earnings and book value was decreased. In 2021 and 2022 annual inflation rates continued to increase and consequently the value relevance of earnings remains insignificant, while that of book value improved after 2020. As the inflation rate started to spike after 2018, accounting information lost its significance to explain stock prices. Further, it should be noted that explanatory power of the model represented by F statistics and R^2 have begun to decrease after 2018. This is because earnings also lost its relevance and usefulness for making decisions. Indeed, earnings per share doesn't explain the changes in stock price of a company since 2018. Therefore, earnings should not be used by investors or analysts to predict a company's market value. In periods when inflation adjustment is used, equity explains a company's value better than income. Investors' behaviour during turbulent times is thought to be the cause of this. In comparison to future abnormal earnings, investors place more value on liquidations derived from equity information (Adwan et al., 2020).

6.1.2. Earnings Volatility

To test hypothesis H_2, the difference in means test (t-test) is applied to compare earnings volatility in different time periods (whether inflation accounting conditions are satisfied or not). Thus, the adoption of inflation accounting in 2003 and 2004 can be distinguished from the post-adoption and pre-adoption periods. For comparison purposes, three different time periods are chosen since inflation accounting was only adopted by non-financial firms in 2003 and 2004 in Turkey. The first group, the pre-adoption period, includes eight quarters from 2001 through 2002, the second group includes eight

quarters from 2003 through 2004, and the third group covers eight quarters from 2005 through 2006. Although, the conditions for inflation accounting were also satisfied in 2021 it was not adopted. Therefore, the value of four quarters of year 2021 can also be compared with one year ahead and before (i.e, 2020 and 2022). In Table 4 and 5, the mean value of earnings volatility for each year (standard deviation of ROA across the four quarters) has been calculated after categorizing the relevant values with the relevant timeline. The following tables demonstrate the differences in earnings volatility between the years 2003-2004 and 2021 with respect to their related periods.

Table 4. Difference in Earnings Volatility between 2003-2004 and before and after 2003-2004 (measured by standard deviation of ROA)

	pre-Inflation Accounting	Inflation Accounting	Inflation Accounting	post-Inflation Accounting
Period	2001- 2002	2003-2004	2003-2004	2005-2006
Number of observations	1860	1860	1860	1860
Means	.0476057	.036348	.036348	.0324655
Difference	.0112577		.0038824	
t-value	5.0153		2.2642	
(p-value)	0.0000***		0.0000***	
Legend * p < 0.10; ** p < 0.05; *** p < 0.01				

Table 5. Difference in Earnings Volatility between 2021 and before and after 2021 (measured by standard deviation of ROA)

Period	2020	2021	2021	2022
Number of observations	930	930	84	84
Means	.0218386	.0442861	.0693302	.1191881
Difference	.0224475		.0498579	
t-value	10.3412		2.8439	
(p-value)	0.0000***		0.0025***	
Legend * p < 0.10; ** p < 0.05; *** p < 0.01				

As can be seen there is a significant difference between the average earnings volatility in the 2003-2004 period and that of the next two years. Similarly, the years 2003-2004 is distinguishable from the previous two years before inflation accounting was adopted. The value of earnings dispersed more in those years on average when the inflation rate was higher. Accordingly, reported earnings in years before

2003 are not able to provide useful information in the same way that they did after 2004. It should be emphasized that inflation accounting started to be implemented in 2003. Before that, it was not implemented despite the fact that the requirements were satisfied in the years 2001 and 2002. Further it should be noted that both the cumulative inflation rate over three years and the inflation rate of the current year for the years 2001 and 2002 are higher than for the years 2003 and 2004.

Even if the inflation accounting requirements were met in the year 2021 with the declaration of the 2021 inflation rate, inflation accounting will not be implemented until two years later. The earnings volatility in year 2021 was compared to the volatility in year 2022 when the inflation rate was higher than in 2021. In addition, volatility in 2021 was compared to volatility in 2020, when inflation rate was lower than in 2021. According to the t test results, earnings volatility is higher in years when the inflation rate is higher. Inflation is a source of volatility by its nature as noted by (Anandarajan et al., 2006). In particular, the question of whether earnings based on cost-based accounting information are more or less volatile than inflation adjusted accounting information remains an open empirical question. According to FVA opponents, the recognition of fair value changes in income reduces the predictability of earnings and diminishes their decision usefulness (Biondi, 2011; Lee, 2014; DeFond et al., 2020). Further, it has been argued that FVA induces volatility (Ronen, 2012). On the other hand, Laux (2012) argue that fair value is more value relevant than historical cost though it can be manipulated. Also, Adwan et al. (2020) find that firms with fair value financial statements are less vulnerable to impact of the financial crises. Contrary to these views other studies show that providing historical cost and fair values shouldn't be supplanted by each other rather they should be provided as supplemental information since they complement each other (see Kirkulak & Balsari, 2009; Filip & Raffournier, 2010; Chamisa et al., 2018).

For the purpose of assessing the robustness of earnings volatility based on accounting information, the primary measure of profitability (i.e., ROA) is next replaced by an alternate measure, namely ROE. Table 6 and 7 below demostrate the fndings in detail.

Table 6. Difference in Earnings Volatility between 2003-2004 and before and after 2003-2004 (measured by standard deviation of ROE)

	pre-Inflation Accounting	Inflation Accounting	Inflation Accounting	post-Inflation Accounting
Period	2001- 2002	2003-2004	2003-2004	2005-2006
Number of observations	1860	1860	1860	1860
Means	.1295226	.0827793	.0827793	.068226
Difference	.0467433		.0145533	
t-value	4.2674		1.8717	
(p-value)	*0.0000****		*0.0307***	
Legend * p < 0.10; ** p < 0.05; *** p < 0.01				

Table 7. Difference in Earnings Volatility between 2021 and before and after 2021 (measured by standard deviation of ROE)

Period	2020	2021	2021	2022
Number of observations	930	930	84	84
Means	.0624189	.1521073	.1825204	.248006
Difference	.0896885		.0654856	
t-value	3.6306		1.5952	
(p-value)	*0.0000****		*0.0576**	
Legend * p < 0.10; ** p < 0.05; *** p < 0.01				

After substitution, the sign and significiance level of the difference in earnings volatility between related periods yield similiar results. Based on the standard deviations of ROE, similar results are obtained to those in Table 4 and 5.

7. CONCLUSIONS

Accounting is a science that pertains to financial transactions and includes summarizing, analysing, and reporting those transactions. To communicate with stakeholders, entities use financial statements. For this reason, financial statements are expected to be meaningful, practical, reliable and truthful. Due to market fluctuations, financial statements do not represent an entity's real status during an inflationary period. If the impact of inflation is not mitigated, financial statements can mislead stakeholders and provide inaccurate information about a company's financial health. There are many partial adjustment

methods that can be implemented in order to minimize the impact of inflation on the financial statements; however, these partial correction methods cannot guarantee a permanent solution. Turkey implemented a complete solution for mitigating inflation impacts on financial statements through inflation accounting at the end of 2003. Inflation accounting is designed to provide reliable, useful information to taxpayers and to ensure that the tax is justified. Due to low inflation in the following years, inflation accounting was suspended after 2004. Currently, inflation is on the rise, and inflation accounting is at the top of the headlines. The phenomenon of inflation accounting is essential for Turkish companies due to the issue of over taxation. Businesses are taxed on fictitious profits due to sharp increases in costs. This has been well documented in the heated debate between politicians, businessmen and other interested parties. In the current economic environment, inflation accounting is essential to provide useful information to stakeholders and other interest groups. To provide useful information, a company should have reliable numbers and truthful information in its financial statements. Under the current conditions in Turkey, inflation accounting is believed to offer useful information and enhance the reliability and relevance of financial items.

Based on stewardship theory, an accurate picture of a company's relative financial position can be obtained by presenting both current and historical costs of financial items together. Consequently, inflation accounting is consistent with this theory since financial items are approximated to their current values, and historical values can be shown in the financial statements as incremental information. An alternative approach to interpret this association is signaling theory. Outsiders' investment decisions are influenced by the signals sent by the company, according to the signaling theory. It is possible that the insiders send this information consciously or unconsciously to an outsider who lacks the information but is seeking it (Connelly et al., 2011).

This study is subject to several limitations. First, the comparison between inflation-adjusted financial statements and non-adjusted ones is challenging, as inflation accounting has been implemented for a limited time period in Turkey. Although the conditions for inflation accounting adoption existed prior to 2003, it did not become effective until then. The conditions for inflation accounting were satisfied in 2000, 2001, 2002, as well as 2003. Therefore, the comparison of earnings volatility for the year 2003 and its previous related period cannot be argued to provide a strong basis to distinguish the period when inflation accounting was adopted and not adopted before 2003. As provided by the volatility test and pricing model tests, net income is more volatile and does not reflect a company's actual value and misguide the interested groups in periods of high inflation. Therefore, the years when inflation adjustments are required should be scrutinized. Inflation accounting will be implemented for the year 2023 again regardless of the conditions. Further studies can compare the adjusted and non-adjusted usefulness of accounting information for the year 2023 as conducted using BIST listed companies for the year 2003 by (Kirkulak & Balsari, 2009). Further studies are also recommended to explore the

relationship between inflation accounting and decision usefulness based on other macroeconomic variables, such as interest rate, export to gross domestic product ratio, exchange rate, etc.

In addition, academic literature contains empirical analyses of the quality of financial reporting. Thus, some studies have shown that inflation accounting improves the quality of financial reporting (i.e., earnings quality) (see Higson et al., 2007; Scholtens & Kang, 2013; Kramarova, 2021). Despite this, there are only a few studies that examine the relationship between the quality of financial reporting and inflation accounting. As a result, further research could be conducted in order to analyze this relationship for Turkish entities.

Using a long series of annually and quarterly accounting data from 2000 to 2022, it is documented that financial information derived from financial statements deteriorates during high inflationary periods. A key finding of this study is that accounting value relevance is contextual and volatile as well as determined to some extent by exogenous economic factors. This study sheds light on the association between inflation and the usefulness of information reported in financial statements. It also suggests additional research areas to look into. These findings have implications for policymakers, practitioners, and scholars. For the latter, this study acknowledges the potential for further investigation in this area. While stewardship theory is used to explain these effects, new studies may also focus on signaling theory. Researchers may be encouraged to expand and test these findings in other contexts and with other data due to the limitations of the present study.

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Appendix A: An inflation adjustment example

Company A was established with 200,000 cash on 01.01.2023. In January Company A bought 20 unit of property with 10,000-unit price and 16 of these goods sold at 20,000-unit price.

Balance sheet before adjustment 31.12.2023: Company A Balance Sheet

Cash and cash equivalents	320,000
Inventory	40,000
Total Assets	360,000
Capital	200,000
Pre-tax profit	160,000
Total liabilities	360,000

Company A Profit and Loss Statement for the year 2023:

Gross Sales	320,000
Cost of Sales	(160,000)
Gross Sales Margin	160,000

The Wholesale Price Indexes:

December 2023 index 7,5

January 2023 index 5

Average index (7,5+ 5)/2 = 6,25

Adjustment coefficients:

January index adjustment coefficient 7,5/5 = 1.5

Average index adjustment coefficient 7,5/6,25= 1.2

Adjusted figures:

Inventory 40,000 × 1.5= 60.000

Capital 200,000 × 1.5 = 300.000

Sales 120,000 × 1.038 = 124.560

Costs of Sales 160,000 × 1.5= 240.000

The Statement of Net Monetary Position Gain or Loss:

Adjusted figure of increase in net monetary items 320,000 × 1.2 = 384.000

Net monetary item at December, 31st, 2023	320.000
Net monetary position loss	64.000

Company A 2023 Adjusted Income Statement:

Gross Sales	384.000
Cost of Sales	(240.000)
Gross Sales Margin	144.000
Net monetary position loss	(64.000)
Pre-tax profit	80.000

CHARACTERISTICS OF NON-PUBLIC SMALL AND MEDIUM ENTERPRISES THAT DEMAND AUDIT SERVICES: EVIDENCE FROM TURKEY[*]

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ABSTRACT

The necessity and scope of mandatory audit is an issue discussed alongside benefit-cost evaluations. The characteristics of companies demanding audits are noteworthy in this respect. This study aims to contribute to the discussions on audit demand and mandatory audit, with evidence from Turkey. A non-experimental research approach is employed to identify the distinctive characteristics of SMEs that demand audit. Evidence supporting previous studies is obtained on the relationship between audit demand and size, financing relationships and ownership structure. Furthermore, the results also significantly support the hypothesized association between audit demand and internationalization, R&D, and legal system perception.

Keywords: Audit Demand, Mandatory Audit, Agency Theory

JEL Classification: M40, M42

BAĞIMSIZ DENETİMİ TALEP EDEN HALKA AÇIK OLMAYAN KOBİ'LERİN KARAKTERİSTİK ÖZELLİKLERİ: TÜRKİYE ÖRNEĞİ

ÖZ

Zorunlu bağımsız denetimin gerekliliği ve kapsamı, fayda-maliyet değerlendirmeleri ile tartışılagelen bir konudur. Talep eden firmaların özellikleri de söz konusu değerlendirmeler kapsamında dikkate değer bir boyuttur. Bu çalışma ile zorunlu bağımsız denetim ve bağımsız denetim talebi eksenindeki tartışmalara Türkiye'den örnekle katkı sağlamak amaçlanmaktadır.

Çalışmada deneysel olmayan bir araştırma tasarımı kullanılmış olup, bağımsız denetimi talep eden firmaların farklılaşan özellikleri ortaya konulmaya çalışılmıştır. Bağımsız denetim talebi ile şirketlerin büyüklükleri, finansman ilişkileri ve mülkiyet yapıları arasındaki ilişki konusunda literatürle paralel olarak destekleyici kanıtlar elde edilmiştir. Ayrıca bulgular, denetim talebi ile Ar-Ge yatırımları, uluslararasılaşma ve yasal düzene ilişkin algı arasındaki öngörülen ilişkileri desteklemektedir.

Anahtar Kelimeler: Bağımsız Denetim Talebi, Zorunlu Bağımsız Denetim, Vekalet Teorisi

JEL Sınıflandırması: M40, M42

GENİŞLETİLMİŞ ÖZET

AMAÇ VE MOTİVASYON

Bağımsız denetim talebi konusu, farklı ülkelerde faaliyet gösteren şirketler üzerinden araştırmaya konu edilmiş bir araştırma alanı olarak literatürde önemli bir yer bulmaktadır. Farklı ülkeler ifadesi aynı zamanda farklı yasal düzenler, farklı sosyal-kültürel yapılar ve farklı kurumsal yaklaşımları da işaret etmektedir. Bütün bu farklılıklar, doğrudan veya dolaylı bir şekilde tüm denetim pratiğini ve bununla birlikte bağımsız denetim talebi olgusunu da şekillendirebilecek faktörlerdir.

Şirketlerin bağımsız denetime olan taleplerini makro düzeyde şekillendirebilecek unsurların yanı sıra mikro düzeyde etkileyebilecek olanlar da söz konusudur. Bu nedenle aynı ülkede faaliyet gösteren ve bağımsız denetimi talep eden şirketlerin, etmeyen şirketlere göre farklılaşan karakteristik özellikleri araştırmaya değer görülmektedir.

Söz konusu karakteristik özelliklerin ortaya çıkarılması aynı zamanda zorunlu bağımsız denetimin kapsamı konusundaki tartışmalara da önemli girdiler sunmaktadır. Özellikle KOBİ'lerde zorunlu bağımsız denetimin hem makro hem de mikro düzeyde ekonomik olup olmadığı dünya genelinde tartışılagelen bir konudur. Ayrıca tartışmaya konu olan Halka Açık Olmayan KOBİ (HK-KOBİ) niteliğindeki şirketler, birçok ülke ekonomisinde önemli yer tutmaktadır. Nitekim Türkiye'de de HK-KOBİ'ler toplam girişimlerin %98'ini oluşturmaktadır.

Bu çalışmanın bağımsız denetim talebi ve zorunlu bağımsız denetim eksenlerindeki tartışmalar bağlamında araştırmacılara, kanun koyuculara, denetçilere ve şirketlere fayda sağlayacak bilgiler sunması beklenmektedir.

Literatürde farklı ülkelerde yürütülmüş bağımsız denetim talebi araştırmaları bulunmaktadır. Türkiye bağlamında ise daha önce bağımsız denetim talebini konu edinmiş çalışmanın olmaması bu çalışmanın en önemli motivasyonudur. Bu nedenle bu çalışma ile bağımsız denetim talebi literatürüne Türkiye örneğiyle katkı sunmak amaçlanmıştır.

