T.C.
DOKUZ EYLUL UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCE
DEPARTMENT OF BUSINESS AND ADMINISTRATION
ACCOUNTING AND FINANCE PROGRAM
MASTER'S THESIS

IAS 36 IMPAIRMENT OF ASSETS EFFECTS ON FINANCIAL RATIOS: EVIDENCE FROM ISTANBUL STOCK EXCHANGE 100 INDEX

Çiğdem EDE

Supervisor
Prof.Dr Esra ASLANERTİK

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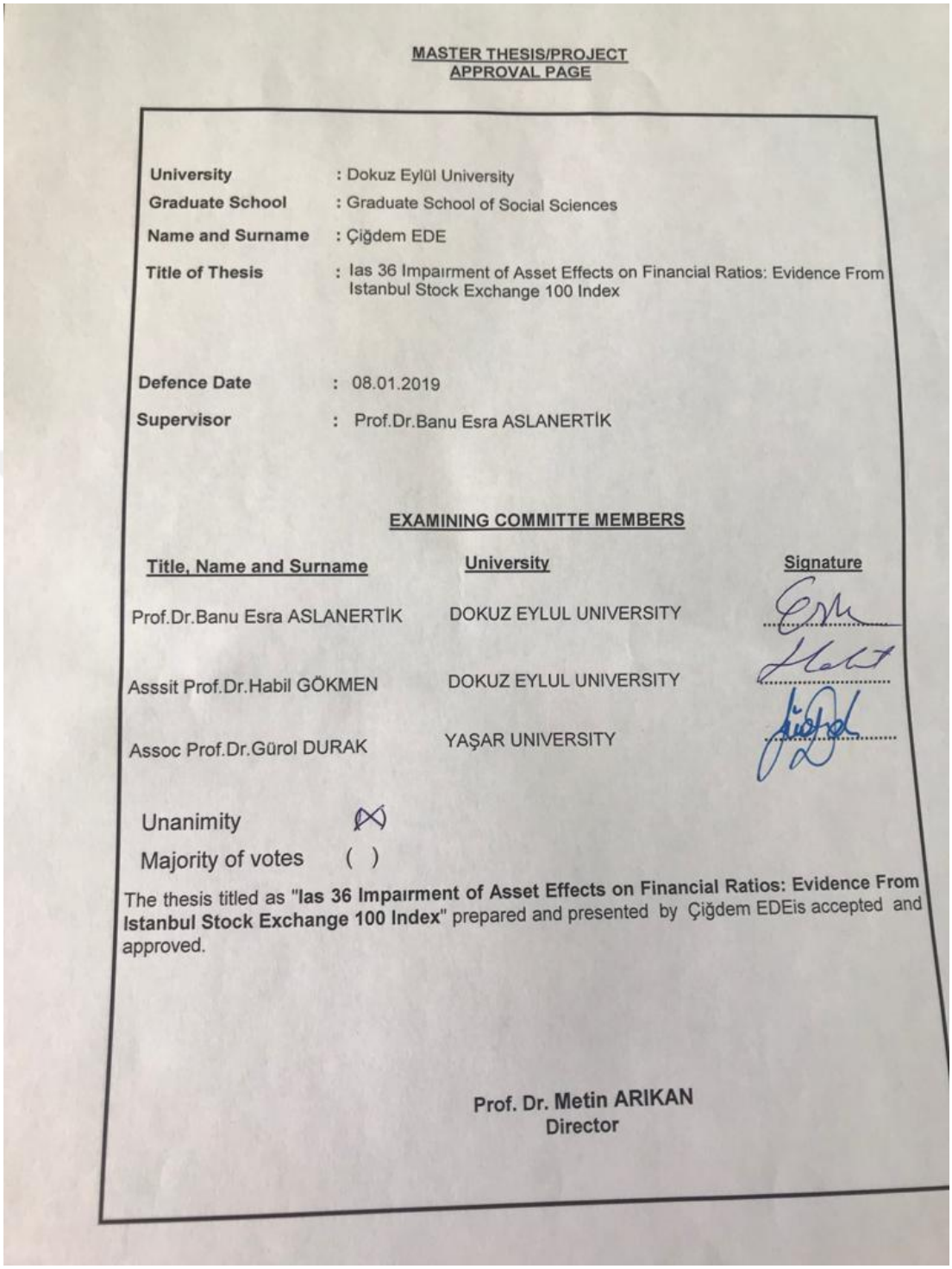
APPROVAL PAGE



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University	: Dokuz Eylül University
Graduate School	: Graduate School of Social Sciences
Name and Surname	: Çiğdem EDE
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Supervisor	: Prof.Dr.Banu Esra ASLANERTİK

EXAMINING COMMITTE MEMBERS

Title, Name and Surname	University	Signature
Prof.Dr.Banu Esra ASLANERTİK	DOKUZ EYLUL UNIVERSITY	
Asssit Prof.Dr.Habil GÖKMEN	DOKUZ EYLUL UNIVERSITY	
Assoc Prof.Dr.Gürol DURAK	YAŞAR UNIVERSITY	

Unanimity (X)

Majority of votes ( )

The thesis titled as "**Ias 36 Impairment of Asset Effects on Financial Ratios: Evidence From Istanbul Stock Exchange 100 Index**" prepared and presented by Çiğdem EDEis accepted and approved.

Prof. Dr. Metin ARIKAN
Director

DECLARATION

I hereby declare that this master's thesis titled as "IAS 36 Impairment of Assets Effects on Financial Ratios: Evidence From Istanbul Stock Exchange 100 Index" has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resourses in the reference list. I verify all these with my honour.

Çiğdem EDE

Signature

ABSTRACT

Master's Thesis

IAS 36 Impairment of Assets Effects on Financial Ratios: Evidence from Istanbul Stock Exchange 100 Index

Çiğdem EDE

Dokuz Eylül University

Graduate School of Social Sciences

Department of Business Administration

Accounting and Finance Program

The different methods which are used by companies throughout the world in terms of reporting their financial information have caused financial reporting of statements to become less transparent, has increased adjustment and forecasting errors, thus has reduced investor confidence. As a result, the International Accounting Standards Board created International Financial Reporting Standards (IFRS) to establish a global standard. The main idea behind these new standars which are referred as IFRS, to provide financial reporting more efficient, effective, simple for evaluations and analysis. In this context, 'fair value measurement' concept is key point of financial reporting.

The objective of IAS 36 prevents the meaningless growth of the asset, to ensure that the results are represented with transparency, to provide the financial statements reflect truthfully in terms of core principle in fair value measurement. Impairment of assets is an important research topic in financial reporting and accounting in the whole world just like in Turkey, but there has been limited research studies recent years. To fill this gap, it examined this issue on Turkish companies which are listed on the Istanbul Stock Exchange 100 Index between 2015 and 2016 period by collecting data from their annual financial reports and looking at their disclosures to determine whether impairment loss effect on financial ratios with the calculation of financial ratios resulted from impairment. Findings indicate that there are effects of impairment losses on financial ratios after the calculation of impairment.

This thesis is expected to contribute to increase the understanding about impairment of assets, to clarify the problems related to implementation, raise awareness for disclosure quality according to IAS 36 in practice.

Keywords: Fair Value Measurement, Impairment of Assets (IAS 36), Impairment Loss.

ÖZET

Yüksek Lisans Tezi

Varlıklarda Değer Düşüklüğü TMS 36 Standardının Finansal Rasyolara Etkisi: BİST 100 Endeksi

Çiğdem EDE

Dokuz Eylül Üniversitesi
Sosyal Bilimler Enstitüsü
İngilizce İşletme Yönetimi Anabilim Dalı
İngilizce Muhasebe ve Finansman Programı

Dünya çapında firmalar tarafından kullanılan farklı metotlar finansal raporlama açısından, finansal tabloların daha az şeffaf olmasına ve tahminleme hatalarının artmasına, böylece yatırımcı güveninin azalmasına yol açmıştır. Bunun sonucunda, global bir standart oluşturmak için Uluslararası Muhasebe Standartları Kurulu (IASB) tarafından Uluslararası Finansal Raporlama Standartları (IFRS) yayımlanmıştır. Bu standartların temel amacı, finansal raporlamanın daha etkin, etkili, şeffaf olarak ortak muhasebe dili çerçevesinde analizlere ve değerlendirmelere olanak vermesidir. Bu bağlamda 'gerçeğe uygun değer ölçümü' kavramı, finansal raporlamanın kilit noktasıdır.

IAS 36-Varlıklarda değer düşüklüğü standardının amacı, gerçeğe uygun değer ölçümü çerçevesinde finansal tablo sonuçlarının daha şeffaf olarak yansıyarak, aktifin anlamsız büyümesini önlemektir. Varlıklarda değer düşüklüğü standardı, muhasebe alanında tüm dünyada olduğu gibi Türkiye'de de önemli bir araştırma konusu olmuştur; ancak, son yıllarda yapılan çalışmaların sınırlı olduğu gözlemlenmiştir. Bu boşluğu doldurmak için, 2015 ve 2016 yılı BIST 100 Endeksindeki firmaların yıllık finansal raporları ve dipnot bilgilerine bakılarak, finansal rasyoların bu değer düşüklüğünden etkilenip etkilenmediği araştırılmıştır. Sonuçlara göre, değer düşüklüğü tutarı hesaplandıktan sonra özellikle varlık rasyoları üzerinde etkisi olduğu belirlenmiştir.

Bu çalışmanın ayrıca, varlıklardaki değer düşüklüğü standardının anlaşılırlığının ve farkındalığının artmasına, uygulamada yaşanan problemlerin belirlenmesine ve dipnot kalitesi açısından önemliliğine katkı sağlaması beklenmektedir.

Anahtar Kelimeler: Gerçeğe Uygun Değer, IAS 36, Varlıklarda Değer Düşüklüğü.

IAS 36 IMPAIRMENT OF ASSET EFFECTS ON FINANCIAL RATIOS: EVIDENCE FROM ISTANBBUL STOCK EXCHANGE 100 INDEX

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CHAPTER TWO

IAS 36 IMPAIRMENT LOSS

CHAPTER THREE

IMPAIRMENT LOSS EFFECT ON FINANCIAL RATIOS

ABBREVIATIONS

CGU	Cash Generating Unit
Cr	Credit record
CU	Currency Unit
Dr	Debit record
EU	European Union
FASB	Financial Accounting Standards Board
FVLCD	Fair Value Less Cost of Disposal
FVLCTS	Fair Value Less Costs to Sell
IAS 16	International Accounting Standard, Property, Plant and Equipment
IAS 36	International Accounting Standard, Impairment of Assets
IAS 38	International Accounting Standard, Intangible Assets
IAS 8	International Accounting Standard, Accounting Policies, Changes in Accounting Estimates and Errors
IAS	International Accounting Standard
IASB	International Accounting Standard Board
IFRS 3	Business Combinations
IFRS	International Financial Reporting Standards
ISE 100 Index	Istanbul Stock Exchange 100 Index
OCI	Other comprehensive income
P/L	Profit or loss
SFAS 141	Statement of Financial Accounting Standard, Business Combinations
SFAS 142	Statement of Financial Accounting Standard, Goodwill and Other Intangible Assets
TAS 36	Turkish Accounting Standard 36
US	United States
VIU	Value in Use
WACC	Weighted Average Cost of Capital

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INTRODUCTION

The International Accountings Standards Committee founded the International Accounting Standards Board (IASB) in 2001 to establish and create international accounting standards namely as IFRS. It is one of the objectives of IFRS to make financial reporting more efficient, effective, and simple for evaluations and analysis due to the fact that the globalization of corporate, economic, and political transactions has made evaluations of financial statements of corporations more difficult (Johnson and Hicks, 2012). IFRS can be said that they are a more principles-based set of standards instead of rule-based set of standards. Therefore, they provide less guidance as to how transactions should be addressed and allow a number of accounting options available to management in determining how financial transactions can be processed (Bohusova & Nerudova, 2011; Kao, 2014).

Countries are becoming more associated with each other from social, economical and cultural perspectives. To maintain the relations between countries in a more vigorous manner, a variety of regulations is made around the globe. In this context, the Public Oversight Accounting and Auditing Standards Authority of Turkey has taken steps to make Turkey's accounting language compatible with the rest of the world. Turkish Accounting Standard-36 (TAS 36) regulates the issue of 'impairment of assets' which is affected from transformation and rapid changes in technology, globalization, innovation and competition and has a great impact on financial life. The impairment valuation of assets plays a central role in the accounting and operating decisions of the companies. Under IFRS, an impairment occurs when the carrying value of an asset exceeds its recoverable amount and the difference is recognized as impairment loss.

Although valuation of fixed&non-fixed assets and goodwill is still an important topic for accounting area, effects of impairment accounting on financial ratios is not mentioned much when we look at the researches in accounting literature. To fill this gap in Turkey, this thesis examines and seeks to highligt that the issue on Turkish companies which are listed on the Istanbul Stock Exchange 100 Index between 2015 and 2016 period.

Within this study; it is intended to clarify the concepts and valuation principles issued in IAS 36, to analyze tangible, intangible assets and goodwill information in 2015 and 2016, to determine whether impairment loss has an effect on financial ratios by calculating the asset ratios resulted from impairment. The aim of this study is to examine the impairment of assets and search whether effects on financial ratios of firms in ISE 100 Index. In this context, asset types within the scope of IAS 36 Standard have been examined and has been determined. As a sample, companies in the ISE 100 Index were taken. Non-financial 79 companies were included in the sample, with the financial entities included in IAS 36 Standard. Other companies' assets were small in amount, so they were excluded from the sample. Sampling included companies are non-financial companies listed in ISE 100 between 2015-2016 financial reporting period. The financial statements and footnotes of these companies for 2015 and 2016 have been reviewed and numerical data were obtained and analyzed. This study highlights impairment of assets and shows the differences between financial ratios before and after impairment calculations within the scope of IAS 36 in practice.

The thesis is organized as follows: Section 1 which is under title of 'Assets' starts with the description of assets and discusses asset types. Following the subject, after a brief information about the concept of fair value measurement is mentioned; it is continued with recognition criteria, valuation and measurement principles for each type of assets. Final part of this section 1 is included the objective and scope of IAS 36- Impairment Loss with the key definitions. In Section 2, impairment accounting in the accounting global area and Turkish Accounting Environment is also summarized the differences between Turkish Tax Accounting and IFRS related with tangible&intangible asset and goodwill are discussed in this part. Additionally, the recognition of impairment considering potential indicators, accounting treatment of impairment loss with examples and trademarks for disclosure regarding the practice and challenging areas for implementations of impairment accounting is emphasized. Section 3, which is the final part of the thesis, describes effects of impairment loss on financial ratios including the data, methodology, limitations, discussions and ends with results. The final section summarizes and evaluates the findings.

CHAPTER ONE
ASSETS

1.1 ASSETS

In the business life, companies need to bring together some factors in order to operate activities. These factors include capital, human resources, raw materials, plant, machinery, devices due to operate their businesses can continue. In order to sustain their activities, they need to achieve that are valuable. These values that are financed by equity or from external sources, are classified as assets. In general terms, assets are the economic values that businesses have to achieve.

In accounting, the term of asset refers generally to the total amount of current and non-current assets obtained by borrowing money from the owner or partners of the company. The value of the assets is presented in the balance sheet of the entity (in the statement of financial position) as a requirement of the reporting. The assets represent the fields of the resources allocated to the business to be used.

Published by the International Accounting Standards Board "IASB Framework," and accordingly, issued by the Accounting Standards Board of Turkey "Conceptual Framework" the formal definition of asset: '*An asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.* (paragraph 49)'. In order to be defined as an asset, it is necessary to carry out three basic functions:

- Economic benefit in the future
- Control
- As a result of past events

1.1.1 Determination of Assets

An asset is a resource that should be controlled by the entity, resulted from past events and from which future economic benefits are expected to flow to the entity (IASB Framework). The necessary conditions for determination and recognition of assets in the financial statements have been determined in 'IASB Framework'. According to framework, there are two necessary condition in order to recognize as an asset. An asset is recognized when:

- 'it is probable that any future economic benefit associated with the item will flow to the entity; and
- the item has a cost or value that can be measured with reliability.'

According to above conditions mentioned, within the scope of the IASB framework and Conceptual Framework, if it is probable that it is lead to an economic benefit to the business in the future, and if it can be measured reliably or costly, it is represented as an asset in the balance sheet. Otherwise, they are not shown as assets in the balance sheet, but expenditures that are reflected as expenses in the income statement (Dursun, 2007).

The second condition for providing the criteria as an asset is; the cost or value should be determined and measured on a reliable basis. In this situation, cost or value of an item should be estimated. Estimation should be based on reliable expectations. The use of reasonable estimations is an important factor in the preparation of the financial statements and cannot affect the reliability of the financial statements. However, if a reasonable estimate cannot be made, the item will not be included in the balance sheet or the income statement. For example; receivable collections expected from a court case against others, can be defined as both asset and revenue, if the amount of compensation can be determined reliably, they are not included as assets and revenue in the financial statements. In this case, disclosures should give detailed information about the court in the footnotes of the financial statements (Dursun, 2007).

An asset of an entity has three essential characteristics:

(a) There is an economic resource.

(b) The entity has rights or other privileged access to the economic resource.

(c) The economic resource and the rights or other privileged access both exist at the financial statement date.

Economic benefit in the future: The expected economic benefit of an asset refers to the cash and cash equivalent of the entity directly or indirectly. This potential can also arise in the form of the capacity to reduce the cash outflow of the enterprise, such as the information that can be translated into cash and cash equivalents or reduced production costs, as well as being a productive unit that is part of the main activities of the enterprise (IAS1).

Assets may have a physical structure or may not be in a physical form. For example; although patents and copyrights do not have the physical structure, if there are potential for economic benefit to the business in the future and if they can be controlled by the enterprise, they have asset qualities. In addition to these characteristics, when we describe an asset, expectations of future benefit or service potentially should exist. As the best example of this, exhausted rights or services cannot be defined as assets (Dursun, 2007).

Control: This character of assets expresses the ability of the enterprise to benefit from the assets in the future and to prevent other businesses from benefiting these assets. Accordingly, the entity should have a certain economic benefit in relation to an asset, or it must have the right or access to the economic benefit exclusively. Being have right to access to economic benefit should be available at the date of the financial statement. This right should prevent other businesses from benefiting this asset.

The future benefit of the business that results from past events: The assets of the entity arise from operations, transactions and events that have already done. The entity obtains its assets in terms of buying or producing it. However, assets may be acquired as a result of other transactions or events. As an example of this situation, an entity's acquisition of property from the state and its exploration of mine reserves in the light of the government-imposed program in order to encourage economic development in a region can be given (Dursun, 2007).

There is a close relationship between spending and the creation of assets. However, these two issues may not always occur at the same time. The expenditure of an enterprise may indicate that it will benefit from it in the future (Dursun, 2007).

1.1.2 Classification of Assets

The primary objectives of business owners and partners acquire assets to maximize profits. The assets that the entity has acquired in order to provide benefits has different qualifications in various aspects. These differences can be resulted from the magnitude of the expected benefit, the duration of the benefit, the way of obtaining benefit on the assets. Therefore, assets are classified according to their qualifications and liquidity, the functions of the assets in operation, the financial structure of the entity, and the normal operating period of the entity. According to IAS 1, the assets are subject to the distinction as current and fixed assets. Current assets are assets that are: [IAS 1.66]

- "*expected to be realized in the entity's normal operating cycle held primarily for the purpose of trading expected to be realized within 12 months after the reporting period cash and cash equivalents (unless restricted). All other assets are non-current*."

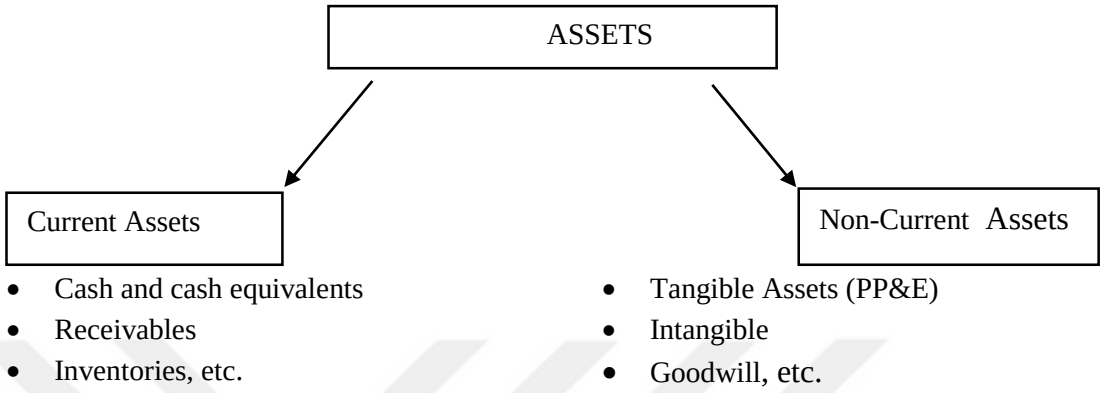
As can be understood by the definition of a current asset is one that is likely to be realized within the normal operating cycle or 12 months after balance sheet date, held for trading purposes, or is cash or cash equivalent. Therefore, current assets are made up of cash, cash equivalents and other assets that are expected to be realized in cash, sold or consumed during one normal operating cycle of the business. All other assets are noncurrent. More specifically, noncurrent asset is defined in IAS 1 that include tangible, intangible, operating, and financial assets of a long-term nature.

The classification of an entity's assets under the appropriate categories is very important for investors of the financial statement users to provide understandable and analytical summary accounting information in the decision-making process (Otlu, 2004).

Figure 1 shows the basic classification of assets as current and non-current. Examples for major classes of current assets are cash, cash and equivalents, receivables, inventories etc. Examples of non-current assets include tangible (fixed asset), intangible, goodwill etc (Wild et. al, 2007: 196). The next section of thesis aims to give explanation about recognition criteria, measurement principles, valuation methods for fixed&non-fixed assets and goodwill. Although IAS 36 apply irrespective

of asset classification in terms of current or non-current assets, only the tangible assets, intangible assets and goodwill are discussed in this study.

Figure 1: Classification of Assets



1.1.2.1 Tangible Asset

The most common type of non-current assets is tangible assets. A tangible (plant, property&equipment) asset is a physical property which means that it can be touched. Regardless of the main activity of the business, the tangible fixed assets have an important place on the entity. Even though there is not much investment in tangible (fixed) assets in trade and service businesses, accounting transactions related to existing fixed assets have an important place in reporting. Property, plant and equipment, especially in manufacturing companies, have a significant effect on the activity of the entity. In this context, it is important for financial statements' users how property tangible assets will be assessed, how they will be presented in the financial statements, specially for the determination of the value of these assets. There are essentially the key areas when accounting for property, plant and equipment that must familiar with:

- initial recognition
- measurement at initially
- valuation (subsequent measurement)

Thus, this part is considered as follows: recognition criterias, initial measurement of tangible assets. However, valuation of tangible assets (subsequent measurement after initial recognition) is mentioned under title 'valuation types of assets'.

Recognition of Tangible Assets

Tangible assets that are held for use in production or supply of goods and services, for rental to others, or for administrative purposes and are expected to be used during more than one period. In other words, the assets have specific uses within the entity. All about information for property, plant, and equipment takes place in IAS 16. IAS 16 prescribes rules regarding the recognition, measurement, and disclosures relating to property, plant, and equipment (often referred to as fixed assets) for users of financial statements to understand the extent of an entity's investment in such assets and the movements therein in detail (IAS 16).

Paragraph 6 of IAS 16 defines property, plant & equipment (PP&E) as:

- "*tangible items*
- *with a specific use within the entity*
- *that are expected to be used during more than one period (i.e. they are non-current in nature)*"

IAS 16 specifically excludes:

- "*assets held for sale*
- *biological assets*
- *mineral rights/reserves*
- *property, plant, and equipment classified as held for sale in accordance with IFRS 5*
- *biological assets relating to agricultural activity under IAS 41*
- *mineral rights, mineral reserves, and similar nonregenerative resources*"

Consequently, recognition criteria of an item of property, plant, and equipment as an asset if and only if it is probable that future economic benefits associated with the asset will flow to the entity and the cost of the item can be measured reliably (IAS 16, para. 7).

Measurement of Tangible Assets

When an item of property, plant, and equipment that satisfies the recognition criteria is achieved, it should be recognized initially at its cost. Since the acquisition

of property, plant and equipment is at cost, it is important that the cost of the asset can be reliably determined. In other words, the cost of a property, plant and equipment is capitalized in the financial statements as an asset under condition that probable future economic benefits related to that item will be readily transferable to the entity and the cost of the related asset can be reliably measured. The key feature here is whether those costs should be included in the acquisition or not. Therefore, IAS 16 specifies that cost contains: (Mirza, 2008: 109)

• "*Purchase price, including import duties, nonrefundable purchase taxes, less trade discounts and rebates,*

• *Costs directly attributable to bringing the asset to the location and condition necessary for it to be used in a manner intended by the entity,*

• *Initial estimates of dismantling, removing, and site restoration if the entity has an obligation that it incurs on acquisition of the asset or as a result of using the asset other than to produce inventories.*"

The standard also give examples of which costs shall include or exclude. Examples of directly attributable costs include:

• "*Employee benefits of those involved in the construction or acquisition of an asset*

• *Cost of site preparation*

• *Initial delivery and handling costs*

• *Installation and assembly costs*

• *Costs of testing, less the net proceeds from the sale of any product arising from test production*

• *Borrowing costs to the extent permitted by IAS 23, Borrowing Costs*

• *Professional fees*

Examples of costs that are not directly attributable costs are shown below. Thus, these costs must be expensed in the income statement: (Mirza, 2008: 110)

• "*Costs of opening a new facility (often referred to as preoperative expenses)*

• *Costs of introducing a new product or service*

• *Advertising and promotional costs*

• *Costs of conducting business in a new location or with a new class of customer*

• *Training costs*

• *Administration and other general overheads*

• *Costs incurred while an asset, capable of being used as intended, is yet to be brought into use, is left idle, or is operating at below full capacity*

• *Initial operating losses*

• *Costs of relocating or reorganizing part or all of an entity's operations*"

Under recognition principle, an entity evaluates all its property, plant and equipment costs at the time they are incurred. These costs include incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it. Additionally, the principal issues involved relate to the recognition and measurement of items of property, plant, and equipment, determining their costs, and assessing the depreciation and impairment losses that need to be recognized (Mirza, 2008: 110). Depreciation and impairment losses will be mentioned in the next part which under title of 'valuation of assets'.

IAS 16 also provides the required disclosures relating to tangible assets. This information includes: (Mirza, 2008: 113)

• *"Measurement bases for determining gross carrying amounts*

• *Depreciation methods*

• *Useful lives or depreciation rates used*

• *Gross carrying amount and accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period*

• *Additions*

• *Assets classified as held for sale*

• *Acquisitions through business combinations*

• *Increases and decreases arising from revaluations and from impairment losses and reversals thereof*

• *Depreciation*

• *Net exchange differences recognized under IAS 21*

• *Other changes*

• *Existence and amounts of restrictions on ownership title*

• *Assets pledged as security for liabilities*

• *Assets in the course of construction*

• *Contractual commitments for the acquisition of property, plant, and equipment*

• *Compensation for assets impaired, lost, or given up"*

If revaluation method is chosen (measurement after initial recognition), disclosures also should include these information:

• "*The effective date of the valuation*

• *Whether an independent valuer was involved*

• *Methods and significant assumptions used in assessing fair values*

• *The extent to which fair values were measured by reference to observable prices in an active market, recent market transactions on an arm's-length basis, or were estimated using other techniques*

• *For each class of asset revalued, the carrying amount that would have been recognized if the class had not been revalued*

• *The revaluation surplus, indicating the change for the period and any restrictions on distributions to shareholders*" (Mirza, 2008: 114)

1.1.2.2 Intangible Assets

Several researches have remarked on intangibles in terms of its definition, recognition criterias and valuation principles within accounting framework. The debate is still going on centrally the main principles of assets: identification, measurement and control (Zeghal and Maaloul,2011: 462). In the lights of these information, The International Accounting Standards Committee defines intangible assets as "non-monetary assets without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes, that are identifiable, controlled by an enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise" (International Accounting Standards Committee, 1998b). A more recent definition, proposed by Lev (2001), defines intangible assets as sources of future benefits that lack a physical embodiment. Lack of physical substance is a distinguish characteristic in the definition of an intangible assets due to separate from tangible assets as they tangibles would generally meet criterion of identifiability (Lev, 2001).

Examples of intangible assets include computer software, patents, copyrights, motion picture films, customer lists, mortgage servicing rights, fishing licenses, import quotas, franchises, customer or supplier relationships, customer loyalty, market share and marketing rights. The most comprehensive studies related with intangibles are belongs to Lev (2001) and Upton (2001) in which there are non- physical asset characteristics, the situation of intangibles assets in the balance sheet over the years, detailly.

The objective of IAS 38 is to describe the accounting treatment for intangible assets and how to recognize an intangible asset if, and only if, certain conditions are met. Therefore, the scope of IAS 38 for all intangible assets, except: (Mirza, 2008: 330)

- "*intangible assets covered by another standard, e.g. those for sale in ordinary course of business, deferred tax assets, leases under IAS 17, employee benefits under IAS 19, goodwill;*
- *financial assets as defined under IAS 32 and IAS 39;*
- *mineral rights and exploration for oil and gas expenditure; and*
- *insurance contracts with policyholders (IFRS 4).*"

The IAS 38 more specifically does not apply to those intangible assets covered by other Standards, such as: (Mirza, 2008: 330)

• Intangible assets held for sale in the ordinary course of business (IAS 2)

• Deferred tax assets (IAS 12)

• Leases within the scope of IAS 17

• Assets arising from employee benefit plans (IAS 19)

• Financial assets covered by IAS 39, IAS 27, IAS 28, or IAS 31

• Goodwill acquired in a business combination (IFRS 3)

• Deferred acquisition costs and intangible assets arising from insurance contracts (IFRS 4) (However, the disclosure requirements for such intangible assets are applicable.)

• Noncurrent intangible assets classified as held for sale in accordance with IFRS 5.

There are the three critical characteristics of an intangible asset are identifiability, control and future economic benefits (IAS 38.8). The general concept of identifiability criterion of an asset is met when it: (IAS 38)

- "*is separable, capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, asset or liability,*
- *arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.*"

The control is represented as the power to obtain benefits from the asset. The final criteria which is future economic benefit, it also should be satisfied. Additionally, the probability of future economic benefits also must be based on reasonable and supportable assumptions about conditions that will exist over the life of the asset. It can be given as an example of these situation that the purchase of customer lists or expenditure on advertising, while identifiable, does not provide control to an entity over the expected future benefits. Because, the entity usually has insufficient control over the expected economic benefits from customer relationships. In other words, there is no obligatory for customers to buy from the entity since they can go anytime (Mirza,2008: 331).

IAS 38 states that intangibles may be acquired in four ways: by separate acquisition, as part of a business combination, by way of a government grant, by exchanges with another intangible (IAS 38). The cost of intangiable assets depends on the way of acquirement for the entity. For example, in accordance with IFRS 3 Business Combinations, if an intangible asset is acquired in a business combination, the cost of that intangible asset is its fair value at the acquisition date. On the other hand, if an asset is acquired in a normal transaction, a price that paid for the asset is the purchase price which meets identifiability criteria (Alfredson et al, 2011: 375).

As a result, it must meet the definition of an intangible asset, identifiability, control over a resource and the existence of future economic benefits in order to be capitalised as intangible assets. If it fails to meet the recognition criteria, then expenditure should be expensed unless it is part of a business combination, otherwise

it should be treated as part of the goodwill. Additionally, the internally generated intangible assets are expensed when they are incurred (Mirza, 2008: 332).

Recognition of intangible assets

Regarding recognition criteria, according to IAS 38, a firm has to recognize intangible assets (both in the case of purchased and internally generated assets) if it is likely that these assets will provide distinguishable future economic benefits to the firm and their cost can be measured with reliability. Therefore, the standard (IAS 38) prescribes that an intangible asset must be recognized if:

- *"the asset is identifiable, that is if it either is separable or arises from contractual or other legal rights;*
- *it is probable that future economic benefits of the assets will flow to the enterprise;*
- *the cost of the assets can be reliably estimated."*

The standard prohibits the recognition of internally generated goodwill as an asset. The examples of internally generated items can be given as brands, mastheads, publishing titles, customer lists etc. The motive behind of this rule is that failure of the identifiability test or its cost cannot be measured reliably (Mirza, 2008:333). However, there are extra rules for internally generated intangibles for recognition. The rules are based on the determining the research or development phase. Thus, the exception of capitalizing internally generated intangibles is "Development Expenditure" which meets the recognition criteria for capitalization as an intangible asset. The standard clarifies the research and development expenditure:

Research: "It is original and planned investigation undertaken to gain new scientific or technical knowledge and understanding."

Development: "It is the application of research findings or other knowledge to a plan or design for the production of new or substantially improved products, processes, systems or services before the start of commercial production or use."

IAS 38 states that research costs are obviously an indicator to expense the expenditure rather than capitalizing as assets.

Examples of research activities are: (IAS 38, para. 8)

- "*activities aimed at obtaining new knowledge;*

- *the search for, evaluation and final selection of, applications of research findings or other knowledge;*
- *the search for alternatives for materials, devices, products, processes, systems or services; and*
- *the formulation, design, evaluation and final selection of possible alternatives for new or improved materials, devices, products, processes, systems or services."*

Examples of development activities are:

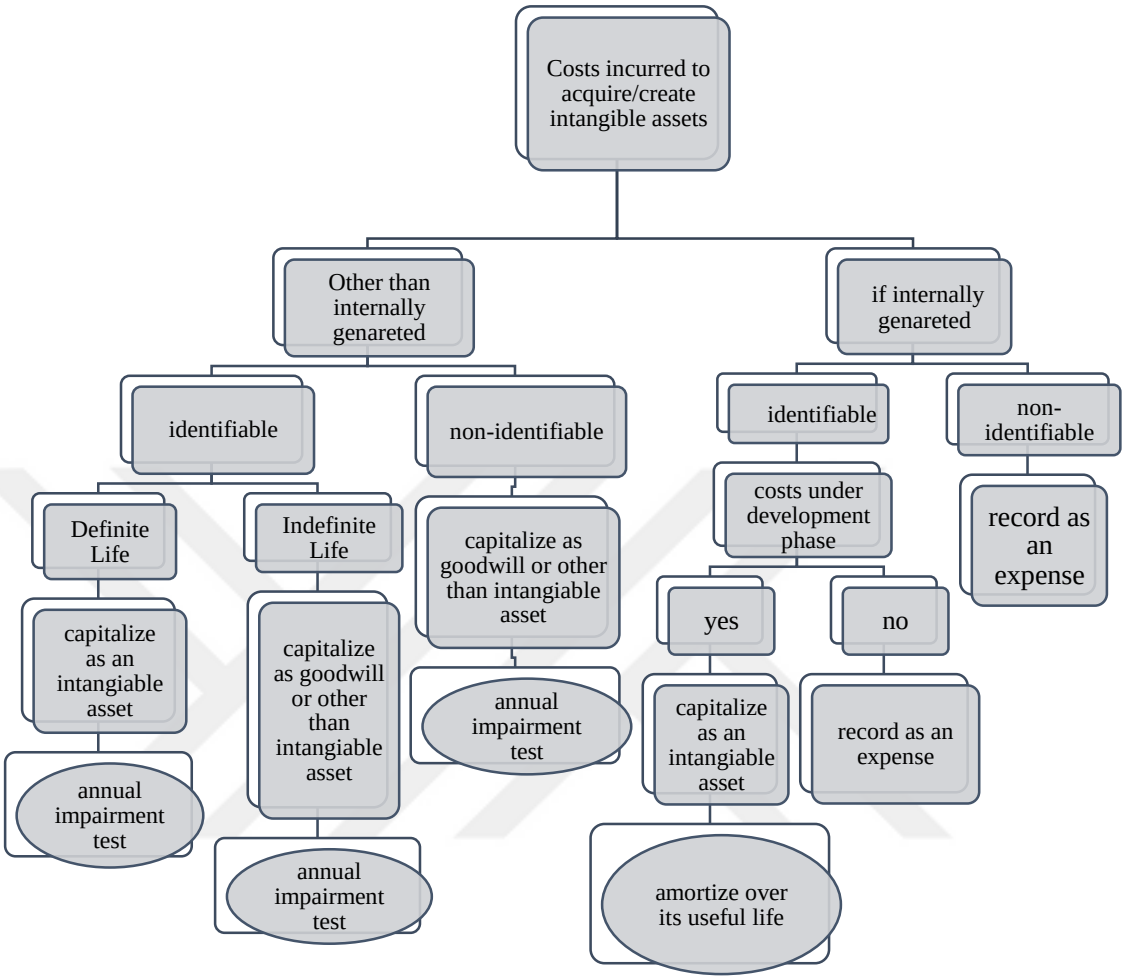
- "*the design, construction and testing of pre-production or pre-use prototypes and models;*
- *the design of tools, jigs, moulds and dies involving new technology;*
- *the design, construction and operation of a pilot plant that is not of a scale economically feasible for commercial production; and*
- *the design, construction and testing of a chosen alternative for new or improved materials, devices, products, processes, systems or services."*

According to IAS 38, accounting treatment of research costs must be written off as an expense in the year in which incurred rather than being recognized as an asset. On the other hand, there are some conditions for accounting treatment of development costs. They can only be capitalised as an intangible asset if and only if the following conditions are met: (IAS 38, para.57)

- "*Technical feasibility of completing the intangible asset so it can be used or sold*
- *Intention of entity to complete the asset and use or sell it*
- *How the intangible asset will generate future economic benefits*
- *Availability of adequate technical, financial and other resources to complete the development and to use or sell asset*
- *Its ability to measure reliably the expenditure attributable to the asset."*

Following figure 2 illustrates reporting principles for intangiable assets. Any expenditure that arises in the research phase should be recognised as an expense when incurred whereas development costs shall be capitalized if the strict criterias are provided to qualify for recognition as intangible assets.

Figure 2: Recognition Principles of Intangibles



Source: Thornton, 2013:3

Briefly, the principal issues involved relate to the recognition of intangible assets determining their costs whether the criterias are met or not. The critical point here is that internally generated goodwill is not permitted in accordance with IAS 38. Further it is also needed to assess the amortization and impairment losses that should be recognized. Amortization and amortization charge will be mentioned in the next part under valuation of intangible assets.

Measurement of intangible assets

An intangible asset is an identifiable non-monetary asset without physical substance. It shall be measured initially at cost. IAS 38 specifies how to measure the carrying amount of intangible assets. If an asset is acquired in a normal transaction, then the fact that a price has been paid for the asset, is a reflection of the expectation that future economic benefits will flow to the entity. In addition, the asset cost can usually be measured reliably. Mastheads, licenses, copyrights, patents are all examples of assets that can be acquired externally and meet the recognition criteria. The cost of such assets comprises the purchase price (including duties and non-refundable taxes), and any directly attributable costs of preparing the asset for its intended use.

The cost of separately acquired intangible assets comprises: (Mirza, 2008:332)

- *"Purchase price, including any import duties and nonrefundable purchase taxes, less discounts and rebates,*
- *Directly attributable costs of preparing the asset for use."*

Costs that cannot be included are:

- *"Costs of introducing new products or services, such as advertising*
- *Costs of conducting new business*
- *Administration costs*
- *Costs incurred while an asset that is ready for use is awaiting deployment*
- *Costs of redeployment of an asset*
- *Initial operating losses incurred from operation"*

If an intangible asset is acquired in a business combination, the cost of the asset that is specified by IAS 38 (in accordance with IFRS 3) are valued at its fair value on the date of acquisition. The fact that a price can be established for an intangible asset which is acquired in a business combination is accepted as evidence that future economic benefits are expected to flow to the entity.

Regarding the measurement of the intangible assets in the financial statements, the certain disclosures required by IAS 38 are as follows:

- "*For each class of intangible assets, disclosure is required of the following, distinguishing between internally-generated intangibles and other intangibles.*
- *The method of amortisation used*

- *Useful life of the assets or the amortisation rates used*
- *The gross carrying amount, any accumulated amortisation at the beginning and end of the period*
- *The line item(s) of the statement of standard comprehensive income in which any amortisation of intangible assets is included*
- *A reconciliation of the carrying amount at the beginning and the end of the period."*

Briefly, table 1 explains that the basic reporting principles related to tangible&intangible assets accordance with IAS 16 and IAS 38.

Table 1: Comparison of Intangible and Tangible Assets as Reporting Principles

Themes	**IAS 16 (tangible assets)**	**IAS 38 (intangible assets)**
Measurement at Recognition	cost	cost
Measurement after initial recognition	Cost model or revaluation model	Cost model or revalution model
Useful Life	Depreciation amount over its useful life	Assets with finite useful life: Amortisation and Impairment test Assets with indefinite useful life: Impairment test

Source: Mirza, 2008: 330

1.1.2.3 Goodwill

Goodwill is recognized by purchase method and it is subject to annual impairment test. The deeper discussion about estimation and valuation and accounting treatment of goodwill in accordance with IFRS 3. However, impairment for goodwill in accordance with IAS 36 due to the fact that goodwill is requirred to be tested at least annually, rather it should not be amortized (Mirza, 2008: 406).

The definition of goodwill trough IFRS 3 is:

"An asset that represents future economic benefits arising from other assets acquired in a business combinations that are not individually identified and separately reported."

From an economic point of view, goodwill is the surplus over a firm's net asset value and therefore identical to the net present value of an investment. It is suggested that the main factor of creating goodwill that is the high market share that the acquired company owns and above profit expectation on the sector average. It arises from how the physical assets and human resources of the entity have been employed within the business environment and may be attributed to factors such as market penetration, an excellent distribution network, good industrial relations and superior management. The most important feature of this asset is that it is unlikely bought and sold on its own (Terzi, 2009:104).

Goodwill is a balancing item, the difference between the purchase consideration given (cost of the business combination) and the fair value of the identifiable net assets acquired. Thus, any excess of fair market value over the book value of the acquired firm's recognized net assets was recorded as goodwill. When one company buys another company, the purchasing company might pay more for the acquired company than the fair market value of its net identifiable assets. The amount by which the purchase price exceeds the fair value of the net identifiable assets is recorded as an asset of the acquiring company. This difference amount is called goodwill. It can be explained by an example, assuming A company has 100% of subsidiary of company B. The company A pays 100,000 TL for this acquirement and at the date of acquitision, subsidiary's net assets is 80,000 TL. The difference is 20,000 TL recognized as goodwill (Mirza, 2008: 406).

Morever, the results can be either positive or negative. Thus, accounting treatment for goodwill is depend on positive or negative amount. When the results is positive which is greater than zero, then it is capitalized as an asset. However, when the results is negative, then it is called negative goodwill or gain on bargain purchase. Negative goodwill can arise from the result of some factors such as measurement errors. In other words, IFRS 3 supposed that would arise only in exceptional situations. If negative goodwill has occurs, the entity shall recognize as profit or loss (Mirza, 2008:406). The critical point here is that it shouldn't be as a liability if there is negative goodwill.

Goodwill is a complex economic construct that is on both of the Financial Accounting Statement of Board- FASB's and International Accounting Statetement of Board- IASB's agenda. Thus, there are some related standards related with goodwill:

- Statement of Financial Accounting Standards (SFAS) 141 "Business Combinations" and SFAS 142 "Goodwill and Other Intangible Assets" under U.S. Generally Accepted Accounting Principles (US-GAAP)
- IFRS 3 "Business Combinations" and IAS 36 "Impairment of Assets" under International Financial Reporting Standards (IFRS)

These standards have profoundly changed the accounting for business combinations. According to all of them, goodwill must be tested annually instead of amortization over its expected useful live (Boennen and Glaum, 2014: 1).

Over the past century, regarding the technological innovations and knowledge advancements, goodwill is connected with intangible investments such as human resources, new technology, research and development, and advertising. It becomes valuable asset on the balance sheets of especially U.S. companies. There are some studies to illustrate that goodwill has become an increasingly significant asset in balance sheet (Wen and Moehrle, 2016: 11). Thus, it is very important to be able to measure the value of goodwill correctly during the buying and selling of an entity.

Recognition of Goodwill

Goodwill is only recognized when acquired with a business combination. In broader sense, it can only be recognised when an entity has acquired another entity or part thereof, as goodwill cannot be purchased or sold as a separate item. The recognition principles for goodwill is at fair value, the same criteria as tangibles and

intangibles. The critical point here is that internally generated goodwill shall not be recognised as an asset (IAS 38). It is not an identifiable resource (i.e. it is not separable, nor does it arise from contractual or other legal rights) controlled by the entity that can be measured reliably at cost. Thus, it cannot be sold or bought separately from the entity and may be built over a number of periods.

Measurement of Goodwill

Goodwill in the accounting context represents amounts paid in excess of the fair value of the identifiable net assets of a business acquisition. It is measured and recorded as the amount paid to acquire a business in excess of the fair value of its net identifiable assets. While the measurement approach is intended to capture the excess value created by a company that has the resources needed in order to continue to operate indefinitely (going concern), it is possible that the amount of goodwill recorded may also reflect an overpayment for the acquired firm.

It is impossible to determine the recoverable amount of goodwill independently from other assets. Because, goodwill does not create cash flows of its own; instead it contributes to the cash flows of individual cash genearting units (CGUs[1] or multiple CGUs (IAS 36.81). For this reason, in order to carry out impairment test, it must be distributed to the CGU or multiple CGUs that are expected to benefit from the synergy of the combination the date of the acquisition (Thornton, 2014: 17).

In summary, goodwill acquired in a business combination is allocated to cash-generating units and an impairment loss is recognised for that unit if its recoverable amount is less than its carrying amount. The carrying amount for a cash-generating unit is represented by the carrying value of the individual assets (including goodwill) and applicable liabilities pertaining to that unit.

1.1.3 Valuation of Assets

The term of ‘Valuation’ in accounting area is the process in which significant monetary amounts are assigned to the asset, the liabilities and firm activities. With a different statement, valuation, is to present the balance sheet items such as receivables

[1] A cash-generating unit is defined as “the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets” (IAS 36, para. 6).

and debts in a specific date in terms of units of currency. The purpose of valuation is represented to the financial statements by determining the amounts of assets, receivables and payables of the enterprises with fair value principles. After determining process (when recognition criteria are met), recording them in the financial statements to provide clear, understandable and reliable information about the financial situation and results of operations in the concept of standards criteria.