ARAŞTIRMA STRATEJİSİ VE YÖNTEMİ

Çalışmada, elde edilen verilerin niteliği ve bu bağlamda öne sürülen hipotezler doğrultusunda, korelasyonel / deneysel olmayan araştırma tasarımına başvurulmuştur. Bu tasarımın öne çıkan yönü ise, analiz edilen verilere herhangi bir müdahalenin söz konusu olmamasıdır. Diğer bir ifadeyle, bu araştırma tasarımında ilgili olgulara/değişkenlere ilişkin veriler kendi doğal ortamında gerçekleşmiş olup, daha sonra aralarındaki ilişki analizlere konu edilmektedir.

Çalışma kapsamında Dünya Bankası'nın Girişim Araştırması (Enterprise Survey-ES) anketleriyle toplanan verilere başvurulmuştur. Söz konusu veriler kullanılarak, ilgili teoriler ve literatüre dayandırılan hipotezler istatistiksel analizler aracılığıyla test edilmiştir.

Çalışmada geliştirilen hipotezlerin test edilmesi için Spearman Korelasyon, Ki-Kare ve Lojistik Regresyon analizlerine başvurulmuştur.

BULGULAR VE TARTIŞMA

Hem çalışmanın metodolojisi açısından hem de verilerin niteliğine bağlı olarak net bir nedensellik çıkarımı yapılamamaktadır. Bu durum aynı zamanda çalışmanın önemli bir kısıtıdır. Bununla birlikte söz konusu anlamlı ilişkiler, nedensellik ilişkisinin de olabileceğine yönelik bir ön bilgi olarak kabul edilebilecektir. Diğer bir ifadeyle, bağımsız denetim talebini etkileme potansiyeli olan durumlar olarak yorumlanabilecektir. Yahut bağımsız denetimi talep eden şirketlerin karakteristik özellikleri şeklinde yorumlanması da uygun olacaktır. Bu bağlamda desteklenen hipotezlere ilişkin çıkarımlar aşağıdaki şekillerde ifade edilebilecektir.

- Bağımsız denetim talebi, görece daha büyük ölçekli şirketlerde daha yüksektir.

- Bağımsız denetim talebi en büyük ortağın nihai karar verici olduğu şirketlerde, olmayanlara göre daha düşüktür.

- Bağımsız denetim talebi kredi başvurusu olan şirketlerde, olmayanlara göre daha yüksektir.

- Bağımsız denetim talebi açık kredi hakkı olan şirketlerde, olmayanlara göre daha yüksektir.

- Bağımsız denetim talebi mahkemelik olmayı şirket faaliyetlerine engel olarak gören şirketlerde, görmeyen şirketlere göre daha yüksektir.

- Bağımsız denetim talebi Ar-Ge yatırımı olan şirketlerde, olmayan şirketlere göre daha yüksektir.

- Bağımsız denetim talebi uluslararası faaliyetleri bulunan şirketlerde, bulunmayan şirketlere göre daha yüksektir.

SONUÇ VE ÖNERİLER

Çalışmada yürütülen analizlerden elde edilen sonuçlar özetle ifade edilecek olursa; şirketlerin büyüklükleri, sahiplik yapıları, finansman ilişkileri, Ar-Ge yatırımları, yasal düzene ilişkin algıları ve uluslararasılaşma durumları ile bağımsız denetim talebi arasında anlamlı ilişkiler olduğuna ilişkin destekleyici kanıtlar elde edilmiştir.

Bu çalışma dahil olmak üzere literatürdeki bağımsız denetim talebi çalışmalarında nedensellik ilişkisinin kurulamamış olması, gelecek araştırmalarda dikkate alınması gereken bir araştırma boşluğu olarak öne çıkmaktadır. Bu bağlamda gelecek araştırmalar deneysel veya yarı deneysel tasarımlarla nedensellik ilişkileri ortaya koyarak alana önemli katkılar sunulabilecektir.

Çalışmanın diğer bir kısıtı da analizlerde ikincil veri kullanılmış olmaktan kaynaklanmaktadır. Kullanılan verilerin elde edildiği ES-Türkiye-2013 (Dünya Bankası), HK-KOBİ'lerde bağımsız denetim talebi araştırması için hem dönem açısından hem de ülke genelinden katılımcılar olmasından dolayı, değerli bir veri sunmaktadır. Ancak, geliştirilen hipotezler, literatüre ve teorilere bağlı kalınarak öne sürülmüş olsa da ES-Türkiye-2013'te bulunan verilerle sınırlı kalınmıştır.

Gelecek araştırmalar birincil kaynaklardan yararlanarak yeni boyutların da bağımsız denetim talebiyle ilişkisini araştırabilecektir. Bu bağlamda şirketlerin sahiplik yapılarına ilişkin farklı boyutlar, yöneticilerin ve şirket sahiplerinin demografik özellikleri, müşteriler, kreditörler veya tedarikçilerle olan ilişkiler bağımsız denetim talebi araştırmalarında değerlendirilebilecek niteliktedir. Ayrıca şirketlerin halka açılma konusundaki düşünceleri de bağımsız denetim talebiyle yakından ilişkilendirilebilecek olup istatistiksel olarak test edilebilecektir.

Diğer taraftan, kâr amacı gütmeyen kuruluşlarda bağımsız denetim talebi, bağımsız denetim hizmeti almak istemeyen şirketlerin gerekçeleri veya daha önce hiç denetim hizmeti almamış olan şirketler ile tecrübesi olanların bağımsız denetime ilişkin maliyet fayda değerlendirmeleri gelecek araştırmaların konusu olabilecektir. Ayrıca literatürde yer bulan bağımsız denetim talebi çalışmalarının elde ettikleri istatistikler ile meta analiz çalışması da yapılabilecektir.

1. INTRODUCTION

Every country has a mandatory audit policy, each with its specific set of procedures and scopes. Several explanations have been suggested for the necessity of legal obligation. The most significant one is the protection of the public interest. In that, financial reports, once made public, become public goods and are of public interest. (Hay et al., 2014). In this regard, the extent to which companies concern the public interest is important in determining the scope of enforcement. Therefore, companies are at the forefront in terms of public interest. For instance, publicly listed firms or credit institutions are naturally prioritized.

In the context of public interest, company size is a criterion that is evaluated by regulators. There is a consensus and practice in most countries for the inclusion of large-scale companies in the scope of mandatory audits. However, different approaches and practices exist for SMEs. Mandatory auditing for SMEs is a controversial issue both practically and academically (Carey et al., 2013; Collis, 2007; EC, 2010, 2013, 2014b, 2014a; Fearnley et al., 2000; Kamarudin et al., 2012; Ojala et al., 2016; Salleh et al., 2008; Tabone & Baldacchino, 2003). The exemption of SMEs from mandatory audit has been the subject of research both in legal jurisdictions where all independent audits are mandatory for all companies regardless of their size (such as Malaysia), and in legal jurisdictions that have an exemption threshold application (such as the United Kingdom and European Union countries).

This controversial issue has also been on the agenda of the European Union for the last decade. The European Commission (EC) points out the cost and burden of auditing for SMEs in its reports. They argue that SMEs should be exempted from mandatory audits so as to provide an advantageous business environment to attract investment to the region (EC, 2013, 2014b). In line with this call, member countries exempt SMEs through specific criteria. Turkey also, as a candidate country for the union, has complied with this call. In this respect, SMEs in Turkey are exempted from mandatory auditing since 2013, unless they are covered by a criterion other than size.

Insufficient motivation that encourage companies to voluntarily publish reliable financial information with the public is another explanation for the necessity of mandatory auditing (Lennox & Pittman, 2011). However, companies may choose to procure audit services voluntarily, even though it is not mandated by law. The fact that companies procure audit services despite being exempted has created a remarkable research area in the form of audit demand. In this respect, many studies that try to reveal the characteristics of companies demanding auditing services exist in the literature, with samples from different legal systems.

There are studies that try to reveal the characteristics of companies demanding audit services with samples from different countries such as the USA, UK, Germany, Finland, Denmark, Belgium,

Australia, Malaysia, and Canada. However, in the literature, there is no audit demand study that specifically focuses on companies in Turkey.

The companies that stand out and are addressed in the audit demand studies are mainly SMEs or non-public companies that are exempted in most legal systems. In the context of Turkey, in order for SMEs to be exempt from auditing, they must not be open to the public.

This study contributes to the existing literature in several ways. First, the fact that the audit demand in non-public SMEs in Turkey has not been addressed earlier, indicates a research gap. It is expected to contribute to the audit demand literature with a sample from Turkey. Turkey distinguishes itself and stands out from other countries due to its unique historical path with audit regulations. Secondly, this study provides input information by presenting data and evidence to researchers in the discussions on the axis of mandatory audit and audit demand. The legislators also can benefit from the findings for the same issue. Thirdly, the study deals with the relationship between R&D investments, internationalization, and the perception of the legal system of the companies and audit demand, all of which, to the best of our knowledge, have not been investigated earlier in the literature. Fourthly, the study provides empirical contribution to theoretical perspectives. It provides new evidence for the impact of agency theory, signaling theory and information asymmetry on audit demand.

The remainder of this paper is set out as follows. Existing literature on audit demand is discussed and the hypotheses are developed in the next section. The following section describes the data and methodology. Then, empirical results are presented and discussed. The final section provides a summary and conclusion.

2. THEOROTICAL UNDERPINNINGS, LITERATURE AND HYPOTHESES

Agency theory is the most popular theoretical framework for explaining the demand for audit services (Duits, 2012). Agency theory, which is utilized in many disciplines, was introduced to the auditing field for the first time by Watts & Zimmerman (1983).

Jensen and Meckling (1976) conducted a groundbreaking study in which they viewed companies using the contract metaphor under the lens of agency theory. According to them, a company is regarded as a nexus of contracts under the agency theory. Theoretically, a contract establishing an agency relationship is that in which the principal appoints an agent to carry out a task on his behalf. The contract confers authority on the agent. (Jensen & Meckling, 1976).

In an agency relationship, the principal and the agent try to maximize their individual interests. Since this is the case, the agent, who has the authority, may act against the interests of the principal while attempting to maximize his own benefits, whether with good or ill intentions. In other words, while the

agent always prioritizes his own interests, he cannot maximize the interests of the principal at the same time (Wallace, 1980). The "Divergence of Interests" is how this circumstance is conceptualized.

Some key management tools come to the fore to control the agent's self-interested conduct as a result of the divergence (Bendickson et al., 2016). One of these management tools is auditing. From the viewpoint of the agency theory, auditing can reduce the problems that result from conflicting interests, which are also called agency conflicts.

Agency theory makes specific assumptions about information, people, and organizations in order to predict potential issues that could occur in agency relationships. According to the theory, information can be bought and sold, people are risk-averse, selfish, and partly rational beings. In organizations, there is information asymmetry between the agent and the principal so that the interests of the organizational stakeholders partially conflict. The theory's main goal is to identify the best contract for managing principal and agent interactions while taking these presumptions into consideration (Eisenhardt, 1989).

According to Power (1997), the need for auditing is directly related to information asymmetry, which is predicated on the notion that since individuals are inherently vulnerable and unreliable, there must be some controls. Asymmetric information is considered as a circumstance that amply justifies the demand for audits given its existence and inevitability. Indeed, asymmetric information is a core assumption of agency theory, which is highly related to the demand for auditing.

The same goes for signaling theory, which exclusively uses information asymmetry as a main assumption (Morris, 1987). To put it briefly, signaling theory is concerned with sending out signals in an environment of asymmetric information. Since financial reports are a vehicle for information exchange, it can be claimed that they attempt to lessen information asymmetry. This objective is achievable when the shared information is reliable. Auditing financial reports is a crucial step in ensuring this credibility. Procuring audit services voluntarily, in a situation where there is no legal requirement, will be seen as a positive sign by stakeholders regarding the validity and dependability of financial reporting. In other words, companies would demand auditing to send this signal and gain the trust of stakeholders.

These theories served as the foundation for the research hypotheses, which are listed below following the pertinent literature review.

There are many studies that try to reveal the characteristics of companies demanding auditing services, with samples from different countries (Table 1). The very first study on this subject was published in 1982 with a sample from the USA, and most studies were published with U.K. samples. There are also audit demand studies conducted in countries such as Germany, Finland, Denmark, Belgium, Netherlands, Australia, Vietnam, Malaysia, and Canada. In addition to these, there are a

limited number of studies on the demand for auditing in which cross-country comparisons are made (Briozzo & Albanese, 2020; Collis, 2010a; Diallo, 2021; Francis et al., 2011).

In Table 1, studies conducted to reveal the characteristics of companies that demand auditing services are presented.

Table 1. **Audit Demand Studies**

Authors	Publication Year	Data Year(s)	Country(ies)	Types of Companies Included in the Sample	Sample Size
Chee W. Chow	1982	1926	USA	Public Companies	165
Ahmed Rashad Abdel-Khalik	1993	-	USA	Non-Public Companies	134
Venancio Tauringana & Steve Clarke	2000	1996	UK	Non-Public Small Companies	92
Peter Carey, Roger Simnett, & George Tanewski	2000	1997	Australia	Non-Public Family Companies	186
Jean-Lin Seow	2001	-	UK	Private Small Companies	32
David W. Senkow, Morina D. Rennie, Richard D. Rennie & Jonathan W. Wong	2001	-	Canada	Large Private Companies	201
Jill Collis, Robin Jarvis & Len Skerratt	2004	1999	UK	Non-Public Small Companies	332
Jill Collis	2010	2004	UK, Denmark	Non-Public Small Companies	685
Jere R. Francis, Inder K. Khurana, Xiumin Martin & Raynolde Pereira	2011	1999-2000	62 Countries	Non-Public partnerships, sole proprietorships, and cooperatives	3826
Lasse Niemi, Juha Kinnunen, Hannu Ojala & Pontus Troberg	2012	2005	Finland	Non-Public Small Companies	412
Jill Collis	2012	2007	UK	Non-Public Small and Micro Companies	592
Hans Duits	2012	2010	Netherland	Non-Public SMEs	154
Diane Breesch, Kris Hardiesa, Jan De Muyldera	2012	2011	Belgium	-	288
Peter Carey & George Tanewski	2013	2012	Australia	Small And Medium Size Owner Managed Farm Companies	457
Mazlina Mustapha & Chia Hoh Yaen	2013	-	Malaysia	Sole Proprietors and Partnerships	62
Elisabeth Dedman, Asad Kausar & Clive Lennox	2014	2004-2006	UK	Non-Public Small Companies	6.274
Maarten Corten, Tensie Steijvers & Nadine Lybaert	2015	2003	Belgium	Non-Public Family Companies	482
Hannu Ojala, Mervi Niskanen, Jill Collis & Kati Pajunen	2016	2009-2012	Finland	Non-Public Micro Companies	50.000
Andreas Weik, Brigitte Eierle & Hannu Ojala	2018	2013	Germany	Non-Public Small Companies	405

One of the company-specific variables most frequently associated with audit demand in the literature is size. This relationship is argued mainly based on economies of scale and agency theory.

Within the framework of economies of scale theory, since the marginal cost of auditing in large companies will be lower than in small companies, it is predicted that audit demand will be associated positively with size (Chow, 1982). In other words, whether the benefit of the audit will exceed the cost is directly related to the size of the company. More concretely, the audit cost of any two companies, one of which has twice the size of the other, will not be exactly double (Duits, 2012). As a result, it is expected that auditing will be more attractive for large companies compared to small-scale ones, when viewed through the lens of economies of scale and the benefit-cost balance.

From the perspective of agency theory, employees can be seen as agents and managers as principals (Duits, 2012). The intensity of such agency relations creates the basis for agency problems (moral hazard and adverse selection). Chow (1982) states that more staff indicates more hierarchy and more layers of management, as well as a higher probability of loss of control. Abdel-Khalik (1993) states that if there is a long chain of command in the organizational structure, the structure becomes more complex, which means that the risk of loss of control is higher. He suggests that loss of control risk is also a situation that would explain audit demand and obtained supportive evidence. Also, Hay et al. (2006) interprets the positive and significant relationship they find between company complexity and audit fees in their meta-analysis study in the context of audit demand.

Size is considered in all studies investigating the demand for auditing. Hypotheses are formed and tested with the expectation that there will be a positive association between size and audit demand. Similarly, in this study, a positive relationship is expected between size and audit demand.

H1: There is a positive relationship between company size and audit demand.