The valuation of financial statement items is made up of a two-step process, the first step involves determining the amount of the financial statement subject to valuation, and the second step involves representing this value of item in terms of monetary unit. This valuation process compasses the selection of the appropriate valuation method which is defined in the financial reporting standards for each item. Financial statement items are generally assessed initially at acquisition date and for each balance sheet period regarding the valuation process.

IFRS framework presents a variety of measurement basis which are used in financial statements by recognised and reported for valuation purposes. It is not guidance for selecting which measurement basis should be used for particular elements of financial statements or in particular circumstances. However, this guidance is by provided in individual standards. The elements of measurement basis are: (IFRS Framework)

- Historical cost
- Current cost
- Net realisable (settlement) value
- Present value (discounted)

Historical cost: Assets are recorded at the amount of cash or cash equivalents paid to acquire them at the time of their acquisition. It is the most common measurement basis today, but it is noteworthy that although the acquisition values of these assets are recorded at cost, the expectation of future benefit on assets should be based on correct valuation assumptions after initial recognition period.

Fair value approach has been developed for the financial reporting since the historical cost accounting fails to produce the data and information needed for the future by the financial information users. Thus, it can be said that fair value could

provide better information for the markets in cases where observable market prices exist (Herrmann et al., 2006: 44).

Regarding the valuation of assets under accounting standards, depreciation and amortization should also be taken into consideration. There are some related with valuation definitions such as:

Depreciation: It is defined as the systematic allocation of the depreciable amount of an asset over its useful life.

Depreciable amount: It is the cost of an asset, or other amount substituted for cost (if an asset is measured under the revaluation method), less its residual value. In other words, depreciable amount is related with how much it will be depreciated.

Depreciation period: It is determined by asset's useful life. Simply, depreciation period is how long it will be depreciated.

Useful life: It is the period over which an asset is expected to be available for use by an entity; or the number of production or similar units expected to be obtained from the asset by an entity (IAS 16.6). In other words, useful life represents the assets' expected ability to generate future benefit.

IAS16 lists several factors that shall be considered when establishing item's useful life:

• *"expected usage of the item, (related to the asset's expected capacity or output)*

• *expected physical wear and tear,*

• *technical or commercial obsolescence of the item, and legal or other limits on the use of the asset."*

IAS 38 also is considered in determining the useful life including:

- *"the expected usage of the asset and whether it can be managed efficiently;*
- *typical product life cycles;*
- *technical, technological, commercial or other types of obsolescence;*
- *the stability of the industry in which the asset operates and changes in market demand;*
- *expected actions by competitors;*
- *the level of maintenance expenditure required to obtain future benefits;*
- *the period of control over the asset; and*

- *whether the useful life is dependent on the useful life of other assets in the entity."*

Regarding to useful life, accounting for long-lived asset impairments separates assets into three categories:

- tangible long-lived assets and intangible assets with a definite-life,
- intangible assets with an indefinite life other than goodwill, and
- goodwill.

This categorization is also important for IAS 36-Impairment of Assets during the process of impairment testing. Because, intangibles with indefinite useful lives require annually impairment irrespective of any other indicators for impairment loss, while the ones with finite useful lives only subject to impairment when there is any trigger for impairment (Mirza, 2008:304).

Definite Life: 'If the assets have a definite life, the costs are allocated over their economic life through depreciation or amortization, which implies the usage of its profit-generating ability.'

Indefinite Life: Indefinite life means that there is no foreseeable end to life of the asset rather than being 'indefinite'. (IAS 38, para.91) There is no amortization charge for intangibles with having indefinite useful life.

The residual value: 'It is the estimated amount that an entity would currently obtain from the disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life'. (IAS 16.6) It should be noted that useful life and asset's residual value (input to depreciable amount) shall be reviewed at least at the end of each financial year.

Depreciation method: An entity may select from various methods of depreciation which are straight-line method, diminishing balance method and the units of production methods. The depreciation method used shall reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

Straight-line method: The straight-line method results in a constant charge over the useful life of an asset (if the asset's residual value does not change). In most cases, the straight-line method chosen by the companies due to its simple form for

application. Under this method, an asset's depreciable amount is allocated equally over its useful life. The formula of the straight-line method is:

- Cost – residual value

  Useful economic life

This can be shown as below example:

The following data describe an item of property, plant and equipment:

Cost: 100,000 CU

Useful life:5 years

Residual value: 20,000 CU

Under the straight-line method, depreciation charges in each of the five years will be 16,000 CU = (100,000-20,000)/5.

Diminishing balance method: It results in a decreasing charge over the useful life. In this method, the depreciation rate is applied to the net carrying amount of the asset, resulting in a diminishing annual charge.

The formula of depreciation amount under diminishing balance method is:(Mackenzei et al; 2013: 195)

- Depreciation amount = 2 × Straight-line rate × Carrying amount at beginning of year

Units of production method: The units of production method results in a charge based on the expected use or output (IAS 16.62). The motive behind this method is that it is based on the number of units produced by the asset in a given year. It is more suitable method for those assets, such as machinery. Because, especially under economic recession condition, the machinery is used less. Thus, assets' expected lives defined in terms of productive output and in periods of reduced production (such as economic recession) the number of years they are likely to remain in service will increase (Mackenzei et al; 2013:196).

The formula of depreciation amount under dimishing balance method is illasturated below:

- Depreciatition rate = Cost – Residual Value

  Estimated number of units to be produced by the asset over its useful life

- Units of production depreciatition = Depreciatition rate × Number of units produced during the period

Table 2 summarizes the content of tangible and intangible assets. It should be noted that tangibles are these assets that have physical characteristics and related expense is depreciation, whereas intangibles are the assets whose value cannot be derived from their physical substance and their related expense is amortization.

Table 2: Asset Types and Related Expense

Asset type	Tangible Asset	Intangible Assets
Related Expense	Depreciation	Amortization

Source: Nobles et al, 2009: 636

Accurate valuation becomes necessary and fundamental regardless of whether it is an asset, liabilitiy, revenue or cost (Andersson & Wenzel, 2012:8). Traditionally, assets have been valued based on their acquisition costs, which is relatively easy since it depends on historical data. However, the assets' current values (book values) may change due to some fluctuations in specific sectors or economic-based conditions. In this case, the valuation comes up with a new concept in the aim of being closer its as possible to its fair value. Therefore, the variation will not be reflected through only depreciation or amortization (Alfredson et al, 2011: 465). For valuation purposes, the impairment accounting plays a supplementary role in lowering an asset's carrying value by the recognition of an impairment loss when the carrying amount of the asset is no longer recoverable (Riedl, 2004). The recognition of the impairment on assets and accunting treatment for impairment are the results of the conservatism principle. For this reason, valuation is also included as a part in this thesis.

1.1.3.1. Fair Value Measurement

This part briefly outlines the requirements of IFRS 13- Fair Value, which covers definitions, measurement framework and disclosure requirements. The International Accountings Standards Committee founded the International Accounting Standards Board (IASB) in 2001 to establish and create international accounting standards. The motive behind of these new standards are is to create easier for corporations, governments, and individual investors to analyze and compare the companies' financial statements. In other words, IASB wanted to enhance assessing the valuation techniques and inputs that are used to measure fair value in order to make users better understand. International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) have been published by IASB in order to meet the needs of International Accounting Standards. The main objective of IFRSs and IASs are to create a single set of accounting / financial reporting in terms of global and common language for accounting (Terzi, 2009:103).

The IFRS framework is principle-based, which means that it is based on professional assessments and interpretations of management perspective when applying the standards to their specific businesses (E&Y, 2012:9). The fair value measurement project started as a part of the convergence project between the IASB and the FASB. The outcome of the convergence between FASB and IASB is the fair value measurement standard in comparison with US GAAP (BDO, 2013:4). The main aim of IFRS is fair value measurement. Fir value is a primary subject of measurement for assets and liabilities.

Fair value should refer to an active market. Consequently, fair value should be focused on the assumptions of the market, not entity specific (KPMG, 2015:4). Fair value includes some key concepts including unit of account, exit price, valuation premise, highest and best use, principal market, market participant assumptions and the fair value hierarchy. (E&Y, 2012:6) IFRS 13 clarifies these concepts as follows:

- An active market: "It is a market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis."

- Entry price: “It refers to the price paid to acquire an asset or received to assume a liability in an exchange transaction.”
- The exit price: “It is the price that would be received to sell an asset or paid to transfer a liability.”
- Highest and best use: “It refers to the use of a non-financial asset by market participants that would maximise the value of the asset or the group of assets and liabilities (e.g. a business) within which the asset would be used.”
- Fair value: “It is 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. This definition of fair value is sometimes referred to as an exit price.”

Fair value requires the entity to determine following:

- Asset/Liability
- Non-financial assets use
- Principal/ Most Advantageous Market
- The Valuation Techniques

Asset or liability is subject to measurement that must be considered as unit of account. Fair value application of non-financial assets requires the highest and the best use from the market participant perspective. It takes under conditions that physically possible, legally permissible and financially feasible, principal/most advantageous market. The valuation techniques are related with the level of fair value hierarchy.

IFRS requires/allows fair value accounting in the following areas: property, plant and equipment (IAS 16), impairment of assets (IAS 36), financial instruments (IAS 39), investment property (IAS 40), share-based payments (IFRS 2), biological assets (IAS 41) and pension assets and liabilities (IAS 19).

The measurement and disclosure requirements of IFRS 13 can not be applied (IFRS 13.6) to:

- *“Share-based payment transactions within the scope of IFRS 2 Share-based Payment*
- *Leasing transactions within the scope of IAS 17 Leases*

- *Measurements that appear similar to fair value, but which are not the same, such as net realizable value in IAS 2 Inventories and value in use in IAS 36 Impairment of Assets."*

The disclosure requirements are not required for: (IFRS13.7)

- *"Plant assets measured at fair value in accordance with IAS 19 Employee Benefits*
- *Retirement benefit plan investments measured at fair value in accordance with IAS 26 Accounting and Reporting by Retirement Benefit*
- *Assets for which recoverable amount is fair value less costs of disposal in accordance with IAS 36."*

According to IFRS 13, the objective of the standard: [IFRS 13:1]

- *"It defines fair value*
- *It sets out in a single IFRS a framework for measuring fair value*
- *It requires disclosures about fair value measurements."*

It is noteworthy that IFRS 13 guides how to apply fair value on the measurement basis rather than when to apply fair value. More specifically, the standard does not attempt to remove the judgement that is involved in estimating fair value, instead, it provides a framework in order to reduce inconsistency and increase comparability in the fair value measurements used in financial reporting. It generally does not provide specific rules or detailed 'how-to' guidance (E&Y, 2012:6). As a result, IFRS 13 guides how to measure fair value.

IFRS 13 sets out a valuation approach, which refers to a broad range of techniques, which can be used. There are three approaches based on the market, income and cost. When measuring fair value, the entity is required to maximize the use of observable inputs and minimise the use of unobservable inputs. To this end, the standard introduces a fair value hierarchy, which prioritises the inputs within the fair value measurement process.

When selecting appropriate valuation techniques, IFRS 13 includes that three valuation approaches to measure fair value:

- Market approach
- Cost approach
- Income approach

An entity is required to use appropriate valuation techniques. These techniques should maximize observable inputs and minimize unobservable inputs. Table 3 illustrates the examples under different valuation approaches:

Table 3: Summary of Valuation Approaches with Examples

Type of Approach	**Examples**
Market Approach	Market Multiples (EBITDA, Revenue) Matrix Pricing (compare benchmarking securities)
Cost Approach	Depreciated replacement cost method
Income Approach	Present Value Techniques Discounted Cash Flow Analysis

Source: KMPG; 2015:39

Cost and income approach can be used when the calculation of fair value measurement for tangible assets if the choice is revaluation method under IAS 16 for subsequent period. Although fair value of tangibles can be obtained from active market, determining the valuation of assets is based on professional advice in practice. In case, present value of cash flows (income approach) or amortization renewal charge (cost approach) can be calculated for fair value of tangibles (Esen&Perek, 2016:31).

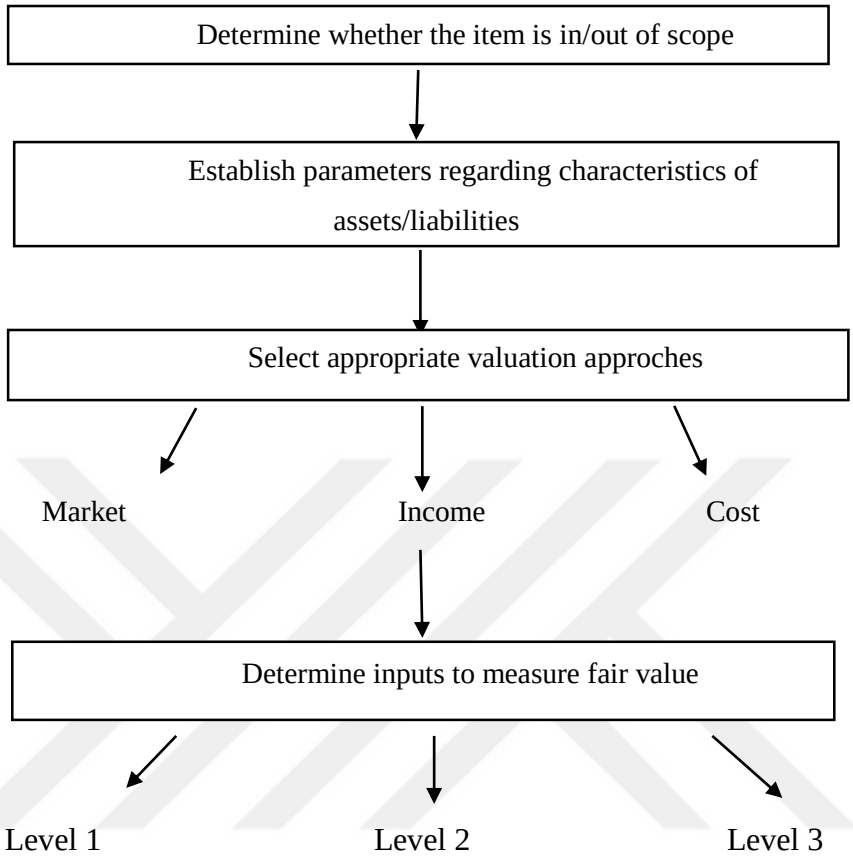
IFRS 13 does not include the hierarchy these valuation techniques. In other words, the choice depends on the accounting judgements. The key point here is that the method should maximize observable inputs which means that market data will be taken into consideration as much as possible in order to being more reliable and should minimize unobservable inputs. Additionally, if the valuation technique is changed,

then revaluations should be carried out with sufficient regularity so that the carrying values are not materially different from the fair value at the balance sheet date.

After selecting the appropriate valuation approach, inputs should be determined to measure fair value on the basis of fair value hierarchy. The hierarchy is made up of three categories, Level 1 is quoted price of shares traded on stock exchange, Level 2 quoted price for similar assets or liabilities from an inactive market and Level 3 which includes all unobservable inputs based on financial forecasting. Level 1 is the most reliable method of fair value for asset valuation because there is a market available which prices can be easily quoted and recording based on mark-to market whereas Level 3 is the least reliable asset valuation as these types of financial assets have no quoted market prices. Therefore, the highest priority should be given to Level 1 inputs while lowest priority to Level 3 inputs. The basic rule is that an entity shall always maximize the use of Level 1 inputs which are observable and minimize the use of Level 3 inputs which are unobservable (E&Y, 2012: 129). This categorization is an essential part of disclosures. Figure 3 summarizes fair value measurement under IFRS 13. The standard also includes required disclosure information regarding:

- Valuation approaches and techniques for assets/liabilities
- Inputs especially categorised within Level 3 of the fair value hierarchy
- Effects on fair value measurement on profit/loss or other comprehensive income
- Changes in any valuation techniques under conditions of IFRS 8.

Figure 3: The Process of Fair Value Measurement



Source: KPMG, 2015:5

There are some grey areas for fair value measurement. Unfortunately, determination of the fair value of an asset in individual situations is not always straightforward. Because, the fair value concept is based on subjective assumptions and judgment, which form the basis of principle-based regulation for the financial reporting system. For example, assessment of the decreaces in the value of an asset can be highly subjective. Because, it is based on management determination in accordance with IAS 36- Impairment of Asset. If the value of assets is overestimated, impairment losses can be avoided, which causes a higher result or vice versa. Consequently, fair value estimates can lead to measurement error which affect their relevance and reliability.

1.1.3.2 Valuation Types of Assets

Accounting standards have changed considerably over the past decade, and this is particularly true with regard to the increasing emphasis on reporting assets at fair value (predominantly the current market price of an asset). Today, it can be defined as a challenging process for asset valuation due to estimations of the future.

The aim of valuation is to determine the monetary amounts of the assets, receivables and payables of the entities under the measurement criteria stated in the financial reporting standards with clear, understandable, truthful and reliable information about the financial status and operational results of the enterprises. As long as the information on the financial statements is not related to the assets and events in the real world, beneficial investment decisions for management, cannot be given. Therefore, the comparison and assessment of various and different economic activities can be possible if an entity has assets, liabilities and events that cause changes in them. It is also important for the continuity of the business if the valuation is done appropriately by the enterprise and this will enable the management to make more rational decisions.

Asset valuation is the process of assessing and estimating the value of a company, real property or any other item of worth, in particular assets that produce cash flows. Valuations can be applied on assets (for example, investments in marketable securities such as stocks, options, business enterprises, or intangible assets) for many reasons such as investment analysis, capital budgeting, merger and acquisition transactions, financial reporting, taxable events. Asset valuation is therefore is an important accounting operation.

When dealing with valuation process, it is also necessary to take into consideration depreciation and amortization. Depreciation is defined in IAS 16 as being the systematic allocation of the depreciable amount of an asset over its useful economic life. In other words, depreciation applies the accruals concept to the capitalised cost of a non-current asset and matches this cost to the period that it relates to. Altough all plant assets are depreciated, there is an exception for land because its value does not decline with use due to useful life is infinite (Nobles et al., 2009: 620). Amortization is the key accounting process for the intangible assets with finite or infite

life whose procedures set by IAS 38. While selecting the depreciation method, it should be considered that the method which most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset is chosen (IAS 16.62). If there is a change in the expected pattern of asset's usage, then the depreciation method shall be changed and be accounted as a change in an accounting estimate in line with IAS 8 - Accounting Policies, Changes in Accounting Estimates and Errors (no restatement of previous periods). In this matter, it should be noted that IAS 8 requires an accounting policy change from the cost model to the revaluation model or vice versa if the change results in more reliable and more relevant information to users of the financial statements to justify the inconsistency in accounting policy application. The final point related to depreciation is that selected depreciation method shall be reviewed at least at the end of each fiscal year.

Valuation of Tangible Assets

Tangible assets represent resources with physical substance such as land, buildings, plants, and equipment. During the valuation of tangible assets, the items of property, plant and equipment are usually depreciated in order to maintain matching principle[2] – as they are in operation for more than 1 year, they assist in producing the revenues more than 1 year. Therefore, their cost shall be spread among those years in order to match the revenue they help to produce. In other words, depreciation charges for items of property, plant and equipment are measured for every period and recognised in profit or loss, unless they are included in the carrying amount of another asset according to the matching principle. Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately. For example, aircraft machine cost might be depreciated separately from the remaining body of the airplane cost. Depreciation of tangible journal entry is as follows:

[2] The matching principle ensures that all expenses are matched against the revenues of the period. (Nobles et al., 2009: 137)

Dr- Depreciation Expense xxx

Cr- Tangiable Asset xxx

After initial recognition of an item of property, plant, and equipment, IAS 16 allows a choice of two possible measurement models. According to the standard, the asset should be measured using either the cost model or the revaluation model. The cost model requires an asset, after initial recognition, to be carried at cost less accumulated depreciation and impairment losses, while the revaluation model requires as asset, after initial recognition, to be measured at a revalued amount, which is its fair value less subsequent depreciation and impairment losses. The cost approach is based on the amount of cash needed to replace the service capacity of the asset. Thus, the price of an asset is proportional to the economic value of the service that it can provide throughout its lifetime (Dursun, 2007). In this method, in accordance with conservatism principle[3], impairment losses are taken into consideration while updated asset values are ignored.

When choosing revaluation model, fair value must be reliably measurable. Revaluations must be made with sufficient regularity to ensure that the carrying amount is not materially different from fair value.

Accounting treatment under revaluation and cost method will be explained with examples in detail in the Chapter 2.

Valuation of Intangible Assets

Intangible assets are another class of assets consisting of items such as patents, trademarks, goodwill among others. If intangible assets are acquired separately, for the valuation purposes, intangibles are similar to that for tangible assets and valued with historical cost. If intangible assets are acquired in a business combination which is called goodwill, identifiable intangibles are valued at fair value on the acquisition date. When they are self-created, entities need to classify the generation of the asset into a research phase and a development phase. In this case, intangible assets arising from

[3] The means of conservatism principle is exercising caution in reporting items in the financial statements. As stated in Nobles et al., the aim of conservatisim principle is to report realistic figures and never overstate asset or net income. (Nobles et al, 2009: 365)

the research phase are to be expensed whereas the ones arising from the development phase shall be capitalized if several conditions are fulfilled (Alfredson et al, 2011:375).

For valuation of intangible asset, firstly the company needs to evaluate whether the useful life of the intangible is finite or infinite. Because, intangiables may either have a definite life or indefinite life. The distinguish between infinite or finite life depends on assess whether there is no foreseeable limit for the period over which cash inflows are generated by the intangible or not. If the intangible asset has no foreseeable limit to the period of benefit to the entity, it can be classified as having an infinite life and will not be amortised. Intangibles with infinite life have no factors (such as legal and contractual obligations) that limit the usage of them. As an example of these cases, some intangible assets such as patents have finite lives that will expire after a certain period of time; whereas, others such as trademarks may have infinite lives having value for decades. If intangible asset has a finite life the depreciable amount is to be amortized over the useful life systematically while there is no amortization charge for intangibles with infinite life, but an annual impairment test is required under IAS 36 (Alfredson et al, 2011: 384)Thus, only intangible assets that have finite useful life are amortized over useful life. The principles of the amortization are the same as depreciation process for tangibles. In both cases, the process includes the allocation of depreciable/amortizable amount on a systematic basis over useful life. For amortization of intangible assets, journal entry is as follows:

Dr- Amortization Expense xxx

Cr- Intangible Asset xxx

Additionally, IAS 38 contains that amortization period and amortization method should be revised at least at the end of each annual reporting period that is same for tangibles. Any changes also in residual value, amortization method or useful life should be adjusted on current and future amortization charges (IAS 38).

The second step for the valuation of intangible assets is the choice between cost or revaluation model as same for tangible assets. Revaluation model is permitted only if an active market for the intangible exists. Specifically, under IAS 38 the revaluation model does not allow:

- “the revaluation of intangible assets that have not previously been recognised as assets; or
- the initial recognition of intangible assets at amounts other than cost.”

Valuation of Goodwill

Goodwill is an asset obtained as a result of a business combination. Unlike intangiable assets, there is no amortization charge for goodwill. However, the principal issue involved for goodwill under IFRS is that impairment testing is required at the end of each reporting period, annually (IAS 36, para. 96). Goodwill cannot be tested separately, if it cannot be identified or quantified reliably. Therefore, goodwill should be allocated to the individual CGU or group of CGUs that benefit from the acquired goodwill (IAS 36, para. 80).