Ownership structure is also considered to be a variable that shapes potential agency conflicts in the context of the separation of ownership and control (Jensen & Meckling, 1976). Ownership structure can be considered in many dimensions (Arosa et al., 2010) and can be accepted as an indicator of agency relations (Habib et al., 2019). One of these dimensions is ownership distribution. In other words, it is the density of the ownership structure relative to the share ratio of the largest partner. Shleifer & Vishny (1997), state that agency problems will decrease in companies with a concentrated ownership structure. Therefore, there is an expectation that the demand for audit will decrease in companies with a concentrated ownership structure. In this direction, hypothesis H2a has been proposed. Shleifer & Vishny (1997) also state that in companies with a concentrated ownership structure, large partners will have more authority and rights, and managers will have the power to control their activities. This situation points to potential agency problems between large partners and small partners, and it is expected that it will increase the demand for auditing. In this context, hypothesis H2b is put forward.

H2a: There is a negative relationship between concentration of ownership in a company and audit demand.

H2b: There is a positive relationship between the main decision maker in a company being the largest partner and audit demand.

The presence of foreign partnership in the ownership structure can be another indicator of agency relationships. Foreign partners need oversight mechanisms more than domestic partners. Furthermore, foreign partners may have some additional obligations in their relevant legal jurisdictions, unlike domestic partners. Also, they may not know the business environment of the region where the company

operates as well as the local partners. This leads to information asymmetry and agency conflicts between domestic and foreign partners (Habib et al., 2019; Pronobis & Schaeuble, 2022). Thus, there is an expectation that the presence of foreign partners will increase the demand for auditing services, which is a surveillance mechanism. Therefore, the proposed hypothesis is as follows.

H2c: There is a positive relationship between the presence of foreign partners in a company and audit demand.

Another important dimension associated with audit demand in the literature is a company's financing relationships. Non-public SMEs generally prefer credit institutions as a way of financing. The audit demand arising from financing relations is mostly explained by agency theory and signaling theory.

In terms of agency theory, the creditor is positioned as the principal and the company as the agent. In this agency relationship, companies may demand auditing to provide assurance (Collis, 2010b; Ojala et al., 2016), while the principal parties may also demand this assurance (Abdel-Khalik, 1993; Rennie et al., 2003; Senkow et al., 2001).

From the signaling theory point of view, companies may want to give an indication of their repayment power with audited financial reports to obtain credit (Haapamäki, 2018). In addition, voluntary auditing services also contribute positively to credit ratings (Lennox & Pittman, 2011). There is evidence that companies that voluntarily procure audit services obtain loans at lower costs (Blackwell et al., 1998; Kim et al., 2011; Minnis, 2011). In this context, it is predicted that demand for audit is higher in companies applying for loans.

H3a: There is a positive relationship between a company having applied for loans in the last financial period and audit demand.

Another notable indicator in the context of financing is overdraft facility. Overdrafts are the loans that customers can get from banks without any collateral. In this type of loan, the assurance is the reputation of the customer. In other words, it can be commented that a company with an overdraft facility has a high credibility in the eyes of creditors. In this respect, the existence of an overdraft facility can be interpreted as the lack or absence of agency conflicts between the company and the bank. Banks may require companies that demand overdraft facilities to have their financial reports audited. Or companies will be able to obtain overdraft facilities by using different assurance methods. In this case, companies may not need an audit. A negative or positive relationship cannot be determined between audit demand and overdraft rights.

H3b: There is a relationship between a company having overdraft rights and audit demand.

On the other hand, it is predicted that overdraft facility has a moderating role in the relationship between loan application and the demand for audit.

H3c: There is an association between demand for audit and coexistence of overdraft rights and loan application.

The relation between auditing and certain indicators related to the legal system at the level of countries is frequently set forth in the literature. Some examples are level of investor protection (Francis et al., 2003; Jaggi & Low, 2011; Newman et al., 2005), litigation risk (Khurana & Raman, 2004), corruption (Farooq & Shehata, 2018; Jeppesen, 2019) and legal origin (Iatridis, 2012). These dimensions are mainly addressed at the macro level. In this study, it is predicted that companies' perceptions of the legal system are related to audit demand. In this respect, it is expected that the likelihood of demanding auditing services will increase if the company sees courts as an obstacle in its business activities.

H4: There is a positive relationship between seeing the courts as an obstacle to business activities and audit demand.

It is suggested that financing and ownership structure that shape agency relationships in companies have the potential to affect R&D investments (Lee & O'Neill, 2003; Yoo & Rhee, 2013). It is also stated that the existence of R&D investments in a company is a factor that increases information asymmetry among stakeholders (Aboody & Lev, 2000; Godfrey & Hamilton, 2005). Godfrey & Hamilton (2005) state that compared to others, R&D investments are unique and difficult to identify. They find that companies with intensive R&D investments prefer auditors specialized in their sectors. The hypothesis developed in this study is that the demand for audit services will be higher in companies with R&D investments.

H5: There is a positive relationship between R&D investment and audit demand.

To carry out export transactions, companies must act in accordance with international regulations or obtain an international license. Such cases show that export-related activity in a company is an indicator for the degree of internationalization. These, in turn, increase uncertainty and complexity. Uncertainty and complexity also lead to? information asymmetry and agency problems between stakeholders (Tsao et al., 2017). There is also evidence that companies, as they become more international, prefer large audit companies (Big N), which are accepted to provide higher quality audit services (Chen et al., 2017; Tsao et al., 2017). The hypothesis put forward is that there is a relationship between internationalization and the demand for auditing services.

H6: There is a positive relationship between internationalization and audit demand.

3. METHODOLOGY

3.1. Data and Sample

This study uses the data from the Enterprise Surveys (ES), which have been conducted by the World Bank in Turkey in 2013. ES-Turkey-2013 was collected by the quota sampling method (*Enterprise Surveys Indicators Data - World Bank Group*, 2020). The number of participants was determined by the ratios calculated by considering the industrial populations of the regions. Publicly traded (21 companies) and companies with 250 or more employees (127) were excluded in the analysis. 198 companies with missing data were similarly taken out of the sample. As a result, the total number of companies included in the analysis is 998. The elimination did not disturb the balance in regional distribution. The distribution of the companies in the final data set according to regions is given in Table 2.

Table 2. Distribution of the Sample by Geographic Regions

Geographic Regions	Frequency	Percent	Cumulative Percent
Marmara	284	28,5	28,5
Aegean	216	21,6	50,1
Mediterranean	138	13,8	63,9
Central Anatolia	166	16,6	80,6
Black Sea	109	10,9	91,5
Eastern and Southeastern Anatolia	85	8,5	100,0
Total	**998**	**100,0**	

Data on the sectors in which the companies operate are presented in Table 3.

Table 3. Sector Distribution of the Sample

Sector	Frequency	Percent	Cumulative Percent	Sector	Frequency	Percent	Cumulative Percent
Food	122	12,2	12,2	*Publishing, printing, and recorded media*	11	1,1	94,0
Textiles	117	11,7	23,9	*Motor vehicles*	10	1,0	95,0
Garments	117	11,7	35,7	*Basic metals*	7	0,7	95,7
Chemicals	116	11,6	47,3	*Tanning & leather*	7	0,7	96,4
Fabricated metal products	116	11,6	58,9	*Plastic & Rubber*	6	0,6	97,0
Nonmetallic mineral products	113	11,3	70,2	*Other transport equipment*	5	0,5	97,5
Retail	96	9,6	79,9	*Electronics*	5	0,5	98,0
Construction	31	3,1	83,0	*Supporting transport activities*	5	0,5	98,5
Wholesale	30	3,0	86,0	*Paper & paper products*	4	0,4	98,9
Furniture	26	2,6	88,6	*Transport*	4	0,4	99,3
Machinery and equipment	19	1,9	90,5	*Precision instruments*	3	0,3	99,6
Services of motor vehicles	12	1,2	91,7	*Information technology*	3	0,3	99,9
Hotel and restaurants	12	1,2	92,9	*Wood*	1	0,1	100,0
	Total	**998**	**100,0**				

The distribution of the companies in the sample based on the number of employees is given in Table 4.

Table 4. Distribution of Sample Companies by Number of Employees

	Frequency	Percent	Cumulative Percent
(0-19)	467	46,8	46,8
(20-99)	397	39,8	86,6
(100-249)	134	13,4	100,0
Total	**998**	**100,0**	

3.2. Variables, Measurement and Model

Variables used in our statistical analysis, their abbreviations, measurements, ES codes, associated hypotheses and the expected direction of the relationships are summarized in Table 5.

One of the questions asked to owners or managers within the scope of ES is "In the last fiscal year, did this establishment have its annual financial statements checked and certified by an external auditor?" with the code "k21". The responses collected with this question can be accepted as an indicator of audit demand (Briozzo & Albanese, 2020; Diallo, 2021; Francis et al., 2011). However, the point to be noted here is that to be able to talk about voluntary audit demand, companies that address the relevant question should not be subject to mandatory auditing. In this respect, the time period of the collected data is important. For the same reason, Chow (1982), one of the leading researchers in the literature, tried to reveal the audit demand with this approach. Chow used the data of 1926 in his study conducted in 1982. Since the hypotheses put forward imply demand (voluntariness), he presented the necessity of using data from a period when auditing was not mandatory as a justification (Chow, 1982).

The question "In last fiscal year, did this establishment have its annual financial statements checked and certified by an external auditor?" in ES-Turkey-2013 indicates the period (2012) when independent auditing was not mandatory in non-public SMEs (companies included in the data set). In addition, since company size is a criterion for legal obligation, limiting the sample to companies with a maximum of 249 employees eliminates large companies for which independent audits are mandatory and hence better reveals the voluntary audit demand of smaller companies. Indeed, a criterion used for mandatory audits was the number of employees, which was determined to be 500 people in 2013 and 250 people in 2014.

As a result, the answers given to the k21 coded question are used to measure for audit demand, which is the output variable of the research model. Companies that answered yes to the question were coded as 1 and companies that answered no were coded as 0.

In literature, the most used indicators for the size variable are total assets, the number of employees, and total sales. Only the number of employees can be reliably obtained from ES-Turkey-2013. Therefore, the total number of employees was used for testing *H1*. Categorization of employee numbers

is used as it is in ES Data. The codes 1, 2 and 3 correspond to micro, small and medium, respectively, as subcategories of SMEs in terms of their sizes.

To test the **H2a** hypothesis, the approach of Thomsen & Pedersen (1998) is adopted in classifying concentration in ownership structure. According to this approach, companies with no shareholders having more than 20% ownership are considered as having a dispersed ownership structure, a dominant ownership structure if at least one partner has between 20% and 50% of the shares, and a concentrated ownership structure if one partner owns more than 50% of the shares.

The concentration of ownership is coded as 1 (dispersed), 2 (dominant) and 3 (concentrated).

For companies to carry out export transactions, they must act in accordance with international regulations or obtain an international license. Such cases show that export-related data is an indicator for internationalization. In this context, export data is preferred as a more appropriate indicator for internationalization at the company level in most studies, especially in SMEs (Deng & Zhang, 2018; Laufs & Schwens, 2014). To test hypothesis **H6**, companies that export directly or indirectly are coded as 1 and those that do not are coded as 0.

Each observation is coded as 0 and 1 to test the hypotheses **H2b, H2c, H3a, H3b, H3c, H4** and **H5**.

In order to control for any possible effects, dummy variables for "Industry and Region" are also added. Manufacturing companies are coded 1, since their transactions are more complex than others, whereas non-manufacturing companies are coded 0. Furthermore, the differences between the regions in terms of their economic development are expected to affect the companies' convenience in accessing auditing services. In this respect the Marmara region stands out.

An overview of all variables can also be found in Table 5.

The independent variables other than SIZE and CONC (not defined yet! Define the first time used) in the research model are dummy variables. There are important advantages and logical aspects of using a number of dummy variables in the logistic regression model:

- Odd ratios of each variable can be calculated, understood, and interpreted more easily,
- Measuring the independent variables as dummy variables, like the dependent variable, is more consistent, and
- Using dummy variables to represent ranges or levels increases the likelihood of events, resulting in a stronger and more stable model.

Table 5. Information on Variables and Hypotheses

Variables	Measurement of Variables	ES Codes	Hypothesis	Expected Relationship Direction
AUDIT	If the company has its last annual financial statements checked and certified by an external auditor 1, otherwise 0.	k21	Independent Variable	
SIZE	Number of employees If 0-19 coded as 1, If 20-99 coded as 2 and If 100-249 coded as 3.	l1	H1	+
CONC	Ownership percentage of the largest owner(s) %0-%20 coded as 1, %21-%50 coded as 2 and %51-%100 coded as 3.	b3	H2a	-
FOWN	If there is a foreign partner 1, otherwise 0.	b2b	H2c	+
LODM	If the largest owner is the main decision maker 1, otherwise 0.	ECAz13	H2b	+
AL	If company applied for any loans/lines of credit in last fiscal year 1, otherwise 0.	k16	H3a	+
OD	If company has an overdraft facility 1, otherwise 0.	k7	H3b	-+
AL _ OD	If there is an overdraft facility and applied for a loan/credit in the last fiscal year 1, otherwise 0.	k16*k7	H3c	-
COURT	If courts are seen as obstacles to company operations 1, otherwise 0.	h30	H4	+
RD	If the company has invested in R&D 1, otherwise 0.	h6	H5	+
INT	If the company has an export activity 1, otherwise 0.	d3b+d3c	H6	+
Control Variables				
SECT	If the company is in manufacturing sector 1, otherwise 0.	a0		
REGI	If company operates in Marmara region coded 1, otherwise 0.	a2		

Within the framework of the developed hypotheses, the research model to be tested statistically is as follows:

$$\text{AUDIT} = \beta_0\ \text{SIZE} + \beta_1\ \text{CONC} + \beta_2\ \text{LODM} + \beta_3\ \text{FOWN} + \beta_4\ \text{AL} + \beta_5\ \text{OD} + \beta_6\ \text{AL \_ OD} + \beta_7\ \text{COURT} + \beta_8\ \text{RD} + \beta_9\ \text{INT} + \beta_{10}\ \text{SECT} + \beta_{11}\ \text{REGI} + \varepsilon_i$$

4. EMPIRICAL RESULTS

To test the hypotheses put forward in the study, univariate, bivariate and multivariate analyses are used.

4.1. Univariate and Bivariate Analysis

Descriptive statistics for dependent and independent variables are presented in Table 6.

Table 6. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AUDIT	998	0,00	1,00	0,4870	0,50008
SIZE	998	1,00	3,00	1,6663	0,70097
CONC	998	1,00	3,00	2,6583	0,49722
FOWN	998	0,00	1,00	0,7465	0,43524
LODM	998	0,00	1,00	0,0391	0,19388
AL	998	0,00	1,00	0,3727	0,48378
OD	998	0,00	1,00	0,6944	0,46090
AL _ OD	998	0,00	1,00	0,3066	0,46132
COURT	998	0,00	1,00	0,2044	0,40347
RD	998	0,00	1,00	0,1363	0,34325
INT	998	0,00	1,00	0,4749	0,49962
SECT	998	0,00	1,00	0,8146	0,38879
REGI	998	0,00	1,00	0,2846	0,45144

In the dataset, the majority of companies (66.9%) have a concentrated ownership structure. Thus, the largest shareholders of these companies own more than 50% of the shares. Companies having a dispersed ownership structure make up only 1.1% of the sample. Simply expressed, the percentage of companies in where any owner owns more than 20% of the shares remains low. The ownership structure of 32% of companies are not concentrated or dispersed but dominated by large shareholders having between %21-%50 of total shares (Table 7).

Table 7. Frequency Analysis of Ownership Concentration and Sizes

	1		2		3	
Variable	Frequency	Percent	Frequency	Percent	Frequency	Percent
SIZE	467	%46,8	397	%39,8	134	%13,4
CONC	11	%1,1	319	%32	668	%66,9

Since all the variables are categorical, Spearman Correlation analysis is used to test correlation. Correlation coefficients and significance levels are presented in Table 8.

Table 8. Correlation Matrix

	AUDIT	SIZE	CONC	FOWN	LODM	AL	OD	AL _ OD	COURT	RD	INT	SECT	REGI
AUDIT	1	0,206**	0,044	-0,142**	0,104**	0,203**	0,133**	0,165**	0,157**	0,151**	0,197**	0,021	-0,099**
SIZE			-0,072**	-0,144**	0,078*	0,083**	0,190**	0,104**	0,201**	0,102**	0,313**	0,302**	-0,026
CONC				0,148**	-0,021	-0,029	-0,106**	-0,053	0,081*	-0,04	-0,064*	0,019	-0,047
LODM					-0,132**	-0,006	-0,068*	-0,011	0,052	0,086**	0,202**	0,003	-0,024
FOWN						-0,051	-0,132**	-0,072*	-0,099**	-0,084**	-0,156**	-0,059	0,138**
AL							0,215**	0,863**	0,056	0,092**	0,138**	0,000	0,060
OD								0,441**	0,185**	0,086**	0,021	0,042	-0,117**
AL _ OD									0,062	0,072*	0,107**	-0,007	0,081*
COURT										0,023	0,170**	0,147**	-0,036
RD											0,119**	0,047	-0,166**
INT												0,252**	0,076*
SECT													-0,025
REGI													1

Significance levels: '**' p<0,01, '*' p<0,05;

Whether there is a multicollinearity problem or not is checked by correlation analysis. According to the results obtained, there is no high level of correlation between the independent variables that could indicate a multicollinearity problem. Additionally, all independent variables, except for the CONC variable, are significantly correlated with the dependent variable.