As mentioned before, both IFRS and US-GAAP prohibit amortization for goodwill. The reason why shifting from amortization method to annual impairment test for goodwill is the arbitrary behavior of companies in the determination of the amortization period (Terzi, 2009: 106). The common problem arises from time period estimation for amortization method. Therefore, estimation of useful life for goodwill becomes less reliable as the length of the useful life increases. These changes bring up advantages for both income statement and balance sheet perspective. From a balance sheet perspective, the valuation of goodwill will be more closely to a real assessment of asset value, while reflecting an arbitrary “cost less accumulated amortisation” calculation. From an income statement perspective, any recognition of a loss as a result of a write-down in the valuation of goodwill will be more closely to a real economic decline in value rather than an arbitrary amortisation calculation (Wines et al, 2007: 868).

Another important point for goodwill is; any reversals of goodwill impairments are not allowed according to the standard. In other words, goodwill cannot increase in value and any impairment of goodwill is permanent whereas other tangible assets such as property that can be revalued both up and down with fluctuations in market prices (Mirza, 2008:313).

Goodwill is tested for impairment by management forecasting for future cash flows related to goodwill to determine any changes from previous forecasts. These estimates and forecasts should be based on management’s reasonable and supportable

assumptions. However, this situation can create incentives for the period goodwill write-downs are made or even postpone impairment as any fall in value is charged against the current period's profits (Lhaopadchan, 2010: 123). This critical point will be explained under title of 'difficulties and crtism of IAS 36'.

1.2 IAS 36 IMPAIRMENT LOSS

Under IFRS, assets are recorded at fair value in the financial statements. Altough initial measurement of assets is generally at historical cost, subsequent measurement may change, and these changes also are recognized in values. All assets are subject to impairment testing. According to IAS 36-Impairment of Assets, carrying amount should not exceed recoverable amount. This part discusses the objective of IAS 36 in terms of key definitions, the application area in the class of asset and the necessity of impairment test.

1.2.1 The Objective and Scope of IAS 36

This part summarizes the overall objective and basic requirements of IAS 36. The objective of IAS 36 Impairment of assets is to make sure that entity's assets are carried at no more than their recoverable amount. The core principle in IAS 36 is that an asset must not be carried in the financial statements at more than the highest amount to be recovered through its use or sale. If the carrying amount exceeds the recoverable amount, the asset should be impaired. The entity must reduce the carrying amount of the asset to its recoverable amount, and recognise an impairment loss.

The Standard also guides when an asset is impaired, how to recognize an impairment loss, when an entity should reverse this loss and what information related to impairment should be disclosed in the financial statements. Firstly, it will be started with general concepts of IAS 36, applications areas of the standard, definitions of key terms in the standard. Then, the discussion will go on with details about the other topics of the standard which are impairment test calculation, indicators of impairment, accounting treatment for impairment and reversal of impairment with basic examples, potential difficulties and critisim about the standard.

As a starting point, IAS 36 applies to all assets except those for which other standards address impairment. The exceptions include inventories, deferred tax assets, assets arising from employee benefits, financial assets within the scope of IFRS 9, investment property measured at fair value, biological assets within the scope of IAS 41, some assets arising from insurance contracts, and non-current assets held for sale. The reason why these assets are not included within the scope of this standard is that they are assessed with the relevant standards. For example, inventories are assessed with net reliaziable value (Alfredson et al., 2011: 464).

According to IAS 36, the standard applied to all assets except for: (IAS 36.2)

- *"inventories (IAS 2)*
- *assets arising from construction contracts (IAS 11)*
- *deferred tax assets (IAS 12)*
- *assets arising from employee benefits (IAS 19)*
- *financial assets (IAS 39)*
- *investment property carried at fair value (IAS 40)*
- *agricultural assets carried at fair value (IAS 41)*
- *insurance contract assets (IFRS 4)*
- *non-current assets held for sale (IFRS 5)"*

Therefore, IAS 36 applies to (among other assets):

- *"land*
- *buildings*
- *machinery and equipment*
- *investment property carried at cost*
- *intangible assets*
- *goodwill*
- *investments in subsidiaries, associates, and joint ventures carried at cost*
- *assets carried at revalued amounts under IAS 16 and IAS 38."*

The following scheme shows to which assets IAS 36 does and does not apply.

Table 4: Application Area of IAS 36 for Assets

APPLIED	DO NOT APPLIED
Tangiable Assets- Land, Equipment, Building, Machinery (IAS 16)	Inventories (IAS2)
Intangiable Assets (IAS 38)	Financial Assets (IAS 5)
Goodwill	deferred tax assets (IAS 12)
investments in subsidiaries, associates, and joint ventures	assets arising from employee benefits (IAS 19)
	investment property carried at fair value (IAS 40)

Therefore, IAS 36 interacts closely with a number of other accounting standards. The key ones are:

- IAS 16 Tangiable Assets
- IAS 38 Intangiable Assets
- IAS 3 Business Combination

After determining indicators of impairment, the next step is the impairment test. The impairment testing process relies critically on the estimation of an asset's recoverable amount. IAS 36 defines recoverable amount and how to determine it. Other critical topics covered by the Standard are the identification of Cash Generating Units (CGUs), the allocation of goodwill to CGUs, the recognition of an impairment loss and its reversal. Finally, IAS 36 requires preparers to disclose information such as estimating recoverable amount, any reasonably possible changes in these estimates, and the events and circumstances that led to the recognition or reversal of an impairment loss.

1.2.2 Definition of Key Concepts in IAS 36

IAS 36 sets the procedures that a firm should apply to ensure that its assets are carried at no more than their recoverable amount. The Standard defines key terms that are essential to understanding its guidance. The most significant definitions are highlighted in this part are as follows: (IAS 36, para. 6)

Fair Value: "It is 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." (IFRS 13 *Fair Value Measurement*)

Carrying Amount (CA): "It is the amount at which an asset is recognised in the balance sheet after deducting accumulated depreciation and accumulated impairment losses." The carrying amount of an asset should not be reduced below the highest of: (IAS 36.105)

- its fair value less costs of disposal (if measurable) its value in use (if measurable)
- zero.

Recoverable Amount (RA): "It is the higher of an asset's fair value less costs of disposal[4] (sometimes called net selling price) and its value in use. The recoverable amount of an asset is the greater of its fair value less costs of disposal (FVLCD) and its value in use (VUI)." When determining whether impairment is or not, it should be compared with the asset's carrying amount and its recoverable amount. Hence, a key starting point is to determine the recoverable amount. When determenining of recoverable amaount,

- *"If fair value less costs of disposal or value in use is more than carrying amount, it is not necessary to calculate the other amount. The asset is not impaired (IAS 36.19).*
- *If fair value less costs of disposal cannot be determined, then recoverable amount is value in use (IAS 36.20).*
- *For assets to be disposed of, recoverable amount is fair value less costs of disposal (IAS 36.21)"*

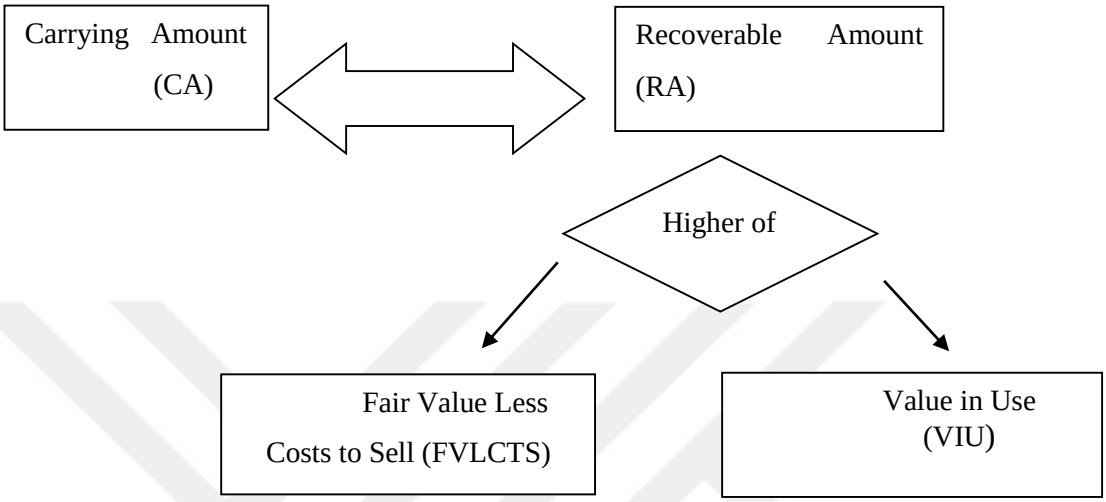
Impairment loss: "It is the amount by which the carrying amount of an asset or cash-generating unit exceeds its recoverable amount."

When an entity needs to test an asset for impairment, it must determine its recoverable amount. Because of that, measuring recoverable amount is the starting

[4] Prior to consequential amendments made by IFRS 13 *Fair Value Measurement*, this was referred to as 'fair value less costs to sell'. (https://www.iasplus.com/en/standards/ias/ias36, 10.05.2018)

point of impairment loss calculation. The summary relationships between carrying and recoverable amount are highlighted in Figure 4 below:

Figure 4: Main Requirements of IAS 36



Source: E&Y, Impairment accounting- the basics of IAS 36 Impairment of Assets, 2010: 3

According to figure 2:

- If carrying amount is higher than recoverable amount, there is an impairment loss for assets.
- If carrying amount is lower than recoverable amount, there is no impairment loss for assets.

As it can be stated in IAS 36, there is no obligation to measure the amounts when testing for impairment. The key point here is that the asset is not impaired if either one of these two amounts is higher than the carrying amount. For example, if the FVLCTS > CA there is no need to calculate the VIU of the asset (Thornton, 2014:38).

Fair Value Less Costs of Disposal (FVLCD): Fair value less costs of disposal is made up of two components which are fair value and cost of disposal. Fair value, which is the first part, determined in accordance with IFRS 13 Fair Value Measurement. Costs of disposal, which is the second part, includes direct added costs only (not existing costs or overhead). [IAS 36.28] These costs include (except for finance costs and income tax) such as legal fees, stamp duty, costs of removing the

asset etc. It assumes that the carrying amount will be recovered principally through a sale transaction, instead of continuing use (Thornton, 2014: 28).

Fair Value Less Costs to Sell (FVLCTS): "It is the amount obtainable from the sale of the asset in an arm's length transaction between knowledgeable and willing parties, less the costs of disposal." Previously, 'Fair value less cost of disposal' was termed 'fair value less costs to sell'. This terminology was changed that introduced by IFRS 13 Fair Value Measurement at the same time. The effective periods have begun on or after 1 January 2013 (BDO, 2013:30). However, some resources (E&Y, 2010- Impairment of Assets and Alfredson et al., 2011- Applying IFRS) that utilized this thesis use the term of 'fair value less cost to sell' because of having past date.

Value in Use (VIU): "It is the present value of the future cash flows expected to be derived from an asset or cash-generating unit." It is mainly an alternative entity-specific value measurement model. It is used for assets and assets group as described the smallest cash-generating unit under condition of undetermined market value. The present value of cash flows method is used in the calculation of the value in use. Therefore, estimating cash flows correctly and using a realistic discount rate are also essential parts of the value in use approach (Ayçiçek, 2011: 125).

VIU differs from fair value because of considering entity-specific intentions that is how an asset will be used. Conversely, fair value reflects the market participants assumptions that would used when pricing the asset (Thornton, 2014:29).

IAS 36 also provides guidance for the estimation of VIU, including the elements that should be reflected in such value, the methods of estimating future cash flows to be derived from continuing use of the asset and from its ultimate disposal, and the determination of appropriate discount rates to those cash flows (IAS 36, para. 31). In this context, when the calculation of value in use, the following elements should be reflected: (IAS 36.30)

- *"an estimate of the future cash flows the entity expects to derive from the asset*
- *expectations about possible variations in the amount or timing of those future cash flows*
- *the time value of money represented by the current market risk-free rate of interest*
- *the price for bearing the uncertainty inherent in the asset*

- *other factors, such as illiquidity, that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset."*

When estimating VIU and future cash flows of an asset, an entity should take into consideration some important guidance: (IAS 36, para. 35-54)

- Cash flow projections based on reasonable and supportable assumptions made by management's best estimation. These estimations should represent on a range of economic conditions that will exist over the remaining useful life of the asset. External evidence should be have a greater weight.
- The expected cash flows come from the most recent financial budgets/forecasts approved by management. These projections should cover maximum 5 (five) years. However, if cash flow projections period is more than 5 years, then it should be replaced with a declining growth rate as a discount rate. The growth rate that is used in cash flow projections shouldn't exceed long-term growth rate for the products, industries or country in which the entity operates.
- Financing activities or income tax are shouldn't be included in the calculations of cash flow projections.
- When estimating projected cash flows, one must take into consideration the asset in its current condition. In the situations of the possibilities for improving or enhancing the performance of the asset by subsequent expenditure in future periods, it will not take these possible events into consideration.

Appendix A of IAS 36 also two broad approaches which are traditional approach and the expected cash flow approach for incorporating risk in the present value estimation. The objective of these approaches is to guide the use of present value techniques when measuring VIU. As stated in Thornton (2014), the traditional approach uses the single most likely cash flow projection and assumes that a single discount rate can incorporate all the expectations about the future cash flows and the appropriate risk premium. Thus, the traditional approach gives the most emphasis on the selection of a discount rate (IAS 36.A.4). On the other hand, in expected cash flow approach instead of using a single most likely cash flow, it reflects all expectations

about possible cash flows and applies probabilities to the estimated cash flows. It is based on risk adjusted expected cash flow, incorporates variations in risk and cash flows in the calculation. Generally, a lower discount is applied in expected cash flow approach compared to the traditional approach (Thornton, 2014: 30).

Determining a value in use in accordance with IAS 36 requires estimating the cost of capital. The guidance in IAS 36-Appendix A.17 recommends, as one of three alternative starting points, the weighted average cost of capital (WACC), estimated, for example, on the basis of the Capital Asset Pricing Model (CAPM). This recommended starting point is in accordance with finance theory. Alternatively, A17 allows the cost of capital to be estimated on the basis of the 'incremental borrowing rate', as a second starting point. The third possible starting point includes other market borrowing rates, which are more difficult to provide than others for further practical value (Husman et al, 2008: 51).

Discount Rate: "It is applied to estimate the present value of cash flows in the calculation of VUI." The importance of the discount rate selection decision is clear from the wording of IAS 36. "When measuring value in use, the discount rate used should be the pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the asset." [IAS 36.55]

According to IAS 36, the discount rate should not reflect risks for which future cash flows have been adjusted and should equal the rate of return that investors would require if they were to choose an investment that would generate cash flows equivalent to those expected from the asset. If a market-determined asset-specific rate is not available, a surrogate must be used that reflects the time value of money over the asset's life as well as country risk, currency risk, price risk, and cash flow risk. The following would normally be considered: [IAS 36.57]

- the entity's own weighted average cost of capital
- the entity's incremental borrowing rate
- other market borrowing rates.

When determining related discount rates, it should reflect current market assessments of:

- the time value of money, and

- the risks specific to the asset for which the future cash flow estimates have not been adjusted.

The entity should use a pre-tax rate which reflects current market assessment of the time value of money and other external factors, such as inflation and risks specific to the asset for which the future cash flow estimates have not been adjusted (IAS 36, para. 57). If the post-tax rate is used, it must be adjusted to reflect a pre-tax rate (IAS 36.A20). This is often necessary because many observable market rates and the entity's WACC are post-tax rates (Thornton, 2014: 37).

Cash-Generating Units (CGU): If it is not possible to determine the recoverable amount (fair value less costs of disposal and value in use) for the individual asset, then determine recoverable amount for the asset's cash-generating unit (CGU). [IAS 36.66] The standard defines CGU as "The CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets." [IAS 36.6]. It can be given as example of CGU that is a product line, a plant, a business operation, a geographical area, or a reportable segment as defined in IFRS 8 (IAS 36.130d).

Goodwill acquired in a business combination is allocated to cash-generating units and an impairment loss is recognized for that unit if its recoverable amount is less than its carrying amount. The carrying amount for a cash-generating unit is represented by the carrying value of the individual assets (including goodwill) and applicable liabilities pertaining to that unit. Hence, a key starting point is to determine the recoverable amount of the cash-generating unit to which the goodwill relates. CGU including goodwill shall be tested for impairment at least annually by comparing the carrying amount of the unit, including the goodwill, with the recoverable amount of the unit: [IAS 36.90]

- *"If the recoverable amount of the unit exceeds the carrying amount of the unit, the unit and the goodwill allocated to that unit is not impaired."*
- *"If the carrying amount of the unit exceeds the recoverable amount of the unit, the entity must recognize an impairment loss."*

There is special regulation for CGU if it includes goodwill. When recognition of an impairment loss is required, the impairment loss is allocated to reduce the

carrying amount of the assets of the unit (group of units) in the following order: [IAS 36.104]

- *"first, reduce the carrying amount of any goodwill allocated to the cash-generating unit (group of units); and*
- *then, reduce the carrying amounts of the other assets of the unit (group of units) pro rata on the basis."*

In other words, CGU book values are then required to be written down to recoverable amount, with losses attributed first to goodwill and only upon exhaustion of goodwill to other CGU assets. If the the amount of impairment loss is higher than goodwill, further allocation of the impairment loss is made pro rata basis for the other assets of the unit (group of units).

In summary, if an asset is carried at a value higher than its recoverable amount, it has to be impaired and an impairment loss immediately recognized in profit or loss, unless the asset is carried at revalued amount where an adjustment in other comprehensive income may have to take place first (IAS 36, par. 59–60). The Standard defines key terms that are essential to understanding which are shown below table 5.

Table 5: The Definition of Key Terms in IAS 36

Key terms in IAS 36	
Terms	**Definitions**
Carrying amount	The amount at which an asset is recognized after deducting any accumulated depreciation (amortization) and accumulated impairment losses there on
Impairment loss	The amount by which the carrying amount of an asset or a CGU exceeds its recoverable amount
Recoverable amount	The higher of an asset or CGU's fair value less costs of disposal (FVLCOD) and its value in use
Value in use (VIU)	The present value of the future cash flows expected to be derived from an asset or CGU
Cash Generating Unit (CGU)	the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets

Source: IAS 36

CHAPTER TWO
IAS 36 IMPAIRMENT LOSS

2.1 IMPAIRMENT LOSS (IAS 36)

International Accounting Standard 36 ‘Impairment of Assets’ (IAS 36, the Standard) is not new. In fact, the Standard was first issued in 1998 and later revised in 2004 and 2008 as part of the International Accounting Standards Board’s (IASB’s) work on the business combinations project. IAS 36 'Impairment of Assets’ is not a new standard and its requirements are familiar to preparers; however, impairment reviews and regulations come up with new versions that take part in IFRS. The first part of this chapter is related to the history of the impairment accounting and the answers the below questions which is tried to explain regarding to literature review in the world:

- What and when the starting point for impairment loss in accounting era,
- The reason why the necessity of impairment loss,
- How recognition of impairment loss and accounting treatment for impairment.

The history of impairment accounting in Turkey also will be mentioned in this chapter. Because, during IFRS adoption, Turkish accounting environment has been affected at most since full set of IFRS is used.

2.1.1 Literature Review on Impairment Accounting

There are various researches made on impairment accounting which has historically been the subject of much controversy among scholars and policy makers. Before the implementation of IAS 36, impairment was mentioned in IAS 16 Property, Plant and Equipment. However, IAS 16 did not include specific guidance regarding the details such as testing for impairment or how to measure it.

The first version of IAS 36 was issued in 1998. The current form of the Standard was updated by IASB in 2004 (IAS 36:139, 141). This standard is applied to goodwill and intangible assets acquired in business combinations for which the agreement date is on or after 31 March 2004, and for all other assets prospectively

from the beginning of the first annual period beginning on or after 31 March 2004. The most update version of IAS was 2013[5]. In the IFRS context, IAS 36 theoretically improve the representational faithfulness of financial reporting by increasing the correspondence between the current value and book value of assets.

The current regulations of IAS 36 can be seen as a starting point after evaluations of the global crisis. The financial crisis, which began in the United States in 2008 then spread out all over of the world. 'Assets' are the leading actors in financial statements because of the fact that they do not reflect the true economic situation of the corporations, although companies were independently audited. More specifically, goodwill and goodwill accounting began to enter the public interest area during the global financial crisis, following the bankruptcy of the American investment bank Lehman Brothers in 2008. Addition to these, goodwill impairment amounts that are recorded in the companies' financial statements have increased due to the recent depression in the global economy. Parallel to this increase, the determination of cash generating units, the estimation of cash flows and the determination of the appropriate discount rate have created a complex standard 'IAS 36' since IAS 36 includes applications to be highly required after global crisis. As a consequence, when we're looking into the past events, the importance of 'fair value measurement' concept is coming from corporate scandals. One of these Stora Enso given of which shows problems related with overvalue assets and negligence of the Standard IAS 36. It also illustrates the need of impairment tests, although there is no recession. Although the manipulation of the accounting within Stora Enso is a dramatic example, there can be risks in the situations for high valuation of assets in other businesses as well, as IAS 36 is not applied correctly (Anderson & Wenzel, 2014: 8).

IAS 36 should not be thought as an independent standard; it has close relationship with the other standards such as business combinations. In accounting era, business combinations have changed dramatically since 2000. These changes initialized the harmonization of SFAS 141 and SFAS 142 issued by FASB and IFRS 3 issued by IASB, as mentioned before in chapter 1. New common features of these standards include the abolition of the pooling method, the abolition of goodwill

[5] (https://www.iasplus.com/en/standards/ias/ias36, 10.05.2018)

amortization, and the adoption of an impairment-only approach. Because IFRS 3 abandons goodwill amortizations, the book value of goodwill must be tested for impairment on a regular basis in accordance with IAS 36. According to IAS 36, the value of goodwill is measured as the difference between the purchase cost and the fair value of the identifiable net assets. Therefore, goodwill is considered as an indicator of excess future cash flows from either the acquired entity itself or a combination of the acquired and acquiring entities. Finally, IAS 36 reaches the target of the core principle of IFRS view that is 'fair value measurement' concept (Hamberga and Beislandb, 2014:60).

When a general theme of the recent studies evaluated, much of the research on impairments examine the following issues:

- Mazzi et al (2016) have surveyed IAS 36 regarding chief financial officier's (CFOs) perspective on Italian companies. The information was collected from 48 Italian companies of CFOs. Their perception on IAS 36 was too detailed, subjectivity and complexity. They also found that impairment testing process was more difficult during financial crisis period and there was lack of mandatory disclosures that represented in financial statements. They concluded that the requirements of IAS 36 needed a revision especially issues on recoverable amount.
- Avallone and Quagli (2015) dealt with the variables used by managers during impairment test, mainly to avoid or reduce goodwill write offs. They investigaed the points of IAS 36 impairment testing process such as disclosure of recoverable amount, growth rates and average discount rate on highly capitalized firms from UK, Germany and Italy over the period of 2007-2011. They contributed the debate on goodwill impairment as an earning management choice, supported by the findings of relevance variable for long-term growth rate used in the impairment test for avoiding the recognition of write-offs.
- Glaum et al (2013) have analyzed the compliance level for 17 large European companies in accordance with IFRS-3 and IAS-36. They determined compliance levels as company-country and accounting traditions basis that play a role for indications. It was founded that conservatism, type of auditor,

goodwill positions and the existence of audit committe influence the compliance level.

- European Financial Reporting Advisory Group (EFRAG, 2016) published a report on accounting and disclosure requirements for goodwill and goodwill impairment. Collecting data for 328 European companies from 2005 to 2014, EFRAG concluded that the amount of impairment losses recognised was at the highest level in 2008 and 2011 and impairment losses are significantly concentrated in a small number of companies, particularly in the telecommunications and financials industries.
- Husman and Schmidt (2008) argued that there were different approaches to determine discount rates in accordance with the IAS 36 guidance. They showed that WACC is the only appropriate discount rate for determining value in use while other alternative rates are not sufficiently clear in IAS 36.
- Petersen and Plenborg (2010) conducted a descriptive study regarding the implementations of IAS 36 for Danish firms which were traded on Copenhagen Stock Exchange that recognize goodwill on the balance sheet. They focused on defining CGU and measurement of recoverable amount. The findings indicated that some firms did not define a CGU in compliance with IAS 36 and none of the firms used the iteration method to transform an after-tax discount rate to a pre-tax discount rate.

As can be understood by the evaluation of literature searches, main issues centrally focus on the implementations of IAS in practice, goodwill impairment test etc. At this point, further analyses will be mentioned under title of 'difficulties and critics of IAS 36' in this study.

2.1.2 History of Impairment Accounting in Turkey

Accounting rules and principles in Turkey were standardized in 1992 which named as 'The Uniform Accounting System' with the issuance of an accounting regulation by Ministry of Finance. Turkish accounting system is typically characterized as tax-driven accounting system. It includes substantially different perspective from IFRS, which is shareholder-oriented and independent of tax reporting

considerations (Bahadır&Tolga, 2013:391). Another dimension is the need of Turkish companies to increase the share of foreign investments in the country the application of Turkey for full European membership and results in adoption and implementation of IFRS. The application of IFRS had not been an easy switch in Turkey because of the fact that 'accounting culture for taxation' had to be changed to 'accounting for decision-making' (Bahadır et al., 2016:8). However, the EU integration process is the trigger point from tax-accounting perspective to international accounting principle that flourish corporate governance, transparency and accountability (Balsarı&Varan, 2014: 374). In the light of this harmonization process, there are main instutitions that are responsible for adopting accounting standards in Turkey. Turkish Accounting Standards Board (TASB), as part of the government's administrative and financial autonomy, was established in 2005 and started adopting Accounting Standards of IASB, managing regulations, and providing an arrangement about financial statements. Another important attempt to contribute this harmonization process in terms of international standards is made by Capital Markets Board (CMB) that was the first organization that introduces accounting standards in Turkey. The standards were published in the Official Gazette dated January 29, 1989 under the title of 'The Communiqué for the Rules and Principles Pertinent to Financial Statements and Reports in the Capital Markets' (Aslanertik, E. B. & Gumus, Y. ,2012). Parallel to CMB, the other association related to the development and auditing of accounting standards in Turkey was Turkish Accounting and Auditing Standards Board (TAASB). Finally, The Turkish Accounting Standards which are declared by the TAASB were started to be translated from the IFRS in 2006. Since 2006, TAASB has continued to issue and translate standards for following periods. Thus, full transition to IFRS will be achieved.

There is no regulation regarding 'impairment in assets' in the Turkish Accounting System, which was started to be implemented in 1994 in Turkey (Bilen & Özkan, 2016: 2). The development of the standard before its implementation in Turkey, extraordinary depreciation was practiced by Tax Procedure Law (Tuğay, 2014: 39). Even if it is not the same application for impairment on asset which take place in IFRS, its application area is tangiable&intangiable assets regarding the decrease in value because of new inventions or technical inefficiency. Thus, their value

may become totally or partially unusable. In this context, companies use extraordinary depreciation method for their assets according to Tax Procedure Law which was set by Ministry of Finance (Ayçiçek, 2011: 126). As a result, although the starting point of the application is the accurate valuation of assets as in IFRS, there are different aspects between IFRS and Turkish Tax Accounting Law about depreciation. Table 6 explains these differences by comparing IFRS and Turkish Tax Accounting Law through implementation related issues.

Table 6: Comparison of IFRS application and Turkish Tax Accounting Law for Tangible&Intangiable Assets and Goodwill

Category	**Accounting policy under IFRS**	**Accounting policy under Turkish Tax Accounting**
Measurement model for property, plant and equipment	There are two alternatives which firms can choose. Property, plant and equipment can be measured using either cost model or revaluation model.	Property, plant and equipment shall be measured only using cost model. There is no allowed for the use of revaluation model under Turkish Tax Accounting. In the cost model adopted by Turkish Tax Procedure Law, impairment losses of property, plant and equipment are not accounted.
Depreciation method of tangible assets	The use of straight-line, declining balance, and units of production methods is permitted.	Although straight-line and diminishing balance method is permitted, the use of units of production method is not allowed. In some special cases, extraordinary depreciation can be applied.
Measurement model for intangible assets	Two options can be chosen. Intangible assets can be	Intangible assets shall be measured using cost model. In the cost model adopted by

	measured using either cost model or revaluation model.	Turkish GAAP, impairment losses of intangible assets are not accounted.
Impairment of Assets and Goodwill	If CA>RA of assets, there is impairment loss in accordance with IAS 36.	There is no specific requirements for impairment accounting. Additionally, goodwill is amortized over its useful life.

Source: Bahadır&Tolga, 2013: 392; Bahadır et al., 2016:10

TAS (Turkish Accounting Standard) 36 Standard was first implemented in Turkey in 2005 with Communiqué Serial: XI, No: 29 issued by CMB in 2003 (Terzi et al, 2013:58). Turkey has become acquainted with impairment of long-lived assets through IASs without the exception of extraordinary depreciation practice by Tax Procedure Law. IAS 36-Impairment of Assets Standard guides to determination of the impairment, (if there is) evaluation and recognition of it for the assets within the scope of the standard. As a consequence, there were differences between Tax Procedure Law and IFRS when regarding impairment of assets. Although the application of extraordinary depreciation is similar in some respects to the application of impairment in TAS-36 assets, the nature of the depreciation is quite different from the application of impairment. Extraordinary depreciation method can only be applied according to the procedures and principles set by the Ministry of Finance, if the value of asset decreases more than expected for any reason. However, according to TAS-36, when an indication of impairment exists, it can be deducted as a result of the impairment tests made against the asset for which the impairment is determined. According to Marşap (2008: 140), in terms of tangible fixed assets, the most important innovation of the standard is that the tangible fixed assets are subjected to the impairment test.

Impairment accounting is also a broad research topic for accounting era in Turkey. There are several studies that are related to impairment. Kaya and Dinç (2007) mentioned about problems in determining and accounting for the impairment of tangible fixed assets and offered solutions for these problems.

Esen and Perek (2009) pointed out the determination of the Cash Generating Unit (CGU) as referred to in IAS 36. In particularly, they discuss the difficulty of determining the discount rate and cash flows that are used in calculating the value of cash generating units.

According to Sipahi and Oguz (2010), there are differences between Turkish Tax Accounting Law and IFRS in terms of impairment accounting. Ayçiçek (2011) focused on the same topic related to Turkish Tax Accounting applications of extraordinary depreciation of property, plant and equipment. It was founded that there was no application area for Turkish Tax Accounting System related with impairment of assets.

Akdoğan and Sevilengül (2007) suggested that there are necessary steps that should be taken regarding to changes and regulations for impairment loss account in The Uniform Accounting System. The specific example is to change the name of code 257- Accumulated Depreciation as 257-Accumulated Depreciation and Impairment Loss is recommended.

Akpınar (2017) have analyzed that financial statements of companies listed in ISE 100 index and ISE 30 index for 2007-2015 period in terms of applicability of impairment of assets standard (IAS 36). The list was created regarding the application of IAS 36 for depreciable assets. The results indicated that IAS 36 has been realized as 67% highest and 25% lowest for the companies' depreciable assets at ISE 100 index and ISE 30 index in last nine years. Additionaly, it was suggested that external and internal sources which are shaped by the standard should be taken into consideration in calculating impairment loss.

Syzdykova (2016) researched that the discount rates used by ISE 100 companies impairment in terms of companies within the framework of IAS 36 Impairment of Assets in 2014. The objective of this study was to reach the results for the application of goodwill and to achieve knowledge about the application level of the requirements of this Standard. She found that there was a lack of information in disclosures that are set by IAS 36 about goodwill impairments such as discount rate and calculation methods.

Zurnacı (2014) collected information from disclosures of publicly traded companies's financial statement in Turkey regarding with IAS 36. He reached the main

conclusion that most of companies didn't give information about impairment loss detaily. He also emphasized on the lack of IAS 36 guidance especially for determining value in use, therefore regulations for IAS 36 should be set by the standard more clearly.

Another study belongs to Esmeray and Şahin (2016), takes 89 non-financial companies from sample of ISE 100 with vertical analysis method to analyze IAS 36. They searched for disclosures and footnotes of these 89 companies in 2012, 2013 and 2014, respectively. The results showed that the ratio of total impairment loss to total assets was increasing situation by years. This shows the importance of IAS 36. However, estimating the value in use illustrated that more detailed explanations and comments are needed for this issue including the disclosures.

2.1.3 Recognition of Impairment Loss

IAS 36 specifies how an entity the recognition of any impairment losses if carrying amount of the asset is higher than its recoverable amount. To meet this objective, the standard requires entities to test all assets that are within its scope for potential impairment when indicators of impairment exist or, at least, annually for goodwill and intangible assets with indefinite useful lives. In broadly sense, IAS 36 prescribes the timing requirements for performing quantitative impairment testing as well as potential 'indicators' of impairment that may trigger impairment testing for some assets or groups of assets. The reason why these assets are required is that carrying amount of these assets is more uncertain than that of other assets. Specifically, IAS 36 requires that:

> • *"goodwill, infinite life intangibles and intangible assets not yet available for use are tested for impairment at least annually, in addition to when there is any indication of impairment.*
>
> • *all other assets are tested for impairment when there is any indication that the asset may be impaired."*

Table 7 shows which type of assets must be tested annually for impairment.

Table 7: Annually Tested Assets

Assets must be tested annually
Intangibles with indefinite useful lives
Intangibles not yet available for use
Goodwill acquired in a business combination

The first step for the recognition of impairment loss is to ask the questions whether there are potential factors that leads to impairment on asset value or not. In other words, an entity needs to evaluate the indicators if the assets impairment considering both external factors (such as market interest rates, economic environment, technological factors or market capitalization) and internal factors (such as the evidence of obsolescence, restructuring activities in the entity, etc.). If there are such indicators, asset impairments should be reported. IAS 36 has a list of external and internal indicators of impairment. If there is an indication that an asset is impaired, then the asset's recoverable amount must be calculated. [IAS 36.9]

Indications of impairment are divided in two categorizes as external and internal indicators: (Thornton, 2014:23)

External sources:

- There are observable indications that during the period, the fair value of the asset has declined much more than expected from normal use.
- There are significant changes in the technological, economic or legal environment in which the entity operates, in the market where the asset is allocated, are expected to be realized in the period or are expected to be realized in the near future.
- During the period, market rates related to interest rates or other investment profitability have increased; it is likely that these increases will significantly affect the discount rate used to calculate the asset's value in use and greatly reduce the recoverable amount of the asset. So, the final effect of this indication that it is higher than the book value of the company's net assets.

Internal sources:

- There is evidence that the entity has suffered physical damage or lost value.
- There are significant negative changes that are expected to occur in the business, affecting the current or future use of the entity, or expected to occur in the near future. These changes include that asset is out of use; there are plans for ending or restructuring the activity in which it is included; it is planned to remove the asset before the expected date; the useful life of existence is limited, not limitless.
- There is evidence regarding internal reports that the economic performance of the asset is worse than expected.

These lists are not intended to be exhaustive rather than limited of potential indicators for impairment (IAS 36.13). If the entity determines that there are other indications that the entity may have suffered an impairment of the assets other than those listed above, it may apply an impairment test for its assets. For intangible assets such as goodwill, the impairment test is applied annually even if there is no factor that affect the value of asset. Further, an indication that an asset may be impaired may indicate that the asset's useful life, depreciation method, or residual value is needed to be reviewed and adjusted (IAS 36.17). Indications of impairment can be summarized as external and internal sources are shown on the next page in Table 8.

Table 8: The Summary of External and Internal Sources

External Sources	**Internal Sources**
Market value declines (due to technological advancements)	Obsolescence or physical damage
negative changes in technology, markets, economy, or laws	Asset is idle, part of a restructuring or held for disposal
increases in market interest rates (affects the PV of future cashflows)	worse economic performance than expected
net assets of the company higher than market capitalization	for investments in subsidiaries, joint ventures or associates, the carrying amount is higher than the carrying amount of the investee's assets

Source: E&Y,2012

2.1.4 Impairment Test

The standard sets the procedures if an asset is carried at a value higher than its recoverable amount, it has to be impaired and an impairment loss immediately recognized in income statement, unless the asset is carried at revalued amount where an adjustment in other comprehensive income have to take place first (IAS 36, par. 59–60). The impairment testing process relies basically on the estimation of an asset's recoverable amount. IAS 36 defines recoverable amount as the higher of fair value less costs to sell or value in use. There is no obligation to measure both amounts when testing for impairment. The critical point is that the asset is not impaired if either one of these two amounts is higher than the carrying amount. For example, if the FVLCTS > CA, there is no need to calculate the VIU of the asset.

It should be noted that the standard requires that assets are tested for impairment when there is any indication that the asset is impaired. Whereas goodwill, infinite life intangibles and intangible assets not yet available for use are tested for impairment at least annually, regardless of there is any indication of impairment.

Other critical topics covered by the Standard are the identification of Cash Generating Units (CGUs), the allocation of goodwill to CGUs, the recognition of an impairment loss. Therefore, the impairment testing process are made up of these steps: (Thornton, 2014: 4)

- *"estimates the recoverable amount for the assets and CGUs as required*
- *compares the recoverable amount to the carrying amount*
- *records (or reverses, if applicable) any impairment loss, to the individual assets, or allocated among the assets in impaired CGUs in accordance with IAS 36's guidance."*

To test for impairment, goodwill must be allocated to each of the acquirer's cash-generating units, or groups of cash-generating units, that are expected to benefit from the synergies of the combination, irrespective of whether other assets or liabilities of the acquire are assigned to those units or groups of units. Each unit or group of units to which the goodwill is so allocated shall: [IAS 36.80]

- *"represent the lowest level within the entity at which the goodwill is monitored for internal management purposes; and*

- *not be larger than an operating segment determined in accordance with IFRS 8 Operating Segments."*

Figure 5 illustrates the process for measuring and recognizing impairment loss under IAS 36.

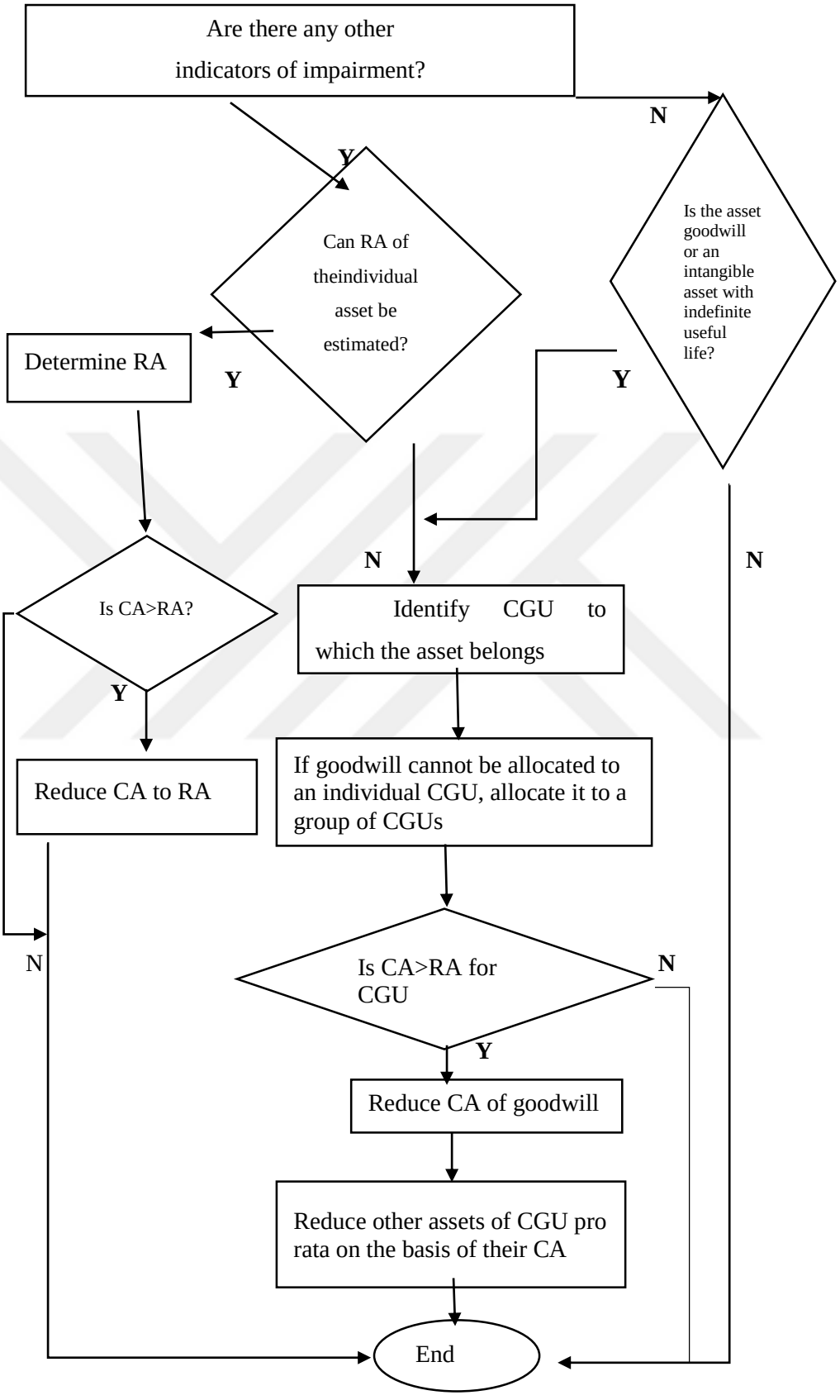
2.1.5 Accounting Treatment of Impairment Loss

This part introduces the accounting treatment of impairment loss under the choosen method, the revalution for upward or downward adjustment, cash generating units with goodwill or without goodwill. In this context, examples of accounting treatment were given regarding these scenarios when accounting treatment.

Entities are required to conduct impairment tests to ensure that their assets are not overstated. The first step of impairment test is to determine and recognize impairment loss. After potential indicators of impairment occurs, the second step is the accounting treatment for impairment loss.

When recording an impairment loss for an individual asset, it shows differences in recording methods that is based on cost or revaluation model as mentioned before. Where the asset is accounted under the cost model, impairment loss is recognized in income statement whereas the impairment loss is treated as a revaluation decrement if the asset is accounted that under the revaluation model (IAS 16, para. 39-40).

Figure 5: Impairment Testing Process



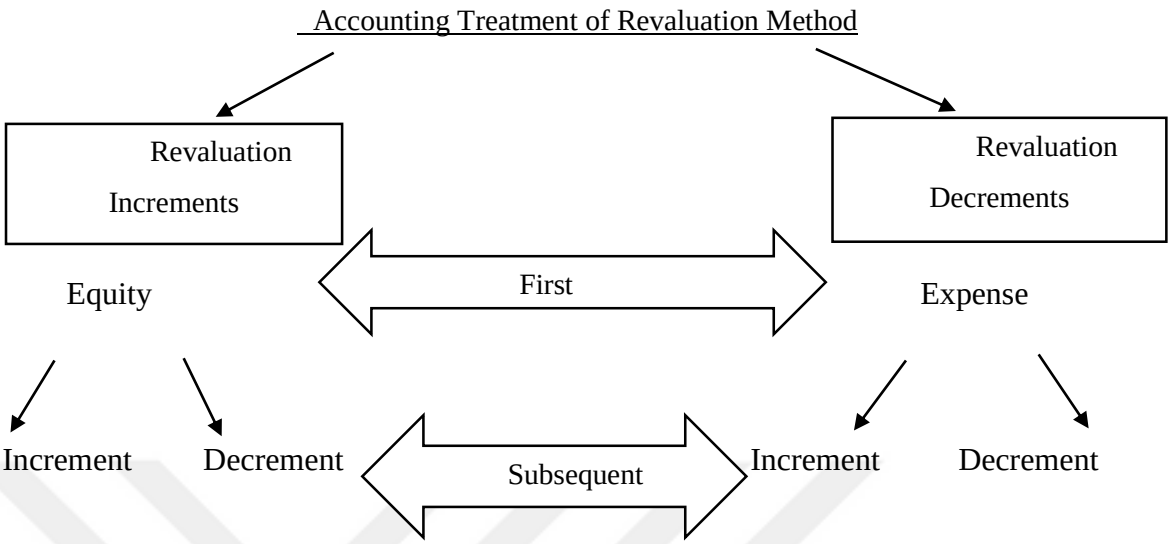
Source: E&Y, 2010: 2

Paragraphs 39 and 40 of IAS 16 explains how accounting treatments in revaluation model.

- *"If an asset's carrying amount is increased as a result of a revaluation, the increase shall be recognised in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognised in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognised in profit or loss.*
- *If an asset's carrying amount is decreased as a result of a revaluation, the decrease shall be recognised in profit or loss. However, the decrease shall be recognised in other comprehensive income to the extent of any credit balance existing in the revaluation surplus in respect of that asset. The decrease recognised in other comprehensive income reduces the amount accumulated in equity under the heading of revaluation surplus."*

As with revaluation increments, increasing an asset's carrying amount are recognized in other comprehensive income and accumulated in equity as revaluation surplus unless the increase previously recognized in profit or loss to the extent that it reverses a revaluation decrease (impairment) of the same asset in profit or loss. If a revalued asset is subsequently found to be impaired, the impairment loss is recognized in other comprehensive income only to the extent that the impairment loss does not exceed the amount in the revaluation surplus for the same asset. Such an impairment loss on a revalued asset is first offset against the revaluation surplus for that asset, and only when that has been exhausted, it is recognized income statement. On the other dimension, revaluation adjustments decreasing an asset's carrying amount are recognized in profit or loss unless the decrease should be recognized in other comprehensive income to the extent of any credit balance existing in the revaluation surplus in respect of that asset. The decrease recognized in other comprehensive income reduces the amount accumulated in equity in the revaluation surplus account. The key point here is that any subsequent depreciation/amortization is based on the new recoverable amount after impairment adjustment (Mirza,2008: 111). Figure 6 illustrates the accounting treatment for revaluation model.

Figure 6: Accounting Treatment under Revaluation Model



Source: Akbulut and Marşap, 2006:92

Figure 6 explains the accounting treatment for revaluation that are separated into two parts as initial and subsequent revaluation in the basis of recognizing as an expense, profit/loss in the equity through other comprehensive income statement. The standard requires that increases in an asset's carrying amount are credited to other comprehensive income (gain on revaluation) for initial revaluation. If there are decreases in an asset's carrying amount are charged to profit or loss due to the fact that this should be recognized as impairment on the related asset (Mackenzie et al.,2013:203).