Chi-square analysis is performed to test the bilateral relations between the independent variables and the dependent variable, and the results are presented in Table 9.

According to the chi-square analysis outputs, there is no significant relationship between the dependent variable and *CONC* and *SECT* variables. The significant relationship between other categorical variables and the dependent variable is also supported by Chi-Square analysis. According to Pearson Chi-Square values, the strongest relationship is with *SIZE*. Similar results are found in the correlation analysis.

Table 9. Cross-Table of Variables and Chi-Square Analysis

	Non-Audited Companies	Audited Companies	Pearson Chi-Square (df)	Asymptotic Significance (2-sided)
SIZE_1	288	179	42,191 (2)	0,000
SIZE_2	178	219		
SIZE_3	46	88		
CONC_1	5	6	2,452 (2)	0,294
CONC_2	175	144		
CONC_3	332	336		
FOWN_0	502	457	10,698 (1)	0,001
FOWN_1	10	29		
LODM_0	99	154	20,100 (1)	0,000
LODM_1	413	332		
AL_0	370	256	40,928 (1)	0,000
AL_1	142	230		
OD_0	187	118	17,613 (1)	0,000
OD_1	325	368		
AL_OD_0	393	299	27,221 (1)	0,000
AL_OD_1	119	187		
COURT_0	439	355	24,716 (1)	0,000
COURT_1	73	131		
RD_0	468	394	22,632 (1)	0,000
RD_1	44	92		
INT_0	318	206	38,891 (1)	0,000
INT_1	194	280		
SECT_0	99	413	0,444 (1)	0,505
SECT_1	86	400		
REGI_0	344	370	9,797 (1)	0,002
REGI_1	168	116		

4.2. Multivariate Analysis

According to the results of the bivariate analysis, there are significant relationships between the dependent variable and those other than the *CONC* and *SECT* variables. The research model, in which all variables are included, is tested with logistic regression, which is one of the methods that allow multivariate analysis. The objective is to find out how the independent variables, with the *SECT* and REGI variables controlled for, explain the changes in the dependent variable. Statistics for logistic regression analysis are given in Table 10.

Table 10 also includes the results of the Hosmer-Lemeshow model goodness of fit test. According to the significance value (0.710), H_0 could not be rejected, in other words, the statistical model developed fits the data set.

The hypotheses and variables put forward are interpreted through the "odds ratio" statistics. "odds ratio" technically gives the ratio of the probability that an event will occur to the probability that it will not occur. In the context of the dependent variable of the study, this ratio can be expressed as the ratio of the probability of demanding the audit to the probability of not demanding it. One thing that needs to be emphasized here is that the data used represent the facts. In other words, "odds ratio" is interpreted as "the ratio of the probability that the audit was demanded to the probability that it was not demanded".

Significant statistical results are obtained regarding the relationship between audit demand and size. Accordingly, companies with 100 to 249 employees are 2.14 times more likely to demand an audit than the base company group (companies with 0-19 employees). Similarly, companies with 20 to 99 employees are 1.68 times more likely to demand audit services than companies with fewer employees. There is a significantly positive association between size and audit demand, which supports hypothesis *H1*.

The predicted relationship with concentration level of the ownership structure is partly supported. Although companies with a dominant ownership structure are less likely to demand audit services than companies with a concentrated ownership structure, it is not statistically significant. Companies with a dispersed ownership structure are 67% less likely to demand an audit than those with a concentrated ownership structure. However, only 11 of the 998 companies in the sample have a dispersed ownership structure. That is, most of the companies (98.9%) have concentrated and dominant ownership structures. The very unevenness of the distribution also prevents a clear inference regarding the proposed hypothesis. The results of the chi-square analysis also support this finding. In conclusion, supportive evidence for hypothesis *H2a* could not be obtained.

There is a negative and significant relationship between audit demand and the position of the largest partner as the main decision maker in a company. The likelihood of audit demand in companies where the largest partner is the main decision maker is 0.67 times lower than where he/she is not. Thus, the findings support hypothesis *H2b*.

A positive but insignificant relationship is found between the presence of foreign partners in a company and audit demand. For this reason, hypothesis *H2c* is statistically not supported.

The strongest statistically supported variable that affects audit demand is the *AL* variable, which shows whether companies have applied for a loan or not. Companies that have a loan application are

3.32 times more likely to demand an audit than those that have not. This finding strongly supports hypothesis *H3a*.

Table 10. Logistic Regression Results

Variable	df	Estimate	Standard error	Wald χ2	Sig.	Versus	Odds Ratios	95% CI limits	
		Maximum Likelihood Estimates				**Odds Ratio Estimates**			
SIZE	2			15,592	,000				
SIZE-2	1	0,520	0,157	10,897	,001	*SIZE-1*	1,681	1,235	2,289
SIZE-3	1	0,759	0,231	10,809	,001	*SIZE-1*	2,136	1,359	3,357
CONC	2			6,789	,034				
CONC-2	1	-0,095	0,670	0,020	,888	*CONC-3*	,910	,245	3,386
CONC-1	1	-0,397	0,152	6,785	,009	*CONC-3*	,672	,499	,906
FOWN	1	0,752	0,406	3,421	,064	*N_FOWN*	2,120	,956	4,702
LODM	1	-0,400	0,165	5,875	,015	*N_LODM*	,670	,485	,926
AL	1	1,201	0,309	15,144	,000	*N_AL*	3,323	1,815	6,083
OD	1	0,404	0,191	4,465	,035	*N_OD*	1,499	1,030	2,181
AL_OD	1	-0,610	0,352	2,992	,084	*N_AL_OD*	,544	,272	1,085
COURT	1	0,458	0,180	6,469	,011	*N_COURT*	1,581	1,111	2,250
RD	1	0,563	0,211	7,109	,008	*N_RD*	1,755	1,161	2,655
INT	1	0,525	0,152	11,960	,001	*N_INT*	1,690	1,255	2,275
SECT	1	0,465	0,189	6,042	,014	*N_SECT*	1,592	1,099	2,306
REGI	1	0,380	0,161	5,546	,019	*N_REGI*	1,462	1,066	2,005
CONSTAN	1	-1,283	0,272	22,208	,000		0,277		
−2 log-likelihood		1230,346							
R² (Cox and Snell)		0,142							
R² (Nagelkerke)		0,189							
Hosmer and Lemeshow Test		Chi-square:		5,435					
		df:		8					
		Sig.:		0,710					

SIZE-1: 0-19 employees, **SIZE-2:** 20-99 employees, **SIZE-3:** 100-249 employees**, CONC-1:** Dispersed ownership structure (less than20% ownership of the largest shareholder) **CONC-2:** Dominant ownership structure (the largest shareholder owns between 20%-50%), **CONC-3:** Concentrated ownership structure (the largest shareholder owns greater than 50%), **N_FOWN:** No foreign partner, **N_LODM:** largest owner is not the main decision maker, **N_AL:** No application for any loans/lines of credit in the past fiscal year, **N_OD:** No overdraft facility, **N_AL_OD:** No overdraft facility and no application for a loan/credit in the past fiscal year**, N_COURT:** courts are not seen as an obstacle to business operations, **N_RD:** No R&D Investment, **N_INT:** No export activities, N_SECT: Non-manufacturing, N_REGI: Other regions, excluding Marmara.

Another hypothesis put forward regarding financing relationships is whether there is an overdraft facility or not. A clear direction for this relationship could not be predicted. However, there is a positive and significant relationship between it and the dependent variable. According to the findings, companies with an overdraft facility are 1.50 times more likely to demand an audit than companies that do not.

We were unable to find any significant association between the interaction term (AL_OD) and the dependent variable. That means either AL or OD has no moderating effect on audit demand for each other. In conclusion, *H3c* is not statistically supported.

The expected relationship between perception of the legal system and audit demand is also statistically supported. Companies that see courts as an obstacle to business activities are 1.58 times more likely to demand audit services than companies that do not.

Companies with R&D investment are 1.76 times more likely to demand audit services than companies without. Therefore, hypothesis **H5** is also supported.

The last hypothesis put forward is about the relationship between internationalization and audit demand. According to the findings, companies with export activities are 1.69 times more likely to demand audit services than companies that are not. The predicted positive relationship (**H6**) between audit demand and internationalization is supported statistically.

The variables for region and sector were not the subjects of any developed hypotheses. For their potential instrumental effect, they are incorporated into the model. Bivariate analyses reveal no relationship between SECT and audit demand. However, in multivariate analysis, both variables have a positive relationship with audit demand, as expected. That is, being a manufacturing company and operating in the Marmara region are positively associated with audit demand.

5. DISCUSSION

The first hypothesis is about the relationship between size and audit demand. The predicted positive relationship has been supported in this study as well as many others (Abdel-Khalik, 1993; Carey & Tanewski, 2013; Chow, 1982; Collis, 2010a, 2012; Collis et al., 2004; Corten et al., 2015; Ha & Nguyen, 2020; Mustapha & Yaen, 2013; Tauringana & Clarke, 2000; Weik et al., 2018). However, there are also studies that do not find any relationship between size and audit demand (Carey et al., 2000; Senkow et al., 2001).

As indicators for ownership structures in non-public SMEs included in this study are the concentration in ownership structure, whether the largest partner is the main decision maker, and the presence of foreign partners. In their study, Ojala et al. (2016) predicted and provided evidence on a negative association between ownership concentration and audit demand. In this study, although there was such an expectation, significant statistical results could not be obtained. The point that should be considered here is that only 1.1% of the non-public SMEs in the sample are in the dispersed ownership structure category (Table 7). The results also show that the demand for auditing increases when the largest partner is the main decision maker in non-public SMEs. Additionally, there is not any association between the existence of foreign partners and audit demand in non-public SMEs.

After the ownership structure, the financing relationships come to the fore as the variable most frequently associated with the demand for auditing. Studies that provide supportive findings regarding the developed hypotheses are predominant (Carey et al., 2000; Carey & Tanewski, 2013; Corten et al., 2015; Tauringana & Clarke, 2000), but there are also studies (Dedman et al., 2014; Weik et al., 2018) that did not find any supportive results. As for the results of this study, the audit demand is higher in

non-public SMEs that have applied for loans in the past financial year. The results also show that non-public SMEs with overdraft facilities are more likely to demand auditing services. Additionally, either applying loan or having overdraft has no moderating effect on audit demand for each other.

The other hypotheses are unique to this study, which have not been suggested before in the literature to the best of our knowledge. The results show that non-public SMEs that see courts as an obstacle to business activities, invest in R&D, and carry out their activities internationally are more likely to demand auditing services.

6.   SUMMARY AND CONCLUSION

The subject of audit demand has an important place in literature as a research area, with examples from different countries. The expression "different countries" also indicates different legal systems, different social-cultural structures, and different institutional approaches. All these differences are factors that can directly or indirectly shape the entire audit practice.

In addition to the factors that shape audit demand in companies at the macro level, there are also those that can affect them at the micro level. For this reason, it is worth investigating the differentiating characteristics of companies operating in the same country and demanding audit services compared to those that do not.

Uncovering these characteristics also provides valuable input in discussions about the scope of mandatory auditing. Whether mandatory auditing is economical at both macro and micro level, especially in small or medium-sized companies, is a matter of debate throughout the world. In addition, these companies have a significant place in many economies. Similarly in Turkey, SMEs constitute 98% of the total number of enterprises.

Although there are studies conducted in different countries, the most prominent motivation of this study is that there is no previous study on this subject in the context of Turkey. Therefore, this study aims to contribute to audit demand literature by using a sample from Turkey.

The results provide supportive evidence that there are significant associations between audit demand and size, ownership structure, financing relationships, R&D investment, perceptions of the legal system, and internationalization.

A clear causal inference cannot be made due to both the methodology used in the study and the nature of the data. This is a major limitation of the study. However, these meaningful relationships can be accepted as preliminary findings that there may be a causal relationship. In other words, they can be

interpreted as important variables that have the potential to affect audit demand. Or it would be appropriate to read it as the characteristics of companies that demand auditing services.

The inability to establish a causal relationship in audit demand studies in the literature, including this study, stands out as a research gap that should be considered in future research. It will be possible to make significant contributions to the field by revealing causal relationships with experimental or quasi-experimental designs.

Another limitation of the study is the use of secondary data. ES-Turkey-2013 provides valuable data for audit demand research in non-public SMEs, both in terms of the period and participants from across the country. However, although the hypotheses are developed by adhering to the literature and economic theories, they are limited to the data found in ES-Turkey-2013.

Future research can explore the relationship of new variables with audit demand by drawing on primary sources of data. In this regard, different new dimensions regarding ownership structures, demographic characteristics of managers and owners, relations with customers, creditors or suppliers can be evaluated in audit demand research. The intentions of companies to go public can also be closely related to audit demand.

In addition, audit demand in non-profit organizations and the reasons why companies do not want to procure audit services may also be the subject of future research. Lastly, audit demand studies in the literature have reached sufficient density to conduct meta-analysis.

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A BIBLIOMETRIC ANALYSIS OF THE WORLD OF ACCOUNTING SCIENCE: 1999-2022[*]

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ABSTRACT

This study analyzes *The World of Accounting Science,* a prominent Turkish journal, using bibliometric and mapping analyses over a 24-year span. It delves into articles through research questions, providing vital insights for researchers by identifying key themes and trends, guiding prospective authors, thus enhancing productivity. Notably, it emphasizes the importance of theoretical infrastructure in articles, accounting education studies on accounting subfields and novel articles exploring intersections of current topics such as sustainability reporting, corporate governance, and environmental performance with artificial intelligence applications. The findings will aid authors in future research planning and inform the editorial board in shaping publication strategy.

Keywords: The World of Accounting Science, Accounting Studies, Bibliometric Analysis, Content Analysis, Qualitative Analysis

JEL Classification: I21, I23, M41

MUHASEBE BİLİM DÜNYASI DERGİSİ'NİN BİBLİYOMETRİK ANALİZİ: 1999-2022

ÖZ

Çalışmanın amacı, alanının öncülerinden olan *Muhasebe Bilim Dünyası Dergisi'nin* bibliyometrik analiz ve haritalama analizi yardımıyla bibliyometrik profilinin çıkarılmasıdır. Yayınlanan makaleler çeşitli özellikleri irdeleyen araştırma soruları yardımıyla incelenmiştir. Bu çalışma, araştırma dönemini kapsayan yirmi dört yıllık süreçte muhasebe yazınındaki gelişmeler hakkında fikir vermesi ve yol göstermesi açısından önemlidir. Sonuçlar, derginin üretkenliğini artırmak, ana temaları, yayın eğilimlerini belirlemek ve yazarların ve editörlerin yayın stratejileri oluşturmaları için kullanılabilir. Muhasebe eğitiminin muhasebe konularına indirgenerek incelenmesi, çalışmaların teorik alt yapının oluşturularak yapılması gerektiği, sürdürülebilirlik raporlaması, kurumsal yönetim ve çevresel performans gibi çok çalışılan konuların yapay zekâ uygulamalarıyla etkileşiminin incelenmesi yazında boş alan olarak değerlendirilen alanlardır.

Anahtar Kelimeler: Muhasebe Bilim Dünyası Dergisi, Muhasebe Çalışmaları, Bibliyometrik Analiz, İçerik Analizi, Nitel Analiz

JEL Sınıflandırması: I21, I23, M41

GENİŞLETİLMİŞ ÖZET

AMAÇ VE MOTİVASYON

Çalışmanın amacı, muhasebe alanında öncü dergilerden olan *Muhasebe Bilim Dünyası Dergisi'nin (MBDD)* bibliyometrik profilinin incelenmesidir. MBDD, Muhasebe Öğretim Üyeleri Bilim ve Dayanışma Vakfı (MÖDAV) tarafından 1999 yılından itibaren yayınlanan, İngilizce ve Türkçe makaleleri kabul eden, hakemli bir dergi olarak üç ayda bir yayımlanmaktadır. *MBDD* muhasebe alanında teori ve pratiği dergi etkinliğiyle birleştirerek muhasebe ve finans bilimi literatürüne önemli katkılar sağlamaktadır. Derginin literatürde hangi yöne doğru evrim geçirdiğini, yayın trendinin ne şekilde gerçekleştiğini göstermek ve makale konuları ile anahtar kelimeler arasındaki ilişkinin gücünü ortaya koymak bu makalenin yazarlarını motive etmiştir. Sonuçların yazarlar ve derginin editör kurulu için yol gösterici olması beklenmektedir.