It is noteworthy that 'Asset revaluation reserve' (ARR) account used to record increments and decrements. Increments are credited directly to equity (not taken through income statement). Subsequent drops in value are recognised in income statement except in so far as covered by previous revaluation surpluses on the same asset. On the other hand, accounting treatment of a revaluation decrement is recognised as an expense if it is the first time the asset is revalued downwards. Therefore, the general procedure for accounting treatment if asset is incremented as shown below in the journal entry:

Dr	Asset	
	Cr	Asset Revaluation Reserve

Another critical point the tax effect arising from upward value in assets. Because, asset revaluations give rise to change on tax base due to the fact that increase in asset goes to equity. As a result of valuation of assets, it creates temporary difference and deferred tax liability needs to be raised in accordance with IAS 12 Income Taxes (IAS 12, para. 16). Under revaluation method, IAS 16 requires the tax effects of the revaluation to be considered and the ARR account to be recognised net of the resulting tax effect (after tax-basis). In other words, an upwards revaluation of an asset creates a taxable temporary difference leading to a deferred tax liability whereas there is no extra tax-effect for entries relating to asset decrements. The relationship between revaluation increments for tax effects can be explained by below example: (Alfredson et al, 2011: 326)

CA of Land: 100,000 CU

FV of Land: 120,000 CU

Tax rate: 30%

As a result of revaluation increment, it gives rise to 20,000 CU a taxable temporary difference. A deferred tax liability will be 6,000 because of this increase (20,000*0,3=6,000). For appropriate accounting, the asset revaluation reserve raised will be the net after tax increase by 14,000 (20,000-6,000=14,000). The journal entry for revaluation with associated tax effects:

Dr	Asset	20,000	
	Cr	Asset Revaluation Reserve	14,000
	Cr	Deferred Tax Liability	6,000

It should be noted that revaluation should be applied to all assets in the same class. IAS 16 requires that if any assets are revalued, all other assets in those groups or categories must also be revalued (IAS 16, para. 36). This is necessary to prevent the presentation in a statement of financial position that contains possibly misleading mix of historical costs and fair values, and to preclude selective revaluation designed to maximize reported net assets.

As mentioned above, the following part gives examples regarding under senarios when accounting treatment for the entity.

Cost Model

Under cost model, impairment loss is recognized as in profit or loss. There is no 'Asset Revaluation Reserve' account in cost model.

Recording of impairment loss in the entity can be explained by below examples:

Example 1 shows how to record impairment loss under cost model.

Cost Model (Impairment loss is recognized in profit or loss)	
Carrying Amount (CA)	200 CU (cost of 250CU – accumulated depreciation 50 CU)
Recoverable Amount (RA)	190 CU
Impairment Loss	10 CU (CA > RA)

The journal entry to record the impairment loss would be:

Dr	Impairment loss	10	
	Cr Accum. Dep'n & impairment losses		10

Revaluation Model

Under revaluation model, as an alternative to the cost model which set by IAS 16 and IAS 38, it allows upward or downward adjustments in the value of assets.

- Initial Revaluation for Revaluation Model

Example 2 shows how to record for initial revaluation of an item of property, plant and equipment, revaluation adjustments are accounted for as follows:

Example 2

Assume that X Company acquired a building with a cost of 110,000 CU. After one year the building is appraised as having a current fair value of 120,000 CU without taking into account depreciation. The journal entry to increase the carrying amount of the building to its fair value is as follows:

Dr- Building 10,000	
Cr- Other comprehensive income- gain on revaluation	10,000

At the end of the fiscal period, the increase in the carrying amount of the building is accumulated in the "revaluation surplus" in the shareholders' equity section of the statement of financial position.

- Subsequent Revaluation for Revaluation Model

On the other dimension, for subsequent revaluation, any increases in an asset's carrying amount (upward revaluation) should be recognized as income in profit or loss to the extent of the amount of any previous impairment loss recognized, and any excess should be credited to equity through other comprehensive income under the revaluation model in IAS 16. In the case of decreases in an asset's carrying amount (downward revaluation), it should be charged to other comprehensive income to the extent of any previous revaluation surplus, and any excess should be debited to profit or loss as an impairment loss.

Example 3 shows how to record accounting treatment of property, plant, and equipment in the case of subsequent revaluation:

Example 3

Y company that prepares its financial statements to 31 March each year. On April 01, 10 the entity acquires an asset (non-current) for 10,000TL that represents an item of property, plant, and equipment in the entity operations. Eliminating deferred tax effects and depreciation, fair value of this assets changes as year basis:

1. The following year (1 April, 2011) asset increments up to 14,000 TL.

Apr 01, 11 Dr Asset 4,000

Cr Revaluation surplus (OCI) 4,000

2. If the asset decrements by 6,000 TL after two years (1 April, 2012)

Apr 01, 12 Dr Revaluation surplus (OCI) 4,000

Dr Profit or loss 4,000

Cr Asset 8,000

Adjustment of depreciation under revaluation model

IAS 16 guides how accounting treatments for depreciatition adjustment under revaluation method. There are two methods of adjusting accumulated depreciatition at the date of revalautions which are gross up and net-basis approach (IAS 16, para. 35).

- *"restated proportionately with the change in the gross carrying amount of the asset so that the carrying amount of the asset after revaluation equals its revalued amount. This method is often used when an asset is revalued by means of applying an index to determine its replacement cost (IFRS 13).*
- *eliminated against the gross carrying amount of the asset and the net amount restated to the revalued amount of the asset. This method is often used for buildings".*

In other words, the first method is 'gross up approach' that reflects to the new fair value information. The second method is called 'netting approach' that asset can be restated on a net basis. Under netting approach, the accumulated depreciation against the gross carrying amount of the asset is eliminated whereas accumulated depreciation is restated proportionately with the change in the gross carrying amount of the asset under gross up method.

Example 4 shows how to adjust depreciation amount under revaluation model in accordance with gross up approach when asset is revalued: (Alexander et al, 2013: 275)

Example 4 (gross up-approach)

The entity acquired in 2012 buildings with a cost of 10,000 CU in 2012 and estimated useful life of 5 years. Accordingly, depreciation of 2,000 CU per year is anticipated. After 3 years (in 2015), the management obtains market information suggesting that a current fair value of the buildings is 15,000 CU and decided to write the buildings up to a fair value of 15,000 CU.

	Carrying Amount	Accumulated Depreciation	Net Carrying Amount
2012	10,000	2,000* 3= (6,000)	4,000
2015	15,000	(9,000)	6,000

	Original Cost	Revaluation
Gross CA	10,000 (2012)	15,000 (2015)
Acc. Dep.	(6,000)	(9,000)
Net CA	4,000	6,000

Applying the gross up approach, revaluation could be accomplished by restating the buildings account and the accumulated depreciation account so that the ratio of net carrying amount to gross carrying amount is 50% ((15,000-10,000)/10,000*100) and the net carrying amount is. Thus, the buildings and accumulated depreciation accounts need to be restated upward as follows: buildings up 5,000 CU and accumulated depreciation 9,000 CU. The following journal entry illustrates the restatement of the accounts:

Dr- Buildings	15,000	
Cr- Accumulated Depreciation		9,000
Cr- OCI – Gain on Revaluation		6,000

Example 5 shows how to adjust depreciation amount under revaluation model and accordance with net-basis approach when asset is revalued:

Example 5 (net-basis approach)

Assuming that, the entity acquired in 2011 licences with a cost of 10,000 CU and estimated useful life of 5 years. Accordingly, amortization of 2,000 CU per year is anticipated. After 2 years (in 2013), the management decided that a current fair value of the buildings is 12,000 CU and write intangible asset up to a fair value of 12,000 CU. Thus, the accumulated amortization on December 31, 2013, amounted to 4,000 CU (Mirza, 2008: 337).

Dr- Accumulated Depreciation 4,000

Cr- Buildings 4,000

(elimination of accumulated depreciation against the cost of the asset)

Dr- Accumulated Amortization 6,000

Cr- Intangible Asset- 6,000

(upwarding of net book value to revalued amount)

Impairment Loss for Cash Generating Unit (excluding goodwill)

Example 5 shows how to record impairment loss of CGU excluding goodwill:

Example 5

The entity has three cash generating units and has been assessed for impairment that the unit of 10,000 CU. The carrying amounts of the assets and the allocation of the impairment loss on proportional basis are as shown below:

CGU	CA	Proportion	Allocation of Impairment Loss	Net Carrying Amount
Operation A	200,000	2/10	2,000	498,000
Operation B	300,000	3/10	3,000	297,000
Operation C	500,000	5/10	5,000	495,000
Total	1,000,000	10/10	10,000	990,000

The journal entry to reflect of impairment loss is:

Dr- Impairment Loss 10,000

Cr- Accumulated Depreciation and Impairment Losses – Operation A 2,000

Cr- Accumulated Depreciation and Impairment Losses – Operation B 3,000

Cr- Accumulated Depreciation and Impairment Losses – Operation C 5,000

Impairment Loss for Cash Generating Unit and Goodwill

There are specific requirements set by IAS 36 for allocation of impairment losses if CGU has goodwill. The first step of the allocation is that reducing the carrying amount

of CGU's goodwill to zero. Then, the second step is that allocation of remaining balance to the other assets of CGU on a pro rata basis. The reason why goodwill reduce firstly is that it is not possible to determine FVLCTS for goodwill. Another reason is also impossible to identify cash flows relating specifically to goodwill. Because, goodwill is a residual balance which means that it cannot be individually identified or separately recognized. Consequently, goodwill can only be tested for impairment at the CGU level (Alfredson et al, 2011).

Example 6 illustrates that impairment loss for CGU including goodwill:

Example 6

Z company is operated through three divisions, namely is A, B, C regarded as cash generating units. The company also has goodwill as an asset. At the end of the period, the carrying amounts of the assets are as follows:

CGU and Goodwill	CA
A	200,000
B	50,000
C	50,000
Goodwill	50,000
Total	350,000

The management decide to measure recoverable total amount CGU and goodwill cost at 250,000 due to the fact that there is a declining interest in the sector of the company. There is an impairment loss because of carrying amount is higher than the recoverable amount. The impairment loss is firstly used to write off the goodwill that is 50,000. The remaining balance of the loss which is 50,000 is allocated across the other assets pro rata basis as follows:

CGU	CA	Proportion	Allocation of Loss	Net CA
A	200,000	4/6	33,333	166,67
B	50,000	1/6	8,333	41,67
C	50,000	1/6	8,333	41,67
Total	300,000	6/6	49,99 (50,000)	250,000

The journal entry to record impairment loss is:

Dr- Impairment Loss	100,000	
Cr- Goodwill		50,000
Cr- Accumulated Depreciation and Impairment Losses – A		33,333
Cr- Accumulated Depreciation and Impairment Losses – B		8,333
Cr- Accumulated Depreciation and Impairment Losses – C		8,333

This example illustrates that impairment loss (i.e. the loss for the group of CGUs containing the goodwill) has to be recognized as a reduction of goodwill because the standard requires allocation to goodwill first (IAS 36.104).

2.1.6 Reversal of Impairment Loss

Like evaluating any evidence for impairment, entities must also assess whether there is any indication that a previously recognised impairment loss for an asset. With different words, a reversal is of the impairment loss is allowed under IFRS which means that the impairment loss can reverse up to the newly calculated recoverable amount. Similar to the list of the external or internal indications provided in IAS 36, there are 'reversal indicators' which is set by IAS 36 as shown below:

External sources of information (IAS 36.111(a) – (c))

- "*Observable indications that the asset's value has increased significantly during the period*
- *Significant favourable changes (have occurred or are expected) in the technological, market, economic or legal environment*
- *Market interest rates or other market rates of return on investments have decreased during the period (which will decrease the discount rate used in caluclating the asset's VIU)"*

Internal sources of information (IAS 36.111(d) – (e))

- *"Significant favourable changes (have occurred or are expected) in the extent to which an asset is used (or is expected to be used) (eg, costs*

incurred during the period to improve or enhance the asset's performance or restructure the operation to which the asset belongs)

- *Evidence is available from internal reporting that indicates that the economic performance of an asset is, or will be, better than expected"*

In this case, if an indication of possible reversal is identified, the entity must estimate the recoverable amount of that asset (IAS 36.110).

However, this new calculated amount cannot exceed what the original carrying amount, net of depreciation, would have been. The critical point here is that impairment loss on goodwill cannot reverse under IFRS. The key motive behind of the prohibition of reversal impairment loss on goodwill is that internally generated goodwill is not allowed the recognition for the entity, established in IAS 38.

Example 7 explains how accounting treatment is under condition for reversal of impairment loss:

Example 7

Assume that the business situation is improving for Z company (which is mentioned above in example 5) after one year. As a result, the management estimates that the production will increase that is related with CGU. This favorable change requires A, B and C to re-estimate the recoverable amount of CGU as follows:

CGU	CA (after impairment loss)	New RA
A	166,67	190,000
B	41,67	50,000
C	41,67	55,000
Total	250,000	295,000

The excess of recoverable amount over carrying amount is 45,000 and there will be no reversal of prior goodwill impairment. Thus, the reversal will be based on a pro rata basis to allocate carrying amount:

CGU	CA (after impairment loss)	Proportion	Allocation of Excess	Net CA (after reversal of impairment loss)
A	166,67	0.66668	30,000	196,67
B	41,67	0.16668	7,500	49,17
C	41,67	0.16668	7,500	49,17
Total	250,000	1	45,000	295,000

As summarized,

- An impairment loss is recognized where CA > RA [IAS 36.59]
- Where the asset is accounted for under the cost model the impairment loss is recognized as in profit or loss.
- Where the asset is accounted for under the revaluation model the impairment loss is treated as a revaluation decrement. [IAS 36.60]
- Adjust depreciation for future periods. [IAS 36.63]

2.1.7 Trademarks for Disclosures of IAS 36

This section is related to disclosure requirements of IAS 36. The reporting entity should provide a description of which asset class is affected by impairment losses or reversals of losses with the explanation that lead to impairment loss or reversal of loss. According to the standard, disclosures should be made according to the following criterias: (IAS 36)

- "*The events or circumstances that caused the loss or recovery of loss;*
- *The amount of the impairment loss recognized or reversed;*
- *If for an individual asset, the nature of the asset and the reportable segment to which it belongs, as defined under IFRS 8;*
- *If for a cash-generating unit, a description of that unit (e.g., defined as a product line, a plant, geographical area, etc.), the amount of impairment recognized or reversed by class of asset and by reportable segment based on the primary format, and, if the unit's composition has changed since the previous estimate of the unit's recoverable amount, a description of the reasons for such changes;*
- *Whether fair value less costs to sell or value in use was employed to compute the recoverable amount;*
- *If recoverable amount is fair value less costs to sell, the basis used to determine it (e.g, whether by reference to active market prices or otherwise); and*
- *If the recoverable amount is value in use, the discount rate(s) used in the current and prior period's estimate."*

The list of disclosure requirements can be expanded in the context of main events and circumstances that caused recognition of losses or reversals. This part also

illustrates the areas of common disclosures by auditing firms as highlighted in IAS 36 to better understand in practice. The form and content of the disclosures can depend on the specific facts and circumstances surrounding each entity's impairment review. There are some examples of disclosures which gathered from firms traded on ISE 100 Index that are related part to impairment accounting as shown below:

ANADOLU EFES CONSOLIDATED FINANCIAL STATEMENTS AS OF DECEMBER 31, 2016 TOGETHER WITH INDEPENDENT AUDITOR'S REPORT, (audited by PWC)

> *"The Group performs impairment test for tangible assets, intangible assets with indefinite useful life and goodwill annually or when circumstances indicate that the carrying value may be impaired. As of December 31, 2015, impairment test for the intangible assets with indefinite useful life and goodwill is generated by comparing its carrying amount with the recoverable amount. The recoverable amount is the higher of net selling price and value in use. In these calculations, estimated free cash flows before tax from financial budgets and approved by Board of Directors are used. Approved free cash flows before tax are calculated for 5 – 10 years period by using expected growth rates. Estimated free cash flows before tax are discounted to expected present value for future cash flows. Key assumptions such as country specific market growth rates, gross domestic product (GDP) per capita and consumer price indices were derived from external sources. Main estimates such as raw material and good prices, working capital requirements and capital expenditures were based on the Group's key assumptions and historical operating data. The enterprise value used as a base for the impairment test has been calculated using cash flow projections from the strategic business plan approved by the Board of Directors. Perpetuity growth rate used in impairment test in the operating units is between 0,86% - 3,00% (December 31, 2015 – 0,86% - 3,00%) and after tax discount rate is between 7,76% and 17,50% (December 31, 2015 – 9,57%- 17,46%)."*

COCA COLA FINANCIAL STATEMENTS AS OF DECEMBER 31, 2016 TOGETHER WITH INDEPENDENT AUDITOR'S REPORT, (audited by PWC)

> *"Due to ongoing uncertainties regarding the political and regulatory environment in South Iraq and by closely monitoring to minimize the probable effects of such changes, Group Management decided to provide impairment loss*

for positive goodwill accounting to USD 17.9 million (equivalent to TL 54.051) and reflected to consolidated financial statements as of December 31,2016, which was accounted as of December 31, 2012 in accordance with IFRS 3 'Business Combinations' with the full consolidation of Al-Waha."

MIGROS CONSOLIDATED FINANCIAL STATEMENTS AS OF 31 DECEMBER 2016, (audited by PWC)

"The Group management determined the budgeted gross profit margin by taking into consideration the previous performance of the company and the market growth expectations. The discount rate 9,09% used is the after tax discount rate and includes the company-specific risks. The fact that the after-tax discount rate used in the calculation of discounted cash flows is higher/lower by 100 basis points (such as 8,09% or 10,09% instead of 9,09%) causes a decrease/increase of TRL 648.516 (2015: TRL 838.667) in the fair value calculations for which sales costs are deducted, as of 31 December 2015. Within the context of analysis performed by the Management, above mentioned changes in the key assumptions on which recoverable amount is based would not cause carrying amount to exceed its recoverable amount."

2.1.8 Difficulties & Criticism of IAS 36

Impairment accounting involves three specific issues which are indicators of asset impairments, the measure of impairment losses and accounting treatment for impairment loss. With the new impairment accounting method, assets are carried at no more than their recoverable amount under scope of IAS 36. The Standard requires financial statements preparers to test goodwill and intangible assets with infinite useful lives for impairment at least once a year (IAS 36, par. 10). Other assets have to be tested for impairment if there is an indication that these have been impaired (IAS 36, par. 9). Goodwill recognition is required when an entity has acquired another entity or part thereof and is no longer amortized under IAS 36. In this section, the main issues regarding impairments, IAS 36 implementation that can be observed in the literature, previous studies and papers covering the subject in terms of difficulties that face to face application in IAS 36 are highlighted.

While analyzing the literature, it can be clearly seen that there are several studies which is related to the criticism of IAS 36 and its application. In other words, despite the claimed benefits of the new impairment accounting method, there are a number of critical areas because of subjectivity and ambiguity that will have serious implications. Although regulations of the standard bring innovation, the application of it has come up with long-standing debate in the literature because of challenging areas. There are key studies related to difficulties about IAS 36.

Esen and Perek (2009) pointed out that difficulty comes from determination of the discount rate and cash flows that are used in calculating the value of cash generating units.

Dursun (2007) has achieved some conclusions in the same direction of their work carried out among independent auditors. These are centrally on the issue of the determination of impairment test (indicators for impairment), difficulty in the identification of CGU, VIU and FVLCTS, the lack of expertise in knowledge arising from firm's employees.

Carlin and Finch (2009) focused on evidence on the selection of discount rates conducted with goodwill impairment testing. They compared to discount rates disclosed by Australian firms with independently generated discount rates based on the CAPM. Their results illustrated that there were variances between these two sets of discount rates, providing evidence of subjectivity. They remark on the bias in the selection of discount rates which is chosen by financial statement preparers. Thus, this situation could be explained by the challenging the quality of reported earnings and the validity of goodwill valuations.

Petersen and Plenborg (2010) focused on goodwill impairment tests implemented by Danish firms in terms of the way preparers. Their results were based on 58 completed questionnaires in 2006, overreached point was that practice varies considerably among firms, with some firms did not complying with IAS 36. Additionally, they showed that there are inconsistencies with the used method for estimation of recoverable amounts, highlighting some critical areas, such as discount rate calculation, risk adjustment and cash flows estimation in the terminal period.

Another study which belongs to Lhaopadchan (2010), focused on the issue of write off decisions for goodwill that may cause a large degree of subjectivity. He

discussed the existence of the relationship between write off decision and the strategy of self-interested managers. He concluded that there are greater opportunities to engage in earnings and balance sheet manipulations that are of doubtful value to users. More relevant to this study, Ramanna and Watts (2012) studied on the issue of goodwill that is no longer amortized shifting to impairment-only approach. The main criticism for the impairment-only approach is based on managerial expectations which are subjective in nature. According to them, impairment tests were therefore not reliable, and that management could delay necessary impairments.

Another challenging area within IAS 36, If CGUs are determined at a higher level than necessary, impairments can be avoided. This can be combined with a profitable asset with an unprofitable asset, and then the CGU will not be a subject to impairment (Alexander et al, 2014:479).

An issue regarding impairment related with the application of value in use, since the assessment is dependent on the subjectivity of the management (IAS 36:33). Because, estimation of future cash flows is based on future-oriented and firm-specific information which, by its nature, is subjective (Boennen et al, 2014: 50). Another factor should be taken into consideration is that the choice of discount rate. The problem relates with discount rate is that companies do not always evaluate current market conditions and the reasonableness of the discount rate. A lower discount rate leads to higher value in use, which results of a reduced need for impairment losses.

There are also potential difficulties for auditors related with IAS 36. The major auditing challenges can be summarized as: (Wines et al, 2007:8-10)

- There might be the disagreement between company management and auditors on the issue for identification of cash-generating units and in the valuations of those units by reference to recoverable amount.
- There can be bias related with initial valuations of assets, liabilities and contingent liabilities in business combination to maximise the valuation of goodwill or maximise the excess of the fair value of net assets acquired over purchase consideration to enable the immediate recognition of this excess (discount on acquisition) as a gain in profit and loss.

- When identifying cash-generating unit and the assets, there might not be specific references for auditor if they are not subject to active capital markets.
- The subjectivity of impairment can lead to wrong valuation because of using auditors' professional judgment.

As this introduction clarifies, companies still face difficulties when applying the Standard. The discussion illustrates that sometimes it can be difficult to transfer the regulation into practice.

Summarily, IAS 36 criticism centrally focused on these challenging issues:

- recoverable amount estimation
- cash flow projection periods (the choice of appreciate growth rates, discount rates for discounted cash flows)
- difficulty in the identification of cash-generating units
- allocation of goodwill to CGUs
- subjectivity of impairment test (bias in the choice of discount rate, depending on managerial expectations)

CHAPTER THREE
IMPAIRMENT LOSS EFFECT ON FINANCIAL RATIOS

3.1 IMPAIRMENT LOSS EFFECT ON FINANCIAL RATIOS

IAS 36 aim to present fair value of assets in the financial statements by preventing assets from being higher than its fair value and testing for impairment. In the study, assets within the scope of IAS 36 Impairment of Assets are reviewed under separate titles and the impairment of such assets that presented and interpreted in tabular form. Furthermore, it is tried to find that the answers to the questions about how the impairment test of the companies that have goodwill are searched in the financial statements and their footnotes. The reason why companies that have goodwill are preferred is that it is mandatory for these companies' goodwill to make impairment tests each year according to IAS 36 Standard. Finally, comparing the period of 2015 and 2016, the specific ratios that are possibly influenced by impairment are researched.

3.1.1 Financial Ratios

Financial statements give information about the financial status of a company's operations that are used in compliance with regulatory guidelines to represent. They are used as an internal control for company's performance evaluation (Wild et al, 2007:12). In addition, external uses include evaluations made by creditors and investors to determine the financial strengths and actions taken by a company. Likewise, competitors in the industry use financial statements to make comparisons and future decisions on how to improve their operations. Therefore, not only financial statements are essential in identifying potential targets of a company for internal users but also, they are important for external users as a report of financial position (Nobles et al, 2009: 76).

The important part of financial statement is items that belong under asset, liabilities or owner's equity categorizes. It is used these items as inputs of the ratios to evaluate meaningful analysis with results of ratios. A ratio is calculated by taking one number and dividing it into another number resulting in a measurement. This result

interprets that the relationship between the two accounts these numbers represent (Wild et al, 2007: 30). Ratios are an analytical technique in order to use for an investor, so they can compare various firms to each other. In the accounting and finance language, financial ratios are referred as the indicators of performance measurements. Financial ratios are frequently used in the accounting literature. Especially in practice, these ratios are used by investors, creditors or business owners in order to provide useful information about the financial position and performance of the companies (Terzi et al, 2013: 58).

Financial ratios generally organize into classes including liquidity, profitability, leverage and asset utilization or turnover ratios. Liquidity ratios evaluate the ability of a company to pay a short-term debt, whereas long-term solvency ratios investigate how risky an investment in the firm could be for creditors. Profitability ratios examine the profit-generating ability of a firm based on sales, equity, and assets. Asset utilization or turnover ratios measure how efficiently the company generates revenues through utilizing assets, collecting receivables, and selling its inventories (Delen, Kuzey & Uyar; 2013).

After briefing information about financial ratios, there will be explanation for fixed asset ratio, return on asset ratio, asset turnover ratio and debt to equity ratio in following part of thesis.

- Fixed Asset Ratio

Fixed asset turnover ratio compares the sales revenue a company to its fixed assets. This ratio tells us how effectively and efficiently a company is using its fixed assets to generate revenues. It indicates the productivity of fixed assets in generating revenues. If a company has a high fixed asset turnover ratio, it shows that the company is efficient at managing its fixed assets. Fixed assets are important because they usually represent the largest component of total assets. This comparison will indicate whether the company is performing better or worse than others. Fixed asset turnover ratio is calculated by: (Nelson et al, 2009: 256)

- $\frac{\text{Net Sales}}{\text{Total Fixed Assets}}$

An increasing trend in fixed assets turnover ratio is desirable because it means that the company has less money tied up in fixed assets for each unit of sales. A declining trend in fixed asset turnover may mean that the company is over investing in the property, plant and equipment. This ratio is usually used in capital-intensive industries where major purchases are for fixed assets. It also should be used in subsequent years to see how effective the investment in fixed assets has been.

Valuing intangible assets as with non-financial long-term assets such as property, plant, and equipment (tangible, fixed) influence financial statements. Original values whether valued at cost or fair value, along with any subsequent impairment loss will influence the ROA calculations. Conversely, any reversal of a previous write-down will also affect the same financial ratios.

- Return on Asset (ROA)

ROA ratio assists in evaluating income as a percentage of the total assets available to total income. In other words, it expresses earning power due tototal assets are partially financed with debt and equity funds. This ratio aims to measure Return on asset ratio is calculated as follow: (Nelson et al, 2009: 257)

$$\bullet \quad \frac{\text{Net Income}}{\text{Total Assets}}$$

- Asset Turnover Ratio

The measurement of asset efficiency proived by asset turnover ratio. It is an essential indication for company's asset utilization rate. There is no standard guideline about the best level of asset turnover ratio. Therefore, it is important to compare the asset turnover ratio over the years for the same company. This comparison give an idea whether the company's performance is improving or deteriorating over the years. It is also important to compare the asset turnover ratio of other companies in the same industry. Asset turnover ratio is computed by: (Nelson et al, 2009: 254)

$$\bullet \quad \frac{\text{Net Sales}}{\text{Total Assets}}$$

Relatedly to write down decisions on assets, the expected result of impairment loss is that asset turnover ratios will rise because the asset base is lower.

- Debt to Equity Ratio

Debt to equity ratio provides the indications of the riskness for a company with regard to its ability to pay its long-term debts, namely solvency. The higher debt to equity ratio means the higher risk for the company. The company needs to monitor this ratio regularly as creditors will always keep an eye on this ratio because of worriness about getting money back for the creditors back. Thus, the company should always aim to keep the ratio in an acceptable range. Furthermore, a higher rate of interest due to the fact that lenders tend to charge higher interest rate as the level of debt increases. This ratio is calculated by: (Nelson et al, 2009: 132)

- $\frac{\text{Total Liabilities}}{\text{Shareholder's Equity}}$

3.1.2 Aim of The Study

The purpose of this quantitative study is to analyze whether the financial ratios of Turkish companies listed on the ISE 100 Index have been affected by the recent mandate of IAS 36. There have been limited research conducted on the Turkish implementation of IAS 36. There is no specific study on the key financial indicators that will be used to determine impairment loss effects of applying IFRS on the companies which trade on the Istanbul Stock Exchange; more specifically, the ISE 100 Index. Thus, this thesis aims to contribute to fill this gap on Turkish literature.

3.1.3 Data and Methodology

Assumptions

The following assumptions are made for this study:

1. Turkish firms registered the Istanbul Stock Exchange will be evaluated and all outcomes will be considered as a representation of all Turkish companies which use IFRS.

2. The historical financial data collected is for public knowledge and is assumed to represent a true and accurate depiction of results and should eliminate validity concerns.

Data

All the financial statement data for this study is gathered from ISE website. Annual financial statements are downloaded electronically for every individual firm then they are copied to spreadsheets for analyses. The population consists of companies that are listed on ISE 100 Index included of 100 firms through 2015 and 2016. However, non-financial 79 companies were included in the sample, the others were excluded from the sample because of belonging to banking, insurance, and other financial services sector.

Methodology

As reported earlier, the purpose of the present paper is to investigate whether there are effects of impairments under IAS 36 on financial ratios. The key financial ratios that are chosen in this study are Return on Assets (ROA), Total Asset Turnover and Fixed Asset Ratio. Therefore, the differences between financial ratios before calculateing impairment and after impairment is analyzed and compared withn years.

Following questions are tried to be answered in the study:

- Which classified of asset (tangible/intangible) is the biggest proportion of Turkish companies in the balance sheet in 2015 and 2016?
- How many companies have defined goodwill as an asset?
- How many companies are audited by Big Four in 2015 and 2016?
- How many companies give explanations in footnotes about cash flow projections on cash generating units with comparison 2015 and 2016?
- What is the discount rate that is used to calculate for present value of net cash inflows?
- Which method is chosen by companies for the calculation of recoverable amount in 2015 and 2016?
- Is there an effect of IAS 36 on Turkish Firms' ratios after impairment loss?

These questions are important due to the fact that financial statements supply the necessary information to decision makers. Internal users for example managers, use these financial statements to give important business decisions whereas external users (from investors view) assess the viability of investing in a business depending on the financial position and performance of the company because investors require higher returns (in the form of dividends) for their investments in companies. On the other hand, these questions are also essential for financial institutions (banks and other lending institutions). Because, they analyze the companies' debt ratios (leverage) to decide if they should provide the required financing needs of the companies as reaching comment on the financial health of the company.

H0: There is an effect of IAS 36 on Turkish Firms' financial ratios.
H1: There is not an effect of IAS 36 on financial ratios of Turkish Firms.

3.1.4 Limitations of The Study

Limitations

1. The data collection in this study is limited to the periods 2015-2016.
2. Financial reports are obtained from publicly traded Turkish companies, registered on the ISE 100 Index.
3. Non-financial 79 companies were included in the sample, the others were excluded from sample.
4. The study's focus is on the impairment of goodwill, tangiable & intangible assets rather than other assets which are included IAS 36 such as inventories, investments in subsidiaries, associates, and joint ventures.
5. The calculation method is before impairment loss and after impairment loss under condition that everthing else is constant (unaffected by the impairment) in ratio analysis. Example of these situations, when examining total short term liabilities/total assets ratio, total short term liabilities are supposed as unaffected item by the impairment loss. In broader sense, all numerators are assumed that they are not affected by impairment loss.

6. The ratios used in the study are defined as below:
    - Goodwill/Total Assets
    - Intangible assets/Total Assets
    - Tangible Assets/Total Assets
    - Assets Turnover Ratio: Net Sales/Total Assets
    - Fixed Asset Ratio: Net Sales/Total Fixed Asset
    - Return on Assets (ROA): Net Profit/Total Assets
    - Debt to Equity: Total Liabilities (Debt)/ Shareholder's Equity

These ratios were taken because, at the least one of numerator or denominator is expected to be affected by the impairment.

3.1.5 Effects of Impairment Loss on Assets on Turkish Firm Ratios

Recording impairment losses and related disclosures in the financial statements under IAS 36 provide important information for financial analysis. When impairment loss record as an expense, there are some effects both balance sheet and income statement. On the balance sheet side, there is deferred tax effects while there is decrase in profit on the income statement side (Sarıay, 2012: 124). Therefore, accounting treatment for impairment loss affects financial ratios. Potential effects can be said as follows: (Dursun,2007 :142)

- Due to the decrease of the total asset, asset turnover rate increases.
- Due to the decrease in the value of equity, debt / equity ratio increases.
- A higher rate of return, while being lower than the asset's carrying value, results in increases the rate of return on assets in the next year.

Several researchers have assessed IFRS impact on financial ratio analysis using firms from various countries. However, few researchers have studied the impacts of IAS 36 implementation on Turkish companies which are traded on ISE 100 Index. According to my review of the literature, no researchers have studied imapcats of imparment loss on key financial indicators. This study is significant because it evaluates the impact of mandating IAS 36 in Turkey and its effects on key financial indicators. To meet this objective, the main aim of the study is that investigate and evaluate asset impairment which required by the standard and try to find the question

whether there is an impact of impairment on financial ratios or not. The expected result can be said as follows:

- There is an effect of impairment loss on financial ratios, especially ratios that are related with asset such as ROA, asset turnover ratio, fixed asset turnover ratio.

3.1.6 Finding and Results

In this study, there has been a determination in Turkey of the application of the IAS 36. In this context, asset types within the scope of IAS 36 Standard have been examined and the impairment loss has been determined. As a sample, companies in the ISE 100 Index with leading indicator feature were taken. Non-financial 79 companies were included in the sample, the others with the financial entities included in IAS 36 Standard because of being kept in the assets of the company very little, so they were excluded from the sample. Sampling included companies are non-financial companies listed in ISE 100 Index in 2015 and 2016 period. The financial statements and footnotes of these companies for 2015 and 2016 have been reviewed and numerical data were obtained to analyze by vertical analysis method. The numerical data related to the application of the of IAS 36 Impairment of Assets for 79 sample companies are obtained from the financial statements, footnotes and disclosures. These financial statements were obtained from the Public Disclosure Platform. There are some findings of this study that are shown below:

- In 2015, the ratio of goodwill to total assets average was nearly % 1.47, the ratio of intangible asset to total assets average was %6.02 while the ratio of tangible assets to total assets average was %30.44.
- In 2016, the ratio of goodwill to total assets average was nearly %1.14, the ratio of intangible asset to total assets average was %6.07 while the ratio of tangible assets average was % 32.25. Thus, this data shows that property, plant and equipment (tangible) is the largest proportion asset item because tangible fixed assets account for almost 39% and 41% of total assets as year basis.

- When looking at the tangible asset, the proportion of 79 Turkish firms with total balances reported in the ISE 100 Index database increased from 46.316.895.898 TL in 2015 to 53.219.125.714 TL in 2016 that are shown below table.

Table 9: The Data About Tangible Assets in ISE 100 Index

Tangible Assets Information	2015	2016
Total amount of tangible assets	46.316.895.898 TL	53.219.125.714 TL
Total Tangible assets/ Total Assets	0,390178446	0,416610915
The number of companies that reported impairment loss on tangible assets	13	7

- Another important asset group that is the intangible asset, the proportion of 79 Turkish firms with total balances reported in the ISE 100 Index database decreased from 4.614.137.755 TL in 2015 to 4.582.472.609 TL in 2016 that are represented as year basis form in table.

Table 10: The Data About Intangible Assets in ISE 100 Index

Intangible Assets Information	2015	2016
Total amount of intangible assets	4.614.137.755 TL	4.582.472.609 TL
Total Intangible assets/ Total Assets	0,038872157	0,03587462
The number of companies that reported impairment loss on intangible assets	2	3

- According to results, there are 31 companies that have goodwill in their balance sheet in 2015 while 30 companies are represents goodwill item as an asset in their financial report in 2016. Additionally, the proportion of 79 Turkish firms with total goodwill balances reported in the ISE 100 Index database decreased from 1.265.939.017 TL in 2015 to 1.222.197.075 TL in 2016. In other words, this decline is approximately %2,69 when compared to the previous year that are shown below table.

Table 11: The Data About Goodwill in ISE 100 Index

Goodwill Information	2015	2016
The number of companies that have goodwill	31	30
Total amount of goodwill	1.265.939.017 TL	1.222.197.075 TL
Goodwill/ Total Assets	0,010664405	0,009567625
The number of companies that reported impairment loss on goodwill	4	4

- The starting point of impairment testing process is the calculation of recoverable amount of asset to compare its caring amount. There are two methods for recoverable amount calculation as take place in IAS 36 which are value in use and fair value less costs to sell. In this context, value in use was chosen by 8 companies that shown in their disclosures in 2015 and 2016. Fair value less cost to sell was preferred by 3 companies in 2015 and 1 company in 2016. 20 companies in 2015 and 21 firms in 2016, didn't give information about selected method for recoverable amount as shown in Table 12.

Table 12: Method for Calculation of Recoverable Amount in 2015 and 2016

	Value in Use		Fair Value Less Cost to Sell		Undetermined in Financial Statements	
	2015	2016	2015	2016	2015	2016
Number of companies which method choose to apply	8	8	3	1	20	21

- Appropriate discount rate used in calculating an asset's VIU is a necessary step for estimating the future cash inflows and outflows. The standard specifies that determining the discount rate can be based on 3 alternatives which are weighted average cost of capital (WACC), the entity's incremental borrowing rate and other market borrowing rates. IAS 36 requires the discount rate(s) used in estimating VIU to be a pre-tax rate(s) (IAS 36.55). If the rate is derived initially on a post-tax basis, it must be adjusted to reflect a pre-tax rate (IAS 36. A20). This is often necessary because many observable market rates and the entity's WACC are post-tax rates. When table 12 is examined, it is identified that WACC is more preferred discount rate than pre-tax discount rate. In addition, post-tax rate is chosen by 3 companies in 2015 and 2 companies in 2016 without comparison what if pre-tax was used. However, almost the half of companies do not give explanation about their discount rate choice in their disclosures both in 2015 and 2016 as represented in Table 13.

Table 13: The Method for Estimation of the Present Value of Net Cash Inflows (Applying the Discount Rate)

	Pre-tax discount rate		WACC		Country growth rate		Undetermined	
	2015	2016	2015	2016	2015	2016	2015	2016
Number of companies which method choose to apply	5	3	7	9	1	0	13	14

- 62 companies were audited by Big four[6] accounting&auditing firms out of 79 companies in 2015 whereas consolidated financial reports for the year ended of 65 companies were audited by Big four in 2016 that are shown below Table 14. Additionally, disclosure quality is higher when companies audited by Big Four because of clear explanation for discount rate, goodwill etc.

Table 14: Consolidated Financial Reports for the Year-Ended of the Companies That Prepared by Big Four and Non-Big Four

	2015	2016
Number of companies audited by Big Four	62	65
Number of companies audited by non-Big Four	17	14
Total	79	79

- Another critical point related to IAS 36 is determination process of cash flow projections for companies. According to IAS 36, it is important that any cash flow projections are based on reasonable and supportable assumptions. Although forecasting cash flow projections shall cover only a five-year period at maximum, the standard allows the cash flows will be generated beyond this five-year period

[6] The Big Four refers to the four largest accounting firms in the world. These firms provide an extensive range of accounting and auditing services including external audit, taxation services, management and business consultancy, and risk assessment and control.

if the certain conditions are likely to be accurated. In this scope, the findings show that there are 8 companies with 5 year-based, 4 companies with more than 5 years and 19 companies with undetermined project year in 2015. When we look at 2016 data, there are 3 firms with 5 year-based, 6 firms with more than 5 years, 19 companies with undetermined project year in 2016.

Table 15: The Number of Companies that Determined Projection of Future Cash Flows for Computing VIU

	2015	2016
Number of companies (5 years Project)	8	3
Number of companies (more than 5 years Project)	4	6
Number of companies (undetermined year Project)	19	19

- When we look at the ratios, Asset turnover ratio calculations before and after impairment adjustment for 2015 show differences because of the fact that total assets minimize due to impairment amount in denominator part. According to the results, after impairment calculation asset turnover ratio is higher amount than before impairment calculation because of reduction in denominator after impairment. Table 16 presents the analysis of asset turnover ratios before and after impairment for the years 2015 and 2016.

Table 16: The Results of Asset Turnover Ratio Before and After Impairment Loss

2015		
COMPANY CODE	**(after impairment) net sales/TA**	**(before imp) Net sales/TA**
BANVT	1,904407303	1,897315135
CRFSA	0,333062201	0,331151929
CCOLA	0,260949865	0,260722013
ECILC	0,078008386	0,07791493
EREGL	0,321473871	0,321374584
IZMDC	0,053772313	0,053597716
KARSN	0,614485817	0,614224738
KORDS	0,144923599	0,144790163
SASA	1,58872207	1,568743913
SODA	0,168957469	0,168831172
TAVHL	0,288032852	0,288008262
TKNSA	3,071115852	2,98457469
TRKCM	0,376467096	0,375925643
TCELL	0,191066162	0,190930119
TTKOM	0,563471293	0,562735044
SISE	0,139116105	0,138795664
2016		
CRFSA	1,485969942	1,483686909
CCOLA	0,644096454	0,639667671
DOHOL	0,992639203	0,99102219
KRDMD	0,413142346	0,412928646
KARSN	0,480093781	0,479881346
KONYA	0,671871257	0,667539825
MGROS	1,745071641	1,684781984
TKNSA	4,000540071	3,991595035
TRKCM	0,438445206	0,437929323
TCELL	0,446227611	0,44557365

- Shifting our attention to ROA (Profit ratio) which is the measurement of profitability earns in relation to its overall resources (total assets), before and after impairment loss calculation represent different amount because of the fact that the same situation is valid which means of reduction on total assets regarding to IAS 36 regulation. Below Table 17 summarizes before and after impairment calculation for ROA results as year basis.

Table 17: The Results of ROA Before and After Impairment Loss

2015		
COMPANY CODE	**after impairment loss (net profit/TA)**	**before impairment loss (net profit/TA)**
BANVT	0,094860378	0,094507111
CRFSA	0,010470958	0,010410902
CCOLA	0,014157789	0,014145427
ECILC	0,016315066	0,01629552
EREGL	0,181358834	0,181302821
IZMDC	0,097509141	0,097192531
KARSN	0,042010301	0,041992452
KORDS	0,05351997	0,053470692
SASA	0,101107695	0,099836267
SODA	0,156871254	0,156753991
TAVHL	0,057558599	0,057553686
TKNSA	0,091704928	0,08912077
TRKCM	0,030044099	0,030000888
TCELL	0,072783905	0,072732081
TTKOM	0,03347766	0,033433917
SISE	0,05138693	0,051268565
2016		
CRFSA	0,142947684	0,14272806
CCOLA	0,002045598	0,002031532
DOHOL	0,02986327	0,029814619
KRDMD	0,021901857	0,021890528
KARSN	0,060159446	0,060132826
KONYA	0,101526447	0,100871925

MGROS	0,046220503	0,044623653
TKNSA	0,209017748	0,208550393
TRKCM	0,083595846	0,083497486
TCELL	0,04947605	0,049403541

- Fixed assets are important because they represent the largest component of total assets. Therefore, fixed asset turnover ratio is another measurement for efficiency by comparing net sales with fixed assets. In other words, it is used to the operating performance in order to indicate how efficiently utilizing fixed assets to generate sales. Impairments related to tangible asset were observed 13 companies in 2015, 7 companies in 2016 respectively. Thus, the differences before and after impairment calculation resulting from impairment loss on tangible assets can be seen in Table 18.

Table 18: Fixed Asset Turnover Ratio Before and After Impairment Loss

	2015	
COMPANY CODE	**after impairment loss (net sales /total fixed asset)**	**before impairment loss (net sales/total fixed asset)**
CRFA	1,207528034	1,182790985
CCOLA	0,534591915	0,533636512
EREGL	0,585297472	0,584968435
IZMDC	0,093063833	0,092542095
KARSN	2,276540138	2,272960826
KORDS	0,301471459	0,300894615
SASA	7,848704839	7,384132932
SODA	0,43753229	0,436686344
TKNSA	32,06930944	26,13388068
TRKCM	0,790487902	0,788104428
TCELL	0,733899965	0,731896853

TTKOM	1,700930596	1,695502245
SISE	0,296543898	0,295091648
2016		
CCOLA	1,386529303	1,380628091
KARSN	1,728874399	1,726122704
KONYA	1,546184376	1,523435831
MGROS	8,71949559	8,553541113
TKNSA	31,13188649	30,59828201
TRKCM	0,918935098	0,916671859
TCELL	1,720518613	1,711497635

- The findings of short-term liabilities to total assets ratio reveals that it is higher ratio result after impairment loss due to the write-down expense as showing following table 19.

Table 19: The Results of Short-Term Liabilities to Total Asset Ratio

2015		
COMPANY CODE	**after impairment loss (short term liabilities/total asset)**	**before impairment loss (short term liabilities/total asset)**
BANVT	0,334677187	0,333430822
CRFA	0,171530674	0,170546862
CCOLA	0,028254208	0,028229537
ECILC	0,05637139	0,056303855
EREGL	0,001303346	0,001303345
IZMDC	0,233173761	0,232416653
KARSN	0,084487798	0,084451901
KORDS	0,15006346	0,14992529
SASA	0,407128185	0,402008554

SODA	0,011958891	0,011949951
TAVHL	0,13776184	0,137750079
TKNSA	0,921623233	0,895593678
TRKCM	0,048784067	0,048713903
TCELL	0,17746446	0,177338102
TTKOM	0,33184445	0,331410852
SISE	0,042017825	0,041921041
2016		
AEFES	0,00459464	0,00458497
CRFSA	0,267914192	0,267502571
CCOLA	0,009974835	0,009906248
DOHOL	0,138973756	0,138747367
KRDMD	0,001060819	0,00106027
KARSN	0,040400315	0,040382438
KONYA	0,113894859	0,1131606
MGROS	0,016096812	0,015540691
TKNSA	0,926999368	0,924926637
TRKCM	0,04253781	0,042487759
TCELL	0,109944197	0,10978307

- Table 20 reports that the effect of the standard on a denominator of the ratio is clear. Debt-to-Equity ratio rises after calculation of impairment loss because the impairment has lowered the value of equity.