ARAŞTIRMA STRATEJİSİ VE YÖNTEMİ

Çalışmada nitel veri analizi yöntemi kapsamında içerik analizi yöntemlerinden biri olan bibliyometrik analiz yöntemi kullanılmıştır. Bibliyometrik analiz belirli bir konu ile ilgili bilimsel performansın değerlendirilmesi için yapılmaktadır. Bu analiz yöntemi herhangi bir alana ilişkin yayımlanmış çeşitli kaynakların gelişim düzeyinin tespit edilmesi açısından önemli bir yere sahiptir.

Çalışma performans analizi ve haritalama analizi olmak üzere iki bibliyometrik yöntem içermektedir. Performans analizi yazar, kurumlar, araştırma yöntemi gibi çeşitli bileşenlerin dikkate alınarak yapıldığı bir özetleme tekniğidir. Performans analizi aynı zamanda atıf analizini de kapsamaktadır. Ancak veri tabanının atıf analizi yapmak için yeterli olmaması nedeniyle atıf analizi çalışmada kapsam dışı bırakılmıştır. Bu çalışmanın en önemli kısıtıdır. Ayrıca çalışmada bir diğer bibliyometrik süreç olan bilim haritalaması tekniği de kullanılmıştır. Bilim haritalaması, bir araştırma alanıyla veya belirlenmiş araştırma sorularıyla ilgili konuların görselleştirilmesi amacıyla kullanılan bir tekniktir.

Çalışmanın verileri, tarama yöntemi kullanılarak elde edilmiştir. Çalışmanın kapsamı *MBDD*'de yayınlanan makaleler ile sınırlı tutulmuştur. *MBDD* yayın hayatına 1999 yılında başlamış olup, 2015 yılından itibaren elektronik olarak yayımlanmaya başlamıştır. Çalışma, *MBDD*'nin yayın hayatına başladığı 1999 ile 2022 yılları arasındaki yirmi dört seneyi kapsamaktadır. Toplam 92 sayı ve 910 makale incelenmiştir. Çalışmada, *MBDD*'nin yıllara göre yayınlanan makale sayıları, yazar sayısı, yazarların unvanı ve çalıştıkları kurumlar, sayfa sayısı, yayınlanan makalelerin yayım dili, makalelerin referans kısmında kullanılan kaynakların dili şeklinde çeşitli araştırma sorularına yer verilmiştir. Bu soruların yanı sıra, yayınlanan makalelerde kullanılan araştırma metodu, JEL kodları, anahtar kelimeler, konular ile anahtar kelimeler arasındaki ilişki de incelenmiştir. Ayrıca, muhasebe standardı incelemesi yapan makalelerin hangi standartları inceledikleri, yıllara göre en çok üzerinde çalışılan konular da irdelenen diğer araştırma sorularıdır. Çalışmada yer alan atıf incelemesi DERGİPARK sisteminde yer alan dergiye ait son dokuz yıla ilişkin analizdir.

BULGULAR VE TARTIŞMA

Yayınlanan makalelerin dağılımı incelendiğinde yılda ortalama 30 adet makale yayımlandığı gözlemlenmekte, en fazla makalenin 2019 (48 adet) yılında, en az makalenin ise 2003 (17 adet) yılında yayımlandığı görülmektedir. Bu sonuç, özellikle 2003 yılından sonra dergiye olan talebin arttığı şeklinde yorumlanabilir. Yayınlanan makalelerin yazar sayılarına göre dağılımı incelendiğinde, genel olarak çalışmaların daha çok iki yazarlı olduğu görülmüştür. Yazarlarının unvanlarına göre dağılımları incelendiğinde ise, en fazla Doktor Öğretim Üyesi ve Doçent unvanına sahip yazarlara, en az Okutman ve akademik unvan dışı yazarlara rastlanmaktadır. Makalelerin yazarlarının çalıştıkları kurumlara göre dağılımı, dergiye en fazla katkı sağlayan üniversitelerin sırasıyla Gazi Üniversitesi, Marmara Üniversitesi, Başkent Üniversitesi ve Dokuz Eylül Üniversitesi olduğunu göstermektedir. Makalelerin sayfa sayılarının çoğunlukla 11-20 olduğu görülmüştür.

JEL Kodlarına göre dağılım incelendiğinde, makalelerin en çok M40, M42 ve M49 kodlarına göre sınıflandırıldıkları görülmüştür. M JEL kodu genel itibariyle İşletme Yönetimi ve İşletme Ekonomisi, Pazarlama ile Muhasebe alanlarını temsil etmektedir. Çalışmada en fazla kullanılan M40 muhasebe (genel), M42 denetim ve M49 muhasebe ve denetim (diğer) çalışma alanlarını temsil etmektedir.

Anahtar kelimelere göre dağılım incelendiğinde, "Muhasebe" ve "Muhasebe Eğitimi" kelimelerinin en sık tekrarlanan kelimeler olduğu tespit edilmiştir. Dolayısıyla, muhasebe ile muhasebe eğitimi konuları ağırlıktadır. Makalelerde kullanılan araştırma yöntemleri incelendiğinde ağırlıklı olarak nitel çalışmalar kullanıldığı anlaşılmaktadır. Bu sonuca göre Türkiye'deki muhasebe öğretim elemanlarının ve uygulayıcılarının normatif muhasebe teorilerinin etkisinde kaldığı söylenebilir. Muhasebe politikalarının, uygulamalarının, standartların ve yönetici davranışlarının hisse senedi üzerindeki etkilerinin çalışıldığı makalelerin azlığı, pozitif muhasebe teorilerine dergide yer alan çalışmalarda çok fazla yer verilmediğini göstermektedir. "Muhasebe Standartları/Finansal Raporlama Standartları" konularını içeren çalışmalar ağırlıktadır. Anahtar kelimeler ile çalışma konuları birbiriyle ilişkilendirildiğinde, konu ve anahtar kelimelerin kullanımlarının uyumlu olduğu söylenebilir. Bu amaçla araştırmada kullanılan konular ve anahtar kelimeler arasındaki yapılan haritalama analizinde, Muhasebe ve Uluslararası Finansal Raporlama Standartları kelimelerinin en fazla bağlantıya sahip ve bağlantı gücü en yüksek olan kelimeler olduğu tespit edilmiştir. En çok çalışılan konuların yıllara göre dağılımı incelendiğinde, muhasebe standartlarının oluşturulmasındaki tartışmalar, 2008 yılında meydana gelen küresel krizin özellikle finansal araçların muhasebeleştirmesine ve ölçülmesine etkisi ve Türk Ticaret Kanunu'ndaki değişiklikler sonucu kurumsal yönetim kavramı, bağımsız denetim mesleği ve muhasebe standartlarındaki gelişmelerle paralel olduğu sonucuna ulaşılmıştır.

SONUÇ VE ÖNERİLER

Çalışmada elde edilen bibliyometrik bulgular; incelemeye alınan bilim dalının gelişim düzeyini, araştırmacıların odak noktalarını ve alanın güçlü veya zayıf yönlerinin tespit edilmesi noktasında katkı sağlamaktadır ve *MBDD*'de yayınlanan makalelerin yirmi dört yıllık araştırma sürecindeki gelişimini anlamak açısından önemlidir.

Çalışmalarda normatif muhasebe teorilerinin etkisi görülmüştür. Yazarların pozitif muhasebe teorilerine de önem vermesi dünyada tartışılan konuları daha iyi ele almamızı sağlayabilir.

Bilimsel bir çalışmada olması gereken en önemli unsurlardan birisi olan teori ile kurulması gereken ilişkinin eksikliği çalışmaların büyük bir kısmında görülmüştür. Kabul edilen çalışmaların bu yönden değerlendirilmesi gerekmektedir. Muhasebe eğitimi çalışmalarda genel olarak ele alınmış olup muhasebenin alt alanları ile ilgili eğitimin nasıl olacağı ile ilgili çalışmalar artırılabilir.

Son yıllarda sürdürülebilirlik raporlaması, kurumsal yönetim ve çevresel performans ile ilgili yapılan çalışmalarda artış görülmüştür. Çağımızdaki teknolojik gelişmeler ile yapay zekâ uygulamalarının hayatımıza etkisi artmıştır. Dolayısıyla üstünde en çok çalışılan konular ile yapay zekâ arasında bir etkileşimin olup olmadığı bir araştırma sorusu olarak karşımıza çıkabilir. Yazarlar bu alanlara farklı bakış açılarıyla yaklaşarak katma değeri yüksek çalışmalar üretebilir. Çalışma, araştırmacıların araştırma dönemini kapsayan yirmi dört yıllık süreçte muhasebe alanında yapılmış çalışmalar hakkında

fikir sahibi olmalarını sağlaması ve araştırmacılara yol göstermesi açısından önemlidir. Ayrıca derginin editör kurulunun derginin gelecek stratejisini belirlemesi açısından da yol gösterici niteliktedir.

1. INTRODUCTION

Bibliometric analysis is a quantitative technique (Donthu et al., 2021) to examine academic publications using various quantitative analyses and statistical techniques (Polat et al., 2013). This analysis method has an important place in determining the level of development of various sources published in any field. Bibliometric analysis can be either descriptive considering the criteria determined for the journal or the subject, or citation analysis for how articles affect other studies can be evaluative (McBurney and Novak, 2002). Bibliometric analyses aim to shed light on the development processes of a subject or journal by providing the development of academic written communication processes (Pritchard, 1969). The bibliometric findings obtained in these studies contribute to the level of development of the branch of science under examination, the focus of researchers, and the determination of the strengths or weaknesses of the field.

The aim of the study is to examine the bibliometric profile of The World of Accounting Science (WofAS) which is one of the leading journals in the field of accounting. The Turkish Accounting Academicians' Collaboration and Research Foundation (MODAV), the owner of the journal, was established in 1995 by accounting academicians to promote research and foster collaboration. The foundation also has collaborations at both national (Union of Chambers of Certified Public Accountants of Turkiye and the Institute of Internal Auditing) and international (International Association for Accounting Education & Research) levels. The foundation's goal is to create a forum where pressing problems in Turkish accounting practice and research can be discussed and perhaps addressed. To this end, since 1999, WofAS has been published as a quarterly peer-reviewed journal that welcomes manuscripts in English and Turkish. Also, to support academicians and academic research, the foundation has been organizing conferences since 2004 with a different topic, under the title International Conferences on Accounting (MODAV-ICA). Thus, the foundation has provided academicians with the opportunity to express and discuss scientific ideas through its activities since its establishment. WofAS which is the subject of this study makes significant contributions to the accounting and finance science literature by combining theory and practice with journal activity. In this study, particular characteristics that were explained in the methodology part of the articles published in the journal were examined through the research questions, and the findings were obtained. The research questions of the study are the number of articles published in the WofAS by year, the number of authors, the title of the authors and the institutions they work in, the number of pages, the language of publication of the published articles, the language of the sources used in the reference section of the articles. In

addition to these questions, the research method used in the published articles, JEL codes, keywords, topics, and the relationship between keywords and topics were also examined. Furthermore, other research questions include which standards were examined by the standard reviewing articles and the most studied topic according to the years. The citation analysis in the study is the analysis of the journal in the DERGIPARK system for the last nine years. These research questions are valuable in terms of providing a comprehensive overview of the direction in which the WofAS has evolved in the literature and how the publication trend has been realized. The primary motivation of the authors is to show the direction in which the WofAS has developed in the literature and how the publication trend has been realized. In addition, the authors are motivated to contribute to the ideas of scholars and authors working in the field and to show the strength of the relationship between the topics of the articles published in the WofAS and keywords. This study is valuable in terms of giving an idea and guiding researchers about the journal, which has made significant contributions to the literature in the field of accounting, which has been published regularly for over twenty years. The study is important for researchers to have an idea about the studies carried out in the field of accounting over the twenty-four-year period covering the research period and to guide researchers. It also serves as a guide for the journal's editorial board to determine the journal's future strategy.

The main objective of this study is to offer a bibliometric profile of the *WofAS*. To achieve this goal, various research questions were created by the authors. This study is based on two bibliometric procedures that include a performance analysis and a scientific mapping analysis. Performance analysis is a summary made by considering various components, such as author, institutions, and research methods (Donthu et al., 2021). It could not be done because the database was insufficient to conduct citation analysis. This is the most important limitation of this study. Science mapping is the study of visualizing topics related to a research area or identified research questions (Chen, 2017). VOS viewer and WordArt were used while performing the science mapping analysis. The data of the study was obtained using the scanning method.

This paper is structured as follows. In the first part of the study, the structure and aim of bibliometric analysis and also the purpose, importance and methodology of the study are explained. In the second part, the studies carried out using the bibliometric analysis technique in the field of accounting in the literature are mentioned. In the third part of the study, the results of the research are given. In the conclusion part of the study, the results of the study are given.

2. LITERATURE REVIEW

In the literature, there are many bibliometric studies based on different perspectives, especially citation analysis, performance analysis, and content analysis of journals. The articles in Turkish national

literature are examined according to performance; Önce and Başar (2010) analyzed the articles on accounting published in academic research journals in Turkey. It is aimed to determine the trends of the articles published in the study regarding their topics. In the study, ten main categories related to the field of accounting were determined. According to the results of the research, it was determined that the most articles were written in the categories of financial accounting, cost and management accounting, and accounting standards. Hotalmışlı and Erem (2014) analyzed the articles published in the *Muhasebe ve Finansman Dergisi (Journal of Accounting and Finance)* that was published by the Association of Accounting and Finance Academicians between 2005 and 2013 by using bibliometric analysis. According to the results of the research, it has been determined that the most studied topics are financial performance, public economy, and financial markets. The institutions that contribute the most to the literature are Marmara University, Trakya University, and Istanbul University, respectively. It is seen that individual studies are generally included in the journal. Temelli and Karcıoğlu (2018) made a performance analysis of the *Muhasebe ve Vergi Uygulamaları (Journal of Accounting and Tax Studies)* by using the bibliometric analysis method. The authors examined the journal according to the categories of author productivity, title diversity, institutional distribution, methodology used, language of publication, and references. This study shows the progress of the journal between 2010 and 2017. Yücel (2021) analyzed the articles published in academic journals in Turkey on accounting issues between the years 2015 and 2020 by using bibliometric analysis. The aim of the study is to determine the development in the accounting literature and to shed light on current issues for researchers. The motivation of the writer is to reveal the trends of the accounting research and thus prevent the repetitions of the subjects on which a lot of work has been done and to help determine the areas that need to be addressed. As a result of the research, it has been seen that the most published journals are *"Muhasebe Bilim Dünyası Dergisi (The World of Accounting Science)", "Muhasebe ve Finansman Dergisi (Accounting and Finance)",* and *"Muhasebe ve Denetime Bakış (Accounting and Auditing Overview)".* In addition, the most studied subjects; it has been determined that there are "Financial Statement and Performance Analysis", "Financial Accounting" and "Accounting Audit". Karaaslanoğlu and Şahin (2021) analyzed the articles published between 2014 and 2020 in the *Muhasebe ve Finansman Dergisi (Journal of Accounting and Finance)*, one of the leading journals in the field of accounting by using bibliometric analysis. This study is a follow-up to the work done by Hotalmışlı and Erem (2014). In the study, it was aimed to find out the bibliometric profile of the journal after 2013. According to the research findings, it was seen that the most articles were published in 2020 and the least in 2014. Also, it was determined that qualitative research methods were used more frequently than quantitative research methods in the studies. Kılıç and Önal examined a total of 31 issues, 28 regular and 3 special issues, published in *Muhasebe Bilim Dünyası Dergisi (The World of Accounting Science)* between 2015 and 2021. The performance of the journal was examined using bibliometric analysis method. As a result of

the study, it was observed that the most common type of article published in the journal was a "research article" and the most studies were conducted in the field of "auditing".

The international literature is examined according to performance. Merigo and Yang (2017) examined accounting research in the Web of Science database over the last decade, taking into factors such as the field, journal, institute, and countries. The results show that the most influential journals are: *The Journal of Accounting and Economics, Journal of Accounting Research, The Accounting Review and Accounting, Organizations and Society*. Also, it has been determined that US institutions are very effective around the world. Linnenluecke et al. (2020) systematically reviewed the contribution of *Accounting & Finance* to the literature. The journal is important to the authors as it celebrates its 60th anniversary in 2020. The authors used a variety of bibliographic tools to model articles with significantly advanced research in accounting and finance in the Asia-Pacific region. The authors aimed to reflect a past research achievements to contribute to future studies. As a result of the research, it was determined that studies on China-related research, firm performance, financial crises, corporate social responsibility, and sustainable finance showed an increasing trend over time. On the other hand; the authors found out that studies on Australia, asset allocation, and governance can be considered emerging topics of the journal, while studies in corporate social responsibility, and corporate governance are identified as significant to the field, interestingly. Kumar et al. (2020), analyzed the articles published in the *International Journal of Accounting Information Systems (IJafAIS)* which celebrated its 20th anniversary in 2019 by using bibliometric analysis. The study aimed to provide insights into the past 20 years of IJofAIS using bibliometric and network analysis. The study also provides a content analysis of highlights the major themes discussed in the journal. As a result of the study, it has been determined that the main studied subject is the use of information technologies and new technologies in the field of accounting. Although the articles in the journal initially focused on traditional accounting information system issues, in recent years, the focus has been on the use of new technologies in the accounting information system. Pattnaik et al. (2021), performed a retrospective review of the *Australian Accounting Review (ARR)* for 30 years from 1991 to 2020. The authors examined five research questions which are the publication trend of the journal, most frequently cited in *ARR* articles, collaboration among *ARR* authors, international diversity of authors, and the prominent topics in the journal. As a result of the study, they observed a 20.21% increase in the academic impact level of the journal. They found that the number of authors increased by 16.10% annually, from 11 authors in the beginning to 969 authors in 2020. The journal has become an internationally recognized academic institution with contributions from 44 different countries. Prominent themes in the journal include integrated reporting, corporate social responsibility, investor protection, and comprehensive income.

One of the research questions in this study is the distribution of the articles published in the *WofAS* according to research methods, the analysis used, and the quantitative analysis techniques used. Hülle

et al. (2011) examined the use of multi-criteria decision-making techniques in the field of management accounting and control. In the study, it was investigated which multi-criteria decision-making technique is used most in the field of management accounting and control. In addition, the multi-criteria decision-making techniques used in the reviewed articles are also classified according to the sub-headings of management accounting and control, such as strategic management, budgeting, and performance management. According to the study, the Analytic Hierarchy Process (AHP) is the most popular analytical tool to support management in complex decision-making situations.

The articles in the literature are examined according to the research keywords and subjects (topics); Gaviria-Marin et al. (2018) aimed to provide a general overview of the *Journal of Knowledge Management (JofKM)*. The methodology contains a performance analysis and science mapping analysis. The study showed a growing interest in JofKM. It was observed that the most used keywords from a global perspective are knowledge management, knowledge sharing, knowledge transfer, and innovations. Behrend and Eulerich (2019) examined the studies published in accounting journals on the internal control system between 1926 and 2016. In the study, it was observed that the studies about the internal control system increased with the effect of factors such as the foundation of the Institute of Internal Auditors and the publication of SOX. According to the results of the research, it has been determined that studies on the quality of internal audit has become increasingly important in recent years. Chiu et al. (2019) aimed to reveal the contribution of the use of new technologies in the field of accounting and accounting information systems to the accounting literature. In the study, 681 articles published in six selected journals between 2004 and 2016 were examined. Studies on the use of new technologies in accounting are mainly auditing, financial accounting and accounting information systems, respectively. Poje and Groff (2021) aim to reveal the status of ethics education in accounting after accounting scandals. For this purpose, 134 studies were analyzed by using the bibliometric analysis technique. The study presents patterns of development of ethics education in accounting research and sheds light on future research. Baker et al. (2023a) did a retrospective review of the *Journal of International Financial Management and Accounting* by using bibliometric analysis. The journal's performance, authorship trends, and intellectual structure are examined. They identified nine major themes for journal knowledge structure and researched the history of the journal in terms of the topics. The subject of value relevance of accounting information, voluntary corporate disclosure, and financial derivatives has gained the most attention over the last decade. Baker et al. (2023b) did a bibliometric analysis of *Contemporary Accounting Research* between 1984 and 2021. They generated two research questions. One of them is related to the publication quality of the journal, and the other one is about research diversity, methods, authors, and collaboration. The articles were classified based on predefined research areas and analyzed with the help of a thematic cluster created. They found out authors of the journal were increasingly focused on financial accounting research areas.

In Turkish national literature, the articles in the literature are examined according to the research keywords and subjects (topics); Gurbuz et al. (2021) aimed to reveal the importance of the articles and postgraduate studies on accounting education in Turkey about accounting research and their changes over the years. As a result of the study, the number of authors and consultants who publishes, title and university information, the most used keywords, and citation analyzes are made and determinations are revealed. Cengiz (2021) examined the articles published in the journal *Mali Çözüm (Financial Analysis)* on accounting standards between 2004 and 2020. The articles were analyzed by content analysis method. As a result of the study, it has been determined that the most studied standards are TMS 2 Inventories, TMS 16 Property, Plant and Equipment, TMS 18 Revenue, TMS 23 Borrowing Costs, and TMS 39 Financial Instruments: Recognition and Measurement. Ceylan (2021) made a bibliometric analysis of the articles published on auditing between 2016 and 2020 in five selected academic journals published in the field of accounting in Turkey. The aim of this study is to investigate which sub-topics related to auditing are examined in the field of accounting and in which journals the studies on auditing are published more frequently. As a result of the research, it has been determined that the most frequently studied sub-topic of auditing is "internal auditing", the theoretical studies in the Journal of Accounting and Finance and the studies on key auditing matters are the most cited.

Unlike these studies in the literature, it was examined the distribution of the articles published in *WofAS* according to years, number of authors and number of pages, the authors of the articles, Journal of Economic Literature (JEL) classifications, languages, relationship between the topics and keywords in the study. In other words, whereas the studies in the literature examine the journals only by focusing on certain aspects, this study examined the journal as a whole in both its publication year and bibliometric aspects.

3. RESEARCH

The research objective is to analyze the articles published between 1999 and 2022 in *WofAS*, one of the forerunner journals in the field of accounting in Turkey, in the light of various bibliometric characteristics. The *WofAS* started its publication life in 1999 and has been published electronically since 2015. Therefore, the articles published in the journals between 2014-2022 were reviewed using the DERGIPARK platform. While evaluating the collected data, the authors made separate analyses, formed the classifications of the categories together, and reached their final decisions in this direction. The categories were created by examining Önce and Başar (2010), Hülle et al. (2011), Hotalmışlı and Erem (2014), Gaviria-Marin et al. (2018), Cengiz (2021), Kumar et al. (2020), Linnenluecke et al (2020), Baker et al. (2023a), Baker et al. (2023b), Gurbuz et al. (2021) in the literature. Content analysis method

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was used in the study and the results obtained by considering the research questions were converted into numerical data.

3.1. Research Methodology

In the study, the bibliometric analysis method, which is one of the content analysis methods, was used within the scope of the qualitative data analysis method. The data of the study were obtained using the scanning method. In the study, 92 issues and 910 articles were examined, from 1999 to 2022. Special issues of the journal published in recent periods were excluded from the scope as they distorted the distribution of the research. Since the electronic copy of the journal was not available, the articles for the years 1999-2014 were gathered by accessing the hard copies from the journal's archive.

For the years 2015-2022, the articles were accessed from the DERGIPARK and the articles for the years 1999-2014 were obtained by accessing hard copies from the archive of the journal. The data of the study were obtained using the scanning method. The data was collected and analyzed in MS Excel. VOS viewer and WordArt were used for science mapping analysis. The research questions formed within the scope of the study are as follows.

The following questions were developed to analyze the performance of the journal. These questions are publication-related metrics.

• How is the distribution of the articles published in the *WofAS* according to years, number of authors, and number of pages?

• How is the distribution of the authors of the articles published in the *WofAS* according to their academic titles and institutions?

• How is the distribution of the articles published in the *WofAS* according to their languages?

• How is the distribution of the articles published in the *WofAS* according to the languages of the bibliography used in the article?

• How is the distribution of the articles published in the *WofAS* according to research methods?

To enable the science mapping analysis, which is the second step of the bibliometric process, the following questions were developed. The purpose of these questions is to visualize the content, JEL codes, topics, and keywords related to the research area.

• How is the distribution of the articles published in the *WofAS* according to JEL (Journal of Economic Literature) classifications?

• How is the distribution of the articles published in the *WofAS* according to their keywords?

• How is the distribution of the articles published in the *WofAS* according to topic (subject)?

Keywords are the factors that determine the scope of the research topic. This research question aims to demonstrate the relationship between topics and keywords and to reveal the sub-areas in which studies are grouped.

- What is the relationship between the topics and keywords of the articles published in the *WofAS*?

The reflection of the project of establishing an accounting system separate from tax accounting with institutions established in Turkey in the last 20 years (the result of which is KGK) on academic studies has been of questionable relevance. For this purpose, the following research question was set.

- How is the distribution of the articles published in the *WofAS* according to the accounting standards examined?

The following research question was designed to explore whether the journal's contents have kept up with current developments since its publication until today.

- How is the distribution of the articles published in the *WofAS* according to the trend topics by year?

The following question was asked to reveal the citation distribution of the journal according to years within the available information.

- How is the citation distribution of the articles published in the *WofAS* by year?

3.2. Research Results

Graphic 1 shows the distribution of the articles published in the *WofAS* between 1999-2022 by number. According to this, although it shows a regular distribution of articles in general; the most articles were written in 2019 with 48 articles, and the least number of articles were written in 2003 with 17 articles. It shows that the demand for the journal is increasing every year.
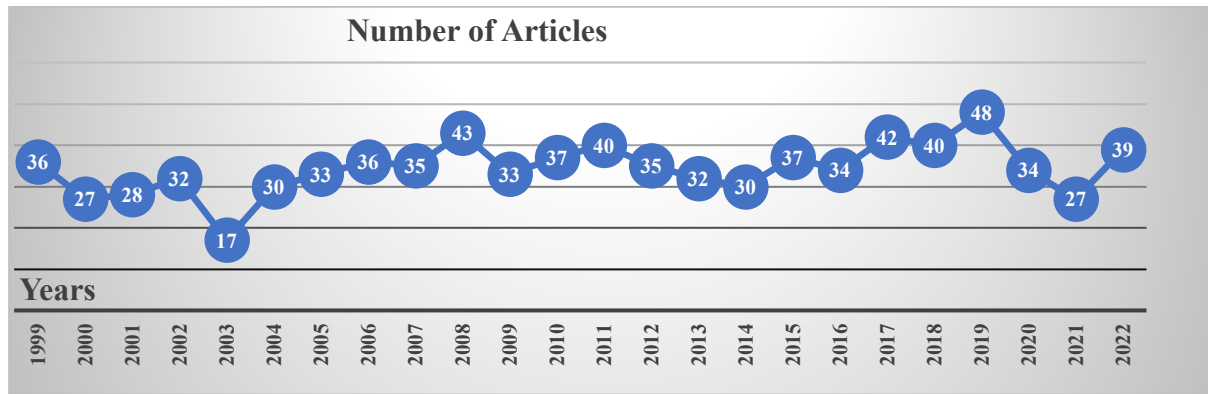
Graphic 1. Number of Articles

Graphic 2 shows the distribution of the articles published in the *WofAS* between 1999-2022 according to the number of pages. As can be seen in the graphic, the articles written are mostly between 11-20 pages, secondly between 21-30 pages, thirdly between 31-40 pages, fourthly between 1-10 pages, fifthly

between 41-50 pages, and finally 50 or more pages. Many scientific journals set a maximum page limit for the articles they publish. The fact that the journal does not have a page limit ensures that long papers are also evaluated in this journal.
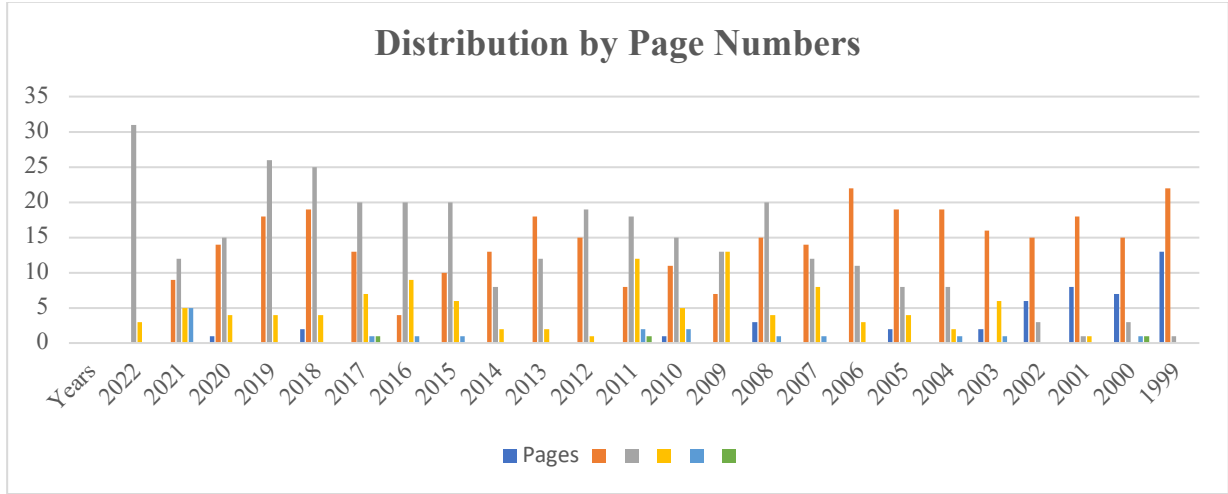
Graphic 2. Distribution by Page Numbers

Graphic 3 shows the distribution of the articles published in the *WofAS* between 1999-2022 according to the number of authors. According to Graphic is seen that 59% (705) of the articles had two authors, 32% (375) had a single author, 8% (375) had three authors and 1% (9) had four authors. From point of view, it can be commented that article authors prefer to write articles with two authors.
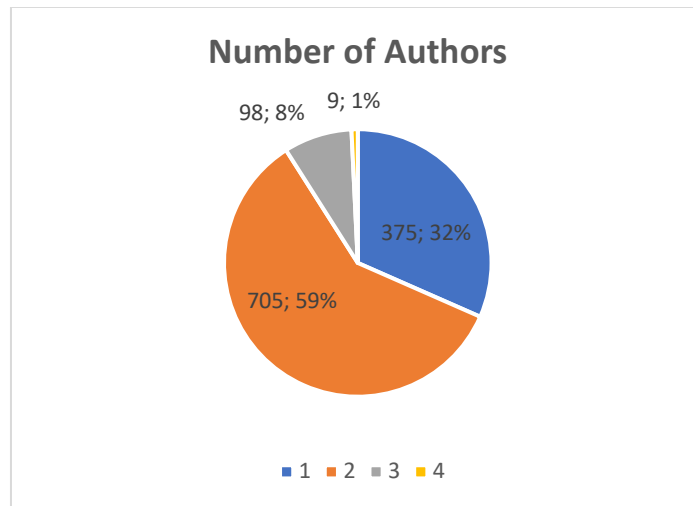
Graphic 3. Number of Authors

Graphic 4 shows the distribution of the references used in the articles published in the *WofAS* between 1999-2022 by language. Accordingly, 12.929 (63%) of the references were made for articles written in a foreign language and 7.619 (37%) were for articles written in Turkish. According to this information,

it is concluded that the majority of the references of the articles in the journal consist of articles written in a foreign language.
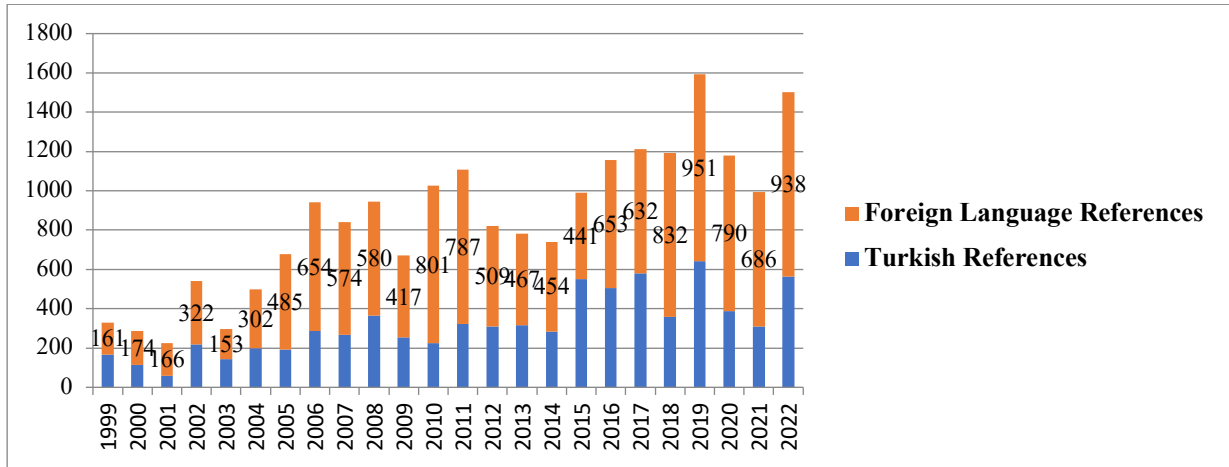
Graphic 4. The Distribution of References

Table 1 shows the distribution of the articles published in the *WofAS* according to the titles of the authors. According to this, the articles were written by at most 591 Assistant Professors, 204 Associate Professors, and 187 Professor, at least 1 Instructor, 3 Principal Auditor and 13 Chartered Accountant respectively. Classified as others (32 articles) were written by researchers working with different titles in various institutions and organizations in Turkey and/or abroad.

Table 1. Title of Authors

Title of Authors	Number	Percentage
Assistant Professor	521	38%
Associate Professor	204	15%
Professor	187	14%
Research Assistant	164	12%
Ph.D.	106	8%
Lecturer	67	5%
Ph.D. Student	36	3%
Others	32	2%
Master Student	24	2%
Specialist	13	1%
Chartered Accountant	13	1%
Certified Public Accountant	6	0%
Principal Auditor	3	0%
Instructor	1	0%
Total	**1,377**	**100%**

Table 2 shows the distribution of the authors of the articles published in the *WofAS* between 1999-2022 according to universities/institutions. When the universities/institutions that the authors of the 825 articles published in the *WofAS* are affiliated with between the years 1999-2022 are considered, it is understood that the university/institution with the highest number of articles is Gazi University with 110 articles. Marmara University with 76 articles, Başkent University with 61 articles, Dokuz Eylül University with 56 articles, and Akdeniz University with 49 articles followed Gazi University as the university/institution that contributed the most. The authors of 76 articles are researchers from various universities abroad and researchers from different titles working in various institutions and organizations in Turkey.

Table 2. Distribution of Articles by Universities and Organizations

University/Organization	Numbers	University/Organization	Numbers
Gazi University (Ankara Hacı Bayram Veli University	122	Military Academy	4
Marmara University	76	Van Yüzüncü Yıl University	4
Başkent University	61	Gebze Technical University	3
Dokuz Eylül University	56	Ankara University	3
Akdeniz University	49	Middle East Technical University	3
İstanbul University	37	İstanbul Gelişim University	3
Süleyman Demirel University	33	Doğuş University	3
Karadeniz Technical University	29	Bandırma Onyedi Eylül University	3
Burdur Mehmet Akif Ersoy University	28	Dicle University	3
Afyon Kocatepe University	27	Aydın Adnan Menderes University	3
Kütahya Dumlupınar University	23	Trabzon University	3
Çukurova University	20	Ağrı İbrahim Çeçen University	3
Erciyes University	18	Yeditepe University	3
Celal Bayar University	18	Recep Tayyip Erdoğan University	3
Yalova University	16	Turkish Court of Accounts	3
Pamukkale University	15	Hitit University	3
Mersin University	13	Yıldız Technical University	3
Bilkent University	13	Karamanoğlu Mehmet Bey University	3

Table 2. Distribution of Articles by Universities and Organizations (Continue)

| University/Organization	Numbers	University/Organization	Numbers
Niğde Ömer Halisdemir University	13	Namık Kemal University	3
Kırklareli University	10	Trakya University	3
Selçuk University	9	Maltepe University	3
Uşak University	9	Haliç University	3
Eskişehir Osmangazi University	9	Fatih University	2
Tokat Gaziosmanpaşa University	9	Yozgat Bozok University	2
Anadolu University	9	Batman University	2
Kayseri University	9	Kastamonu University	2
İzmir Economy University	9	Ufuk University	2
Karabük University	8	Kadir Has University	2
Erzincan Binali Yıldırım University	8	İzmir Bakırçay University	2
İnönü University	8	Bitlis Eren University	2
Yaşar University	8	Nişantaşı University	2
Nevşehir Hacı Bektaş Veli University	7	Zonguldak Bülent Ecevit University	2
Galatasaray University	7	Artvin Çoruh University	2
Hatay Mustafa Kemal University	7	Gümüşhane University	2
Abant İzzet Baysal University	7	Konya Food and Agriculture University	2
Uludağ University	7	Kırşehir Ahi Evran University	2
Osmaniye Korkut Ata University	7	Kırıkkale University	2
Ege University	7	Alanya Alaaddin Keykubat University	2
İstanbul Commerce University	6	Çağ University	2
Balıkesir University	6	Public Oversight, Accounting and Auditing Standards Authority	2
Aksaray University	6	Eskişehir Technical University	2
Ondokuz Mayıs University	6	Eastern Mediterranean University	2
Muğla Sıtkı Koçman University	6	OSTIM Technical University	2
Kocaeli University	6	Tarsus University	2
Düzce University	5	TOBB Economy and Technology University	1

Table 2. Distribution of Articles by Universities and Organizations (Continue)

University/Organization	Numbers	University/Organization	Numbers
Boğaziçi University	5	Kahramanmaraş Sütçü İmam University	1
Ankara Yıldırım Beyazıt University	5	Atılım University	1
Çanakkale Onsekiz Mart University	5	İstanbul Yeni Yüzyıl University	1
Çankaya University	5	Adıyaman University	1
Şırnak University	5	Ahmet Yesevi University	1
Çankırı Karatekin University	5	Bursa Technical University	1
Zonguldak Karaelmas University	5	Munzur University	1
Giresun University	5	Kilis 7 Aralık University	1
Okan University	5	Bartın University	1
Hacettepe University	4	Canik Başar University	1
İstanbul Bilgi University	4	Gaziantep University	1
Adana Alparslan Türkeş Science and Technology University	4	Mevlana University	1
Atatürk University	4	Mimar Sinan Fine Art University	1
Necmettin Erbakan University	4	Altınbaş University	1
Bahçeşehir University	4	Mardin Artuklu University	1
Kafkas University	4	Iğdır University	1
Sivas Cumhuriyet University	4	İstanbul Aydın University	1
İzmir Kâtip Çelebi University	4	Malatya Turgut Özal University	1
Ordu University	4	Siirt University	1
Bilecik Şeyh Edebali University	4	İstanbul Medeniyet University	1
Sakarya University	4	Others	76

Graphic 5 shows the distribution of the articles published in the *WofAS* between 1999-2022 according to the languages in which they were written. Accordingly, 710 (86%) of the articles were written in Turkish, and 115 (14%) were written in a foreign language. In light of this information, it is concluded that the majority of the authors tend to publish in Turkish. This is an expected result since it is an international journal published in Turkey.

Distribution by Languages

French 1
English 114
Turkish 710

■ Number
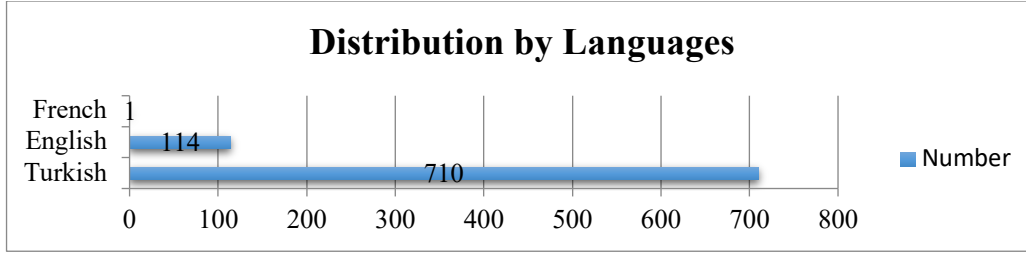
Graphic 5. Distribution by Languages

Graphic 6 shows the distribution of the articles published in the *WofAS* between 1999-2022 according to research methods. Accordingly, in the mentioned journals, respectively; qualitative research method in 452, quantitative research method was used in 364, and mixed method (both quantitative research method and qualitative research method) in 9 of them. According to this, it is concluded that qualitative and quantitative research methods are preferred more. However, it is seen that authors preferred the qualitative research method in their studies.

Mixed Method 9
Quantative Research 364
Qualitative Research 452
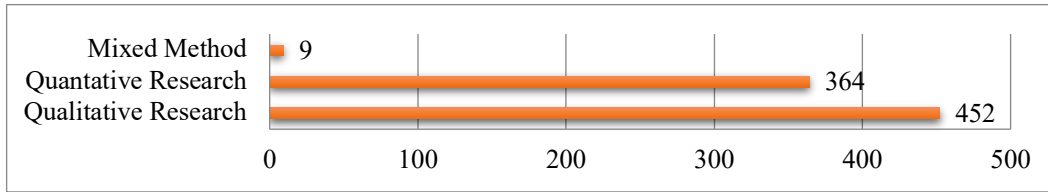
Graphic 6. Distribution by Methods

Table 3 displays the frequency of use of JEL Codes. Accordingly, table; M40 (Accounting and Auditing-General), M42 (Auditing), M49 (Accounting and Auditing-Other), M48 (Government Policy and Regulation), and G32 (Financing Policy; Financial Risk and Risk Management; Capital and Ownership Structure; Value of Firms; Goodwill) JEL Codes stand out as the most emphasized JEL Codes.

Table 3. JEL Codes Classification

JEL Classification	Numbers	JEL Classification	Numbers
M40	188	L25	15
M42	106	G21	15
M49	69	G34	15
M48	42	Q56	15
G32	28	G11	14
M14	25	G10	13
M10	21	C12	10
G30	17	G01	10
M41	16	G15	10

Figure 1 shows the most highlighted JEL codes in the word cloud created according to the frequency of use of JEL codes.

Figure 1. JEL Codes Classification

Table 4 shows the distribution of articles published in the *WofAS* between 1999-2022 by keywords. According to this, the words Accounting (32 times), Accounting Education (31 times), Corporate Governance and Activity Based Costing (ABC) (23 times), IFRS (21 times), Turkey (19 times), Financial Performance, and ISE-100 Companies (16 times) were mentioned in the journals as mostly used keywords.

Table 4. Distribution of Keywords

Keywords	Numbers	Keywords	Numbers
Accounting	32	SME	7
Accounting Education	31	IFRS 9	6
Corporate Governance	23	Audit Opinion	6
Activity Based Costing (ABC)	23	Panel Data Analysis	6
IFRS	21	Valuation	6
Turkey	19	Accounting Research	6
Financial Performance	16	Accountability	6
ISE-100 Companies	16	International Auditing Standards (IAS)	6
Bank/Banking	16	Quality Costs	6
Financial Statements	15	Literature Review	6
Ethics	15	Forensic Accounting	6
Internal Control	14	IFRS 16	6
Independent Audit/Auditing	14	Accounting Fraud	6
Accountants	14	Continuous Audit/Auditing	6
Borsa Istanbul (BIST)	14	Liquidity	6
Financial Ratios	13	Provisions	6
Management Accounting	13	Independent Audit	5
Integrated Reporting	12	Audit Quality	5
Turkish Financial Reporting Standards	12	Revenue	5
Financial Crises	11	Cost Accounting	5
Internal Auditing/Audit	10	Sustainability Index	5
Accounting Professional	10	Audit	5
Fair Value	10	Audit Firms	5
Financial Reporting	9	Data Envelopment Analysis	5
Sustainability Reporting	9	Exchange Rate	5

Table 4. Distribution of Keywords (Continue)

Keywords	Numbers	Keywords	Numbers
Cost Management	9	Intellectual Capital	5
Target Costing	9	Information Technologies	5
Content Analysis	9	Ethics Education	5
Audit Committee	9	IAS 1	5
Profitability	8	Economic Value Added (EVA)	5
Istanbul Stock Exchange	8	Granger Causality Test	5
Information	8	Efficiency	5
Time-driven Activity Based Costing System/Model	8	Initial Public Offering	5
Cash Flows	8	IAS 39	5
Corporate Social Responsibility	8	Financial Analysis	5
Corporate Governance Index (CGI)	8	Creative Accounting	5
Accounting Students	8	Audit Firms	5
Internal Control System	8	Liquidity	5
Harmonization	8	Accounting Policies	5
Accounting Information System	7	Inflation Accounting	5
External Audit/Auditing	7	Certified Public Accountants (CPA)	5
Intangible Assets	7	Sarbanes-Oxley Act	5
Audit Reports	7	Financial Ratio Analysis	5
Carbon Emission/Green Accounting	7	Firm Performance	5

Figure 2 demonstrates that the prominent keywords are highlighted in the word cloud, which is created according to the frequency of use of the keywords.

Figure 2. Distribution by Keywords

Table 5 shows the distribution of the articles published in the *WofAS* between 1999-2022 by topics. This table shows how the topics are distributed according to the sub-contents of the keywords used. Accordingly, the topic of 115 articles was Accounting Standards/Financial Reporting Standards, the topic of 72 articles was Management/Cost Accounting, the topic of 53 articles was Financial Management, the topic of 53 articles was Accounting Education, and the topic of 42 articles was Financial Performance. Classified as others (24 topics) consist of individual studies that are not included

in a common category. Keywords were taken from the abstract. Topic categories were determined by analyzing the topic title, abstract, and introduction sections.

Table 5. Distribution of Topics

Topic	Numbers	Topic	Numbers
Accounting /Financial Reporting Standards	115	Auditing Profession	7
Management/Cost Accounting	100	Inflation Accounting	7
Financial Management	53	Behavioral Accounting	6
Accounting Education	53	Forensic Accounting	6
Financial Performance	42	Financial Instruments	6
Financial Markets	38	Hedge Accounting	6
Independent Audit	35	Insurance Accounting	6
Accounting Profession	32	Taxing	6
Accounting Studies	32	Governmental Accounting	5
Accounting Information Technology	27	Accounting and Law	4
Corporate Governance	25	Budgeting	4
Ethics	20	Creative Accounting	4
Financial Analysis	20	Fraudulent Financial Reporting	4
Audit	18	Accounting History	3
Audit Standards	14	Accounting Theory	3
Internal Control	13	Continuous Audit	3
Integrated Reporting	12	Segment Reporting	3
Internal Audit	10	Accounting Culture	2
Environmental Accounting	9	Accounting Principles	2
Sustainability Reporting	9	Accounting System	2
Firm Performance	8	Accounting Terms	2
Fraud Auditing	8	BOBI FRS	2
Risk Management	8	Digital Auditing	1
Accounting Policy	7	Other	24

Table 6 shows the bibliometric analysis of the articles published in the *WofAS* between 1999-2022 according to their topics and keywords used. Accordingly, the word "Accounting" was the most discussed theme with 98 links and 145 total links strength. This is followed by the word "IFRS" with 53 links and 75 total links strength. The phrase "Analysis" is also one of the important themes with 51 links

and 67 total links strength. The word "Audit" is another important theme with 48 number of links and 56 total links strength.

Table 6. Bibliometric Analysis of Topics and Keywords

Words	Number of Links	Total Links Strength
Accounting	98	145
IFRS	53	75
Analysis	51	67
Audit	48	56
Cost	47	67
Activity	44	91
Model	42	49
Company	41	48
IAS	39	55
Turkey	38	40
Auditing	36	40
Corporate Governance	35	44
Costing	33	78
Accounting Education	32	45
Ethics	31	43
Financial Reporting	31	39
Theory	30	41
Management	29	45
Profitability	28	34
Financial Performance	27	30
Risk	25	32
Valuation	25	27
Standards	25	29
Performance	24	25
Quality	24	24
Law	24	24
Index	23	26
ISE	23	26
TFRS	22	32

Table 6. Bibliometric Analysis of Topics and Keywords (Continue)

Words	Number Of Links	Total Links Strength
Integrated Reporting	22	31
Internal Control	22	28
Borsa Istanbul	22	23
Market	20	23
Standard	20	21
Istanbul Stock Exchange	19	24
Asset	19	26
Internal Auditing	19	22
Fair Value	19	21
Financial Statement	17	23
Accounting Standard	17	18
Accountant	17	21
Development	17	20
Board	16	17
Accounting Profession	15	18
Content Analysis	15	17
Cost Management	14	19
Audit Committee	12	15
Accounting System	11	14
Accounting Information System	11	11

Figure 3 presents the relationship between topics and keywords and number of links and the total link strength visually. It shows the links between keywords and topics and the topics that have the highest link strength with keywords by using the science mapping analysis technique. The strongest links are with words such as accounting auditing accounting education ethics, accounting professionals, cost financial reporting, financial performance, IFRS, and TFRS. This shows us on which topics the publications in the journal are concentrated and which keywords have links between them. When the connection between keywords is examined, it is noteworthy that there are not only topics around accounting where financial information is studied but also topics where non-financial information is also analyzed. Figure 3 shows that few studies address the relationship between accounting topics and technology. In addition, the relationship between artificial intelligence and accounting topics was not examined. Since the strength of the links between accounting education and accounting standards and

cost and managerial accounting topics was also found to be quite low, studies that address accounting education more specifically could be conducted.
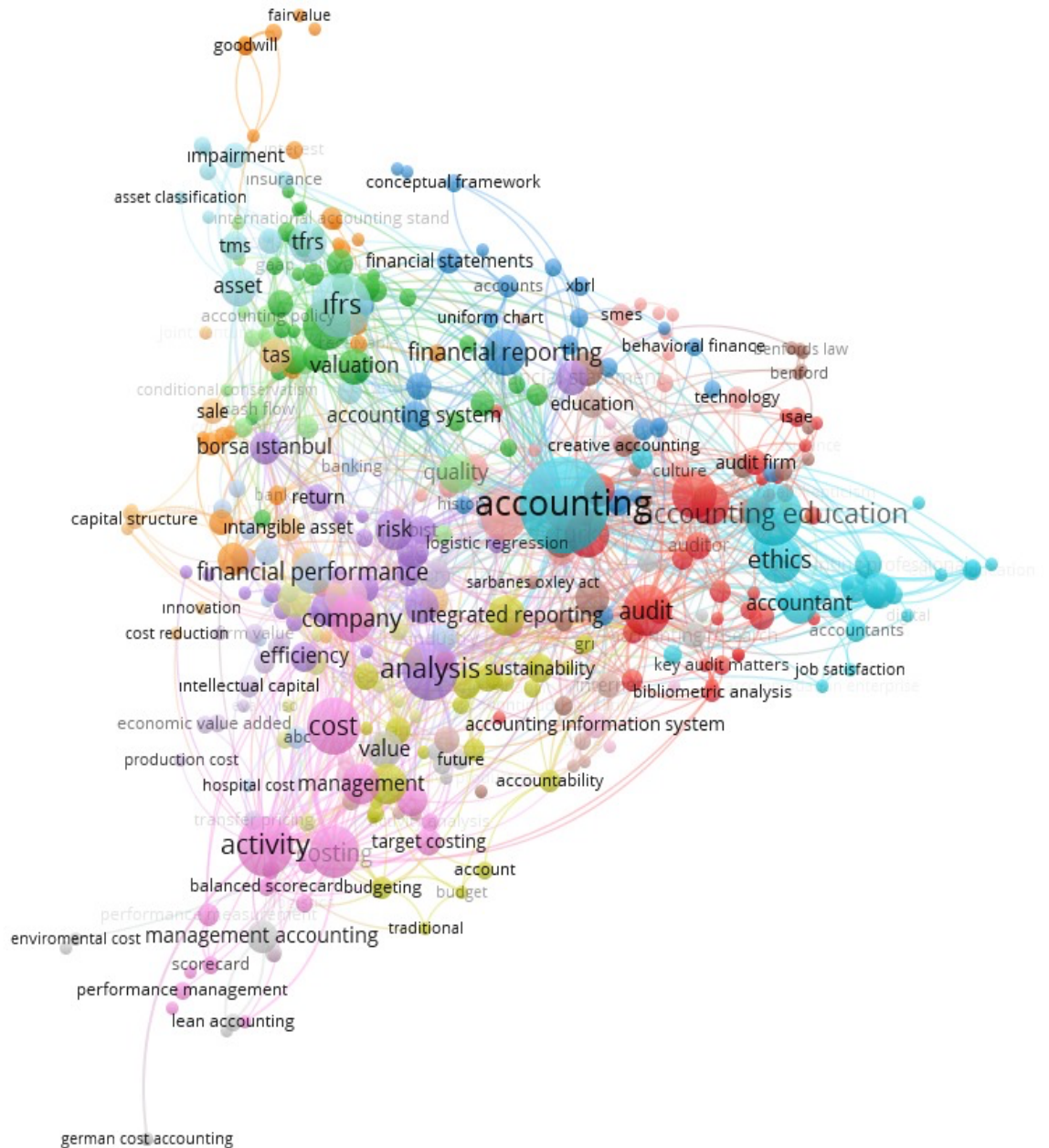

Figure 3. Bibliometric Analysis of Articles by Topics and Keywords

Table 7 shows the distribution according to the standards used in the articles published in the *WofAS* between 1999 and 2022. As shown in Table 5, the number of studies on accounting standards is quite high. For this reason, the details of the standards topic are shared separately due to the diversity of accounting standards subtopics and the fact that they cover specific topics. Here under this, in the articles published between 1999 and 2022 TAS 38 Intangible Assets (8 articles), TAS 39 Financial Instruments: Recognition and Measurement (8 articles), TAS 12 Income Taxes (7 articles), TFRS 9 Financial Instruments (7 articles), TAS 41 Agricultural Activities (6 articles) and TFRS 8 Operating Segments (5 articles) were mostly discussed.

Table 7. Distribution of Standards

Standard	Number	Standard	Number
TAS 38	8	BOBI FRS 9	1
TAS 39	8	FAS 157	1
TAS 12	7	ISAE 3000	1
TFRS 9	7	ISAE 3400	1
TAS 41	6	TAS 23	1
TFRS 8	5	TAS 11	1
TAS 1	4	TAS 15	1
TAS 2	4	TAS 24	1
TAS 10	7	TAS 28	1
TAS 37	5	TAS 32	1
TFRS 16	4	TAS 18	1
TAS 16	4	TFRS 1	1
TAS 36	4	TFRS 11	1
TAS 19	4	TFRS 13	1
TAS 20	3	TFRS 3	1
TAS 7	3	TFRS 6	1
TFRS 15	3	TFRS 7	1
TAS 9	3	TSA 520	1
TFRS 10	3	TSA 570	1
TAS 17	2	TSA 701	1

Table 8 shows the distribution of the two most preferred topics in the articles published in the *WofAS* between 1999 and 2022 by years. The distribution of the trend topics by years is examined, and it can be concluded that they are compatible with the prominent developments in the relevant periods. It is seen that the trendiest topics are Accounting Standards/Financial Reporting Standards. This topic is in parallel with the development of accounting standards in Turkey and regulations in Turkey. Studies on accounting standards were initiated in 1999 with the development of accounting practices by the Turkish Accounting and Auditing Standards Board (TMUDESK). Afterwards, the Turkish Accounting Standards Board (TMSK) was established in 2002 and the Public Oversight Accounting and Accounting Standards Institution (KGK) was established in 2011. Thus, in this period and afterward, studies on accounting standards became the trendiest subjects. In 2008 and 2009, with the impact of the global

crisis, besides accounting standards/financial reporting standards, financial management and accounting training came to the fore. Just because during this period, accounting and financial reporting were shown as the cause of the crisis. In 2012, the inclusion of corporate government and independent auditing in the Turkish Commercial Code attracted the attention of the authors.

Table 8. Trend Topics by Years

Years	Topics	
1999	Accounting Standards/Financial Reporting Standards	Management/Cost Accounting
2000	Accounting Studies	Accounting Education
2001	Accounting Standards/Financial Reporting Standards	Accounting Education
2002	Management/Cost Accounting	Financial Performance
2003	Accounting Standards/Financial Reporting Standards	Management/Cost Accounting
2004	Accounting Standards/Financial Reporting Standards	Management/Cost Accounting
2005	Financial Performance	Forensic Accounting
2006	Accounting Standards/Financial Reporting Standards	Financial Performance
2007	Hedge Accounting	Management/Cost Accounting
2008	Accounting Standards/Financial Reporting Standards	Financial Management
2009	Accounting Standards/Financial Reporting Standards	Accounting Education
2010	Accounting Studies	Financial Management
2011	Accounting Information Technology	Accounting Education
2012	Corporate Governance	Management/Cost Accounting
2013	Independent Auditing	Accounting Standards/Financial Reporting Standards
2014	Accounting Education	Accounting Standards/Financial Reporting Standards
2015	Independent Auditing	Ethics
2016	Accounting Standards/Financial Reporting Standards	Cost Management
2017	Accounting Education	Accounting Standards/Financial Reporting Standards
2018	Accounting Standards/Financial Reporting Standards	Integrated Reporting
2019	Accounting Education	Accounting Standards/Financial Reporting Standards
2020	Accounting Standards/Financial Reporting Standards	Independent Auditing
2021	Financial Performance	Corporate Governance
2022	Accounting Standards/Financial Reporting Standards	Financial Performance

Graphic 7 shows the number of citations received by the articles published in the *WofAS* between 2014-2022. This data can only be reached after 2014. This table was created through the DERGIPARK

system. As can be seen from the table, the articles published in the journal were cited mostly 266 times in the year of 2018 and the articles published in the journal were cited at least 7 times in the year of 2022.

Resource: https://app.trdizin.gov.tr/dergi/TVRnME5qWT0/muhasebe-bilim-dunyasi-dergisi
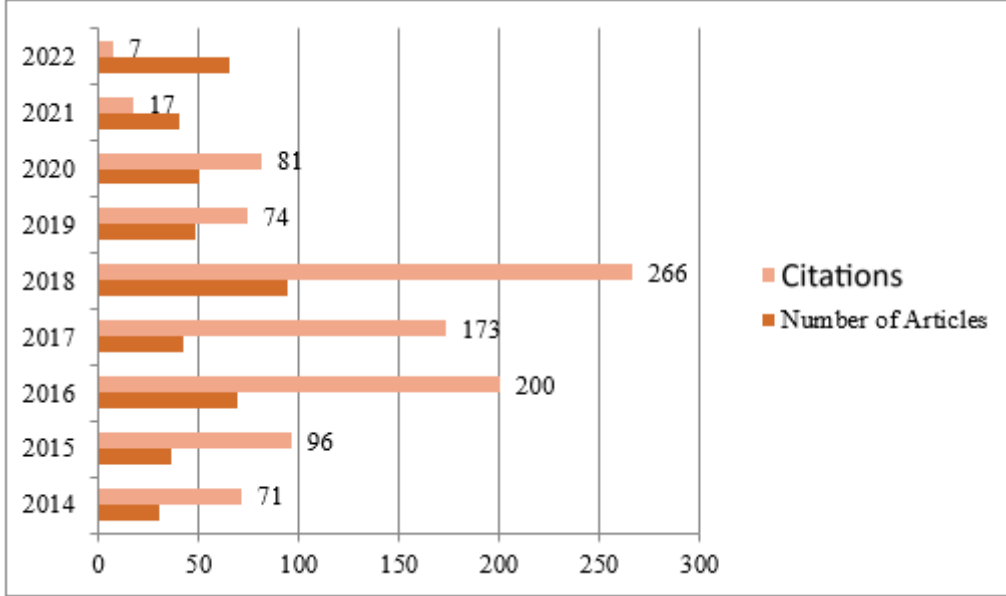
Graphic 7. Distributions of Citations

4. CONCLUSION

In the study, the bibliometric profile of the articles published in *WofAS* between 1999-2022 was obtained. In this context, various research questions were formed by examining the articles published in the journal, and evaluations were made regarding these questions.

When the distribution of the articles published in *WofAS* is examined, it is seen that a generally balanced distribution is observed. While the least number of articles were published in 2003, the most articles were published in 2019. The distribution of the articles in the study according to the number of pages is examined, it is understood that the average number of pages is between 21-30. Considering that the page numbers of academic studies are similar, it can be stated that the page numbers are parallel for *WofAS*. When the distribution of the published articles according to the number of authors is examined, it is seen that the studies are generally done with two authors. The distribution of the authors of the articles according to their titles is examined; the authors with the title of Assistant Professor at the most; it is seen that master students and other non-academic authors are included at least. Considering the distribution of the articles according to the institutions where the authors work, it is seen that the universities that contributed the most to the literature are Gazi University (Ankara Hacı Bayram Veli University). Most of the articles in the study examined were written in Turkish. From this point of view, it can be interpreted that the authors prefer to write their works in the mother tongue. It is seen that the

citations used in the articles in the study are mostly articles written in a foreign language. It can be concluded that the authors of the mentioned articles prefer to benefit from the articles written in a foreign language in their studies. The distribution according to the research methods used in the articles in the study was examined, and it was determined that the qualitative research methods were used relatively more.

The distribution of the articles in the study according to JEL Codes was examined, and it was seen that the articles were mostly classified according to M40 and M42 codes. M JEL code generally represents the fields of Business Management and Business Economics, Marketing and Accounting. The most used M40 represents accounting (general) and M42 represents auditing. The distribution of the articles according to the keywords is examined, and has been determined that the words, "Accounting", "Accounting Education", "Corporate Governance", "Activity Based Costing", and "IFRS", are the most frequently repeated.

Considering the distribution of the articles in the study according to their topic, it is seen that the topic of "Accounting Standards/Financial Reporting Standards" is the most, "Management/Cost Accounting", "Financial Management" and "Accounting Education", which is sub-branches of accounting. When the keywords and topics are associated with each other, it can be said that the use of the topics and keywords is compatible. According to the science mapping, analysis made between the topics and keywords for this purpose; it has been determined that the words "Accounting", have the most links and have the highest strength link. Also, the use of the keyword "International Financial Reporting Standards" is quite remarkable. This is because the studies on Financial Reporting have an important place in the literature. According to the distribution of accounting standards studied in the articles examined in the study, it was seen that TAS 8 Intangible Assets and TAS 39 Financial Instruments: Recognition and Measurement, were mostly discussed.

Analysis of the trend subject distribution by year shows that it is consistent with the key developments in the pertinent years. The most popular topic appears to be accounting standards and financial reporting standards. This is significant considering the developments and regulations in accounting standards. Along with the amendment made in the Turkish Commercial Code, regulations regarding corporate governance and independent auditing also affected the distribution of trend topics in 2012 and beyond.

Citation analysis could only be examined between the years 2014-2022 with the help of the DERGIPARK system. The citation analysis made to the articles in the study are examined, it is seen that the most citations are to the articles written in 2018. Although the number of articles published in that year is less than in other years, it can be concluded that the subjects included in the studies are at the forefront in terms of providing resources for other researchers, with more citations.

This study is essential in terms of understanding the distribution of the articles published in *WofAS* during a twenty-four-year period and demonstrates the full picture of the journal's situation in 22 years. Our findings will likely benefit the *WofAS* editorial board to specify the journal's future strategy. The results are useful for increasing the journal's productivity, identifying main themes, publication trends, and planning for the future. It is expected that this study will guide the authors in their studies. It is a guide for future authors in terms of which areas to focus on. Future authors may do this study by revising the period.

This may be interpreted as a decrease in the number of articles submitted to the journal or in the rate of acceptance. However, it is not possible to determine the exact reason since no such data is provided by DERGIPARK. In addition, the numbers of the journals between 1999 and 2015 are not available in the DERGIPARK. If such data were available, it could lead to a meaningful conclusion about the journal's publication policy.

When the publications made in recent years are analyzed, it is seen that there has been an increase in studies on sustainability reporting, corporate governance, and environmental performance. With the recent technological developments, the impact of artificial intelligence applications on our lives has increased. Therefore, it may be a research question whether there is an interaction between the most studied topics and artificial intelligence. By approaching these areas from different perspectives, authors can produce high-value-added studies.

The lack of a relationship with theory, which is one of the most important elements of a scientific study, has been observed in most of the studies. In this respect, the accepted studies should be evaluated. Accounting education is generally addressed in the studies and studies on how the education of the sub-fields of accounting can be increased.

The effect of normative accounting theories was observed in the studies. The authors' giving importance to positive accounting theories may help us to better address the issues discussed in the world.

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AUTHORS' DECLARATION

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Çalışma Konsepti/Tasarım- HNÇ,GK & MA; Yazı Taslağı- HNÇ,GK & MA; İçeriğin Eleştirel İncelemesi- HNÇ,GK & MA; Son Onay ve Sorumluluk- HNÇ,GK & MA.

AUTHORS' CONTRIBUTIONS

Conception/Design of Study- HNÇ,GK & MA; Drafting Manuscript- HNÇ,GK & MA; Critical Revision of Manuscript- HNÇ,GK & MA; Final Approval of Accountability- HNÇ,GK & MA.

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