Table 20: The Results of Total Debt to Total Equity Ratio

2015		
COMPANY CODE	**after impairment loss (Total Debt/Total equity)**	**before impairment loss (Total Debt/Total Equity)**
BANVT	3,800911443	3,733903488
CRFA	2,755820747	2,6973801
CCOLA	1,160005949	1,157820344
ECILC	0,229838033	0,229499487
EREGL	0,486218268	0,486141498
IZMDC	6,835558814	6,665425823
KARSN	5,903763625	5,886489883
KORDS	0,787827686	0,786531765
SASA	0,788852038	0,771281277
SODA	0,286954076	0,286678083
TAVHL	3,064674636	3,063611475
TKNSA	12,47684326	8,965237805
TRKCM	0,792522308	0,790481441
TCELL	0,818443025	0,817383947
TTKOM	0,004161627	0,004133712
SISE	0,648282354	0,645824709
2016		
AEFES	0,729670038	0,72701795
CRFSA	7,072510423	6,985736193
CCOLA	1,092571811	1,076247592
DOHOL	1,595780674	1,589050355
KRDMD	1,527954273	1,525957901
KARSN	4,00595057	3,997092845
KONYA	0,217753151	0,216046047
MGROS	25,27938048	13,027899
TKNSA	13,41085359	13,04795952
TRKCM	0,918017654	0,91594813
TCELL	0,966603016	0,963821092

CONCLUSION

An assessment of accounting for asset impairments is a vital issue in the context of financial reporting quality since it includes considerable the treatment's for company's managerial judgments. The importance of this issue especially comes forward during periods of ongoing economic uncertainty as a reflect of the loss of economic value through the mechanism of asset write-down. In this context, the motive behind of this study is to find whether there are effects of impairment accounting on financial ratios especially ROA, asset turnover and fixed asset turnover ratio of Turkish firms.

The study deals with the determination of IAS 36- Impairment of Assets implementation in Turkey. Firstly, the asset types in the scope are examined and the impairments concerning each type of asset in the scope are determined. Also, firms which have goodwill are separately investigated. ISE 100 Index known as the leading indicator is taken as sample. Financial companies are excluded from the sample, because their asset that are in the scope of IAS 36 Standard are at a very low rate. Thereby the companies in the sample are non-financial ones and the number of them is 79. The data taken from the financial statements and footnotes of these companies are analyzed. As a result, impairment reporting practices in three asset classes: tangible assets, intangible assets and goodwill are taken into consideration. The findings of the study are essential for the application and effects of IAS 36. Therefore, these findings support the hypothesis that there are effects of impairment losses on financial ratios. Showing the differences between the financial ratios calculated before and after the calculation of impairment, the possible explanation of main reasons for the differences in fair value accounting. Because IFRS emphasizes the importance of presenting balance sheets at fair value, it requires assets to be presented with no more than their carrying amounts and the differences shall be recognised as impairment in the case of exceeding carrying amount.

Tangible assets have an important place in total asset of all companies. It can be said that tangible assets are the largest single assets and represent almost 39% to 41% among the proportion of total asset in 2015 and 2016, respectively. Therefore, tangible assets represent a significant portion of the balance sheet. Efficient

management of fixed assets during their full lifecycle is vital for the entity because of the fact that errors can lead to inaccurate valuation of business or incorrect tax reporting. In this context, IAS 16 for long-lived assets address matters such as the recognition criteria, measurement principles and valuation techniques. Regarding these principles of the standard, results of this study demonstrate that there are 13 companies in 2015 and 7 firms in 2016 that reported impairment loss under IAS 36. Then, the ratios are computed for these companies. The results of fixed asset turnover ratio show a significance difference before and after impairment calculation. Although there is no optimal fixed asset ratio, it is better to compare industry average as benchmarking. The higher fixed asset ratio is better, since a high turn over indicates an effective asset management with enough fixed asset capacity.

Another important asset group is the intangible assets. They represent 3,88% of the total assetsin 2015 and 3,58% in 2016 according to the total balances reported in the ISE 100 Index database. Although the proportion of intangible asset is less than the tangible asset, intangible resources can be more valuable than tangible resources for most of companies in sectors such as computer software, communication, electricity. In this context, the amount of intangible asset is more intensive in these sectors (example Aselsan, Arçelik, Turkcell etc.).

This thesis also addresses how impairments made under IAS 36 when applied to Turkish firms. In this context, disclosures related to impairment process and key concept of IAS 36 such as recoverable amount, value in use, cash flow projections etc. were analyzed.

Among companies that are reported impairment loss, there are 20 companies in 2015 and 21 firms in 2016 that didn't give information about the selected method for the recoverable amount. Value in use was chosen by 8 companies which is shown in their disclosures in 2015 and 2016. Fair value less cost to sell was preferred by 3 companies in 2015 and 1 company in 2016.

When calculating an asset's VIU, the choice of appropriate discount rate is important for estimating the future cash inflows and outflows. According to the results, companies prefer mostly WACC as a discount rate. A possible explanation for this result is that IAS 36's appendix addresses on how to determine the appropriate discount rate, which is commonly referred to as 'cost of capital' (WACC) in finance

theory. Therefore, estimating the appropriate cost of capital becomes more preferable than other discount rates in the capital market. However, the application of a single discount rate (e.g., a company-wide WACC) that is applied evenly across all CGUs without taking into consideration for their risk profiles may lead to inaccurate projections about future. It is noteworthy that almost the half of companies do not give explanation about their discount rate choices in their disclosures both in 2015 and 2016.

It is important to note that goodwill-related disclosures are generally very limited. The possible results of this inadequacy of disclosures can be explained by two reasons. The first one might be the adverse affect of investors' perceptions in terms of in understanding the reliability of goodwill valuations and related impairment tests. This situation may also relate to the postponement of impairment testing due to the subjectivity of management. The second one might be the lack of knowledge for goodwill revaluation by expeditors.

It is clear that Big Four accounting&auditing firms are the most preferable than others. The results show that 62 of the companies were audited by Big four in 2015, and 65 companies in 2016. Additionally, results may illustrate that disclosure quality is higher when companies have Big Four auditors; especially for the ones that have higher goodwill impairment intensity.

The outcomes of the ROA analyses are lower after impairment calculation as a profitability indicator. Higher ROA indicates better asset efficiency from an investor's point of view, but investors and analysts should bear in mind that asset should be represented in the balance sheet by using fair value measurement. Thus, impairment loss on asset effects ROA which means a better reflect for the actual value in the market.

Briefly, the generalization of the results could be limited by the sample size. After all the aspects of this study are taken into consideration, new research topicsareas for the standard implementations can be suggested. The common problem is related to the lack of information for goodwill revaluation since there is no explanation for goodwill in disclosures. Thus, IAS 36 will be better if it generates a higher level of disclosure quality about impairment testing. CGUs can be shown as one of the critical areas, and more details for the determination of CGUs and cash flow forecasts are

needed. Although a large proportion of companies the Weighted Average Cost of Capital (WACC) while the calculating of cash flow projections as a discount rate, it may not reflect all current market conditions such as specific risks of sector, country etc.

This thesis contributes to the literature with several findings. First, it contributes to the literature for IAS 36, by creating the awareness of disclosure requirements in accordance with IAS 36 for Turkish firms. Second, it forms the linkage between impairment and ratios by measuring the impact of IAS 36 on key ratios such as asset turnover ratio, fixed asset ratio and ROA. When we look at the ratios, after impairment calculation, all ratios demonstrate a higher amount than before impairment calculation due to the effect of reduction in denominator. Furthermore, it should be better to take into consideration the results of ratios after impairment loss calculation for decisions, as the results represent closer values to fair value. Finally, the results from this study can serve for investors, auditors, and standard setters. Auditors are responsible for representing the fairness of financial statements in material respects. Especially, investors in perceiving the accuracy used in impairment accounting. Because, unhealthy results can be achieved for comparisons and evaluations without considering impairment loss. Thus, they adopt the accurate degree of skepticism in their evaluations.

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APPENDICES

Appendix 1: Firms Utilized in the Study (ISE 100 INDEX)

ISTANBUL STOCK EXCAHANGE 100 INDEX		
Company Name		**Company Code**
1	AFYON ÇİMENTO A.Ş	AFYON
2	AKBANK	AKBNK
3	AKENERJİ ELEKTRİK ÜRETİM A.Ş	AKENR
4	AKSA AKLİRİK KİMYA SANAYİ	AKSA
5	AKSA ENERJİ ÜRETİM	AKSEN
6	ALARKO GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.	ALGYO
7	ALARKO HOLDİNG A.Ş.	ALARK
8	ALCATEL LUCENT TELETAŞ TELEKOMÜNİKASYON A.Ş.	ALCTL
9	ALKİM ALKALİ KİMYA A.Ş.	ALKIM
10	ANADOLU CAM SANAYİİ A.Ş.	ANCM
11	ANADOLU EFES BİRACILIK VE MALT SANAYİİ A.Ş.	AEFES
12	ANEL ELEKTRİK PROJE TAAHHÜT VE TİCARET A.Ş	ANELE
13	ARÇELİK A.Ş	ARCLK
14	ASELSAN ELEKTRONİK SANAYİ VE TİCARET A.Ş.	ASELS
15	AYGAZ A.Ş	AYGAZ
16	BAGFAŞ BANDIRMA GÜBRE FABRİKALARI A.Ş.	BAGFS
17	BANVİT BANDIRMA VİTAMİNLİ YEM SANAYİİ A.Ş.	BANVT
18	BEŞİKTAŞ FUTBOL YATIRIMLARI SANAYİ VE TİCARET A.Ş	BJKAS
19	BİM BİRLEŞİK MAĞAZALAR A.Ş.	BIMAS
20	BİZİM TOPTAN SATIŞ MAĞAZALARI A.Ş	BIZIM
21	BRİSA BRIDGESTONE SABANCI LASTİK SANAYİ VE TİCARET A.Ş.	BRISA
22	CARREFOURSA CARREFOUR SABANCI TİCARET MERKEZİ A.Ş.	CRFSA
23	COCA-COLA İÇECEK A.Ş	CCOLA

24	ÇELEBİ HAVA SERVİSİ A.Ş.	CLEBI
25	ÇEMTAŞ ÇELİK MAKİNA SANAYİ VE TİCARET A.Ş.	CEMTS
26	DEVA HOLDİNG A.Ş.	DEVA
27	DOĞAN ŞİRKETLER GRUBU HOLDİNG A.Ş.	DOHOL
28	DOĞUŞ OTOMOTİV SERVİS VE TİCARET A.Ş.	DOAS
29	EGE ENDÜSTRİ VE TİCARET A.Ş.	EGEEN
30	EİS ECZACIBAŞI İLAÇ, SINAİ VE FİNANSAL YATIRIMLAR SANAYİ VE TİCARET A.Ş.	ECILC
31	EMLAK KONUT GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.	EKGYO
32	ENKA İNŞAAT VE SANAYİ A.Ş.	ENKAI
33	ERBOSAN ERCİYAS BORU SANAYİİ VE TİCARET A.Ş.	ERBOS
34	EREĞLİ DEMİR VE ÇELİK FABRİKALARI T.A.Ş	EREGL
35	FENERBAHÇE FUTBOL A.Ş.	FENER
36	FORD OTOMOTİV SANAYİ A.Ş.	FROTO
37	GALATASARAY SPORTİF SINAİ VE TİCARİ YATIRIMLAR A.Ş.	GSRAY
38	GLOBAL YATIRIM HOLDİNG A.Ş	GLYHO
39	GOODYEAR LASTİKLERİ T.A.Ş.	GOODY
40	GÖLTAŞ GÖLLER BÖLGESİ ÇİMENTO SANAYİ VE TİCARET A.Ş.	GOLTS
41	GÖZDE GİRİŞİM SERMAYESİ YATIRIM ORTAKLIĞI A.Ş.	GOZDE
42	GSD HOLDİNG A.Ş	GSDHO
43	GÜBRE FABRİKALARI T.A.Ş	GUBRF
44	HACI ÖMER SABANCI HOLDİNG A.Ş	SAHOL
45	HALK GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş	HLGYO
46	HÜRRİYET GAZETECİLİK VE MATBAACILIK A.Ş.	HURGZ
47	ICBC TURKEY BANK A.Ş	ICBCT
48	İHLAS HOLDİNG A.Ş	IHLAS
49	İPEK DOĞAL ENERJİ KAYNAKLARI ARAŞTIRMA VE ÜRETİM A.Ş	IPEKE

50	İŞ GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş	ISGYO
51	İZMİR DEMİR ÇELİK SANAYİ A.Ş.	IZMDC
52	KARDEMİR KARABÜK DEMİR ÇELİK SANAYİ VE TİCARET A.Ş.	KRDMD
53	KARSAN OTOMOTİV SANAYİİ VE TİCARET A.Ş.	KARSN
54	KARTONSAN KARTON SANAYİ VE TİCARET A.Ş	KARTN
55	KİLER GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.	KLGYO
56	KOÇ HOLDİNG A.Ş	KCHOL
57	KONYA ÇİMENTO SANAYİİ A.Ş	KONYA
58	KORDSA TEKNİK TEKSTİL A.Ş.	KORDS
59	KOZA ALTIN İŞLETMELERİ A.Ş	KOZAL
60	KOZA ANADOLU METAL MADENCİLİK İŞLETMELERİ A.Ş.	KOZAA
61	MAVİ GİYİM SANAYİ VE TİCARET A.Ş	MAVI
62	METRO TİCARİ VE MALİ YATIRIMLAR HOLDİNG A.Ş.	METRO
63	MİGROS TİCARET A.Ş	MGROS
64	NETAŞ TELEKOMÜNİKASYON A.Ş	NETAS
65	ODAŞ ELEKTRİK ÜRETİM SANAYİ TİCARET A.Ş	ODAS
66	OTOKAR OTOMOTİV VE SAVUNMA SANAYİ A.Ş	OTKAR
67	PARK ELEKTRİK ÜRETİM MADENCİLİK SANAYİ VE TİCARET A.Ş.	PRKME
68	PEGASUS HAVA TAŞIMACILIĞI A.Ş.	PGSUS
69	PETKİM PETROKİMYA HOLDİNG A.Ş	PETKM
70	SASA POLYESTER SANAYİ A.Ş	SASA
71	SODA SANAYİİ A.Ş	SODA
72	ŞEKERBANK T.A.Ş	SKBNK
73	TAT GIDA SANAYİ A.Ş	TATGD
74	TAV HAVALİMANLARI HOLDİNG A.Ş	TAVHL
75	TEKFEN HOLDİNG A.Ş	TKFEN
76	TEKNOSA İÇ VE DIŞ TİCARET A.Ş.	TKNSA

77	TESCO KİPA KİTLE PAZARLAMA TİCARET LOJİSTİK VE GIDA SANAYİ A.Ş.	KIPA
78	TOFAŞ TÜRK OTOMOBİL FABRİKASI A.Ş	TOASO
79	TRABZONSPOR SPORTİF YATIRIM VE FUTBOL İŞLETMECİLİĞİ TİCARET A.Ş.	TSPOR
80	TRAKYA CAM SANAYİİ A.Ş.	TRKCM
81	TURCAS PETROL A.Ş	TRCAS
82	TURKCELL İLETİŞİM HİZMETLERİ A.Ş.	TCELL
83	TÜMOSAN MOTOR VE TRAKTÖR SANAYİ A.Ş	TMSN
84	TÜPRAŞ-TÜRKİYE PETROL RAFİNERİLERİ A.Ş.	TUPRS
85	TÜRK HAVA YOLLARI A.O	THYAO
86	TÜRK TELEKOMÜNİKASYON A.Ş	TTKOM
87	TÜRK TRAKTÖR VE ZİRAAT MAKİNELERİ A.Ş.	TTRAK
88	TÜRKİYE GARANTİ BANKASI A.Ş	GARAN
89	TÜRKİYE HALK BANKASI A.Ş.	HALKB
90	TÜRKİYE İŞ BANKASI A.Ş	ISCTR
91	TÜRKİYE SINAİ KALKINMA BANKASI A.Ş.	TSKB
92	TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.	SISE
93	TÜRKİYE VAKIFLAR BANKASI T.A.O	VAKBN
94	ÜLKER BİSKÜVİ SANAYİ A.Ş	ULKER
95	VAKIF GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş	VKGYO
96	VESTEL ELEKTRONİK SANAYİ VE TİCARET A.Ş	VESTL
97	YAPI VE KREDİ BANKASI A.Ş	YKBNK
98	YATAŞ YATAK VE YORGAN SANAYİ VE TİCARET A.Ş.	YATAS
99	YAZICILAR HOLDİNG A.Ş.	YAZIC
100	ZORLU ENERJİ ELEKTRİK ÜRETİM A.Ş.	ZOREN

Appendix 2 : Tangaibles&Intangiables and Goodwill Information of the Companies in 2015

COMPANY C	TOTAL ASSE	TANGIABLE ASS	INTANGIABLE AS	GOODWIL	EQUITY	TANGIABLE ASSET	INT. AS/TA	GOODWILL/	GOODWILL/	big four
AFYON	373.419.627	154.292.865	1.039.261	0		0,413188954	0,00278309	0		✓
AKENR	5.330.857.302	4.049.357.799	115.808.714	0		0,759607239	0,02172422	0		✓
AKSA	2.254.075	718.574	76.967	5.989		0,31878886	0,03414571	0,002656966		✓
AKSEN	4.060.705.589	3.031.979.261	3.432.802	6.848.196		0,746663159	0,00084537	0,001686455		✓
ALARK	2.174.794.952	493.235.344	16.269.679	12.043.473		0,226796252	0,00748102	0,005537751		✓
ALCTL	329.263.329	8.456.073	1.734.839	0		0,025681794	0,00526885	0		✓
ALKIM	280.789.281	109.647.626	1.085.023	0		0,390497905	0,00386419	0		✓
ANCM	3.750.484.951	1.711.696.795	719.181	2.120.003		0,456393458	0,00019176	0,000565261		✓
AEFES	22.044.090	6.315.908	8.841.049	1.334.738		0,28651253	0,4010621	0,060548564		
ANELE	977.594.877	27.658.421	1.098.830	0		0,028292314	0,00112401	0		✓
ARCLK	13.738.508	2.055.675	1.007.480	163.450		0,149628693	0,07333256	0,011897216		✓
ASELS	6.245.101.529	924.841.904	537.511.904	0		0,148090772	0,08606936	0		✓
AYGAZ	3.916.324	650.672	21.340	0		0,166143557	0,00544899	0		✓
BAGFS	1.173.028.167	676.064.370	436.304	0		0,576341122	0,00037195	0		
BANVT	1.050.753.461	529.221.832	4.113.161	0		0,503659376	0,00391449	0		
BJKAS	193.341.210	2.486.266	66.622.838	0		0,012859473	0,34458685	0		✓
BIMAS	4.167.785	1.784.675	5.350	0		0,428207069	0,00128366	0		✓
BIZIM	604.570.297	104.625.156	27.222.162	0		0,173057056	0,04502729	0		✓
BRSAN	3.148.007.903	1.842.560.847	2.227.077	0		0,585310108	0,00070746	0		✓
BRISA	2.125.825.194	672.536.895	48.352.297	0		0,316365098	0,02274519	0		✓
CRFSA	3.026.180.906	834.685.775	86.742.957	773.936.519		0,275821506	0,02866417	0,255746944		✓
CCOLA	8.945.818	4.366.714	1.154.210	606.621		0,48812909	0,1290223	0,067810568		✓
CLEBI	678.550.555	155.669.255	124.684,25	26.182.142		0,22941438	0,00018375	0,038585396		✓
CEMTS	239.589.330	76.826.962	469.770	0		0,320661033	0,00196073	0		
DEVA	992.951.699	301.195.465	182.660.244	1.782.731		0,30333345	0,18395683	0,001795385		✓
DOHOL	7.441.364	1.041.089	953.972	403.713		0,139905668	0,12819854	0,054252554		✓
DOAS	3.979.903	664.043	20.848	0		0,166849041	0,00523832	0		✓
EGEEN	273.935.240	23.675.050	8.271.064	0		0,086425719	0,0301935	0		✓
ECILC	3.369.830	102.181	33.348	24.117		0,030322301	0,00989605	0,007156741		✓
ENKAI	20.774.179	4.594.817	58.850	160.406		0,221179234	0,00283284	0,007721412		✓
ERBOS	200.601.691	44.580.321	0	0		0,222233027	0	0		
EREGL	6.408.891	3.520.075	69.596	0		0,549248692	0,01085929	0		
FENER	630.184.467	10.630.296	156.128.043	0		0,016868547	0,24774975	0		✓
FROTO	8.428.212.158	3.250.718.303	539.719.802	0		0,385694883	0,06403728	0		✓
GSRAY	826.619.091	4.675.562	124.437.025	0		0,005656247	0,15053732	0		✓
GLYHO	3.438.825.205	563.508.560	1.557.059.796	56.242.758		0,16386659	0,45278829	0,016355224		
GOODY	811.863.768	211.798.498	0	0		0,260879357	0	0		
GOLTS	664.125.918	379.459.610	4.383.915	363.448		0,571366965	0,00660103	0,000547258		
GSDHO	1.332.597	272.611	222	0		0,204571224	0,00016659	0		✓
GUBRF	3.383.132.381	1.219.905.720	29.129.804	188.461.258		0,360584684	0,00861031	0,055706144		✓
SAHOL	265.520.067	4.282.958	530.443	1.014.355		0,016130449	0,00199775	0,003820257		✓
HURGZ	933.675.887	130.076.762	277.201.815	0		0,139316827	0,29689298	0		✓
IHLAS	2.805.933.783	260.620.688	5.019.907	19.838.211		0,092881981	0,00178903	0,007070092		
IZMDC	2.085.583.238	1.205.050.675	1.082.710	0		0,577800326	0,00051914	0		✓
KRDMD	5.137.292.724	3.658.379.379	20.453.547	9.338.820		0,712122041	0,00398139	0,001817849		✓
KARSN	1.669.804.271	450.715.111	164.876.838	0		0,269920924	0,09874022	0		
KARTN	358.951.304	219.951.014	1.559.142	0		0,612760036	0,0043436	0		
KCHOL	22.968.564	5.707.169	590.458	912.611		0,248477397	0,02570722	0,039733046		✓
KONYA	437.054.295	171.262.977	507.589	0		0,39185744	0,00116139	0		✓
KORDS	2.174.031.816	1.045.102.304	31.699.405	45.595.167		0,480720795	0,01458093	0,020972631		✓
METRO	1.016.153.789	283.878	3.373	0		0,000279365	3,3194E-06	0		
MGROS	5.760.717	1.308.346	84.689	2.251.427		0,227115132	0,01470112	0,390824094		✓
NETAS	1.352.615.156	40.220.084	36.744.529	53.290.807		0,029735053	0,02716555	0,039398351		
ODAS	647.623.913	401.777.920	18.583.054	0		0,620387716	0,02869421	0		
OTKAR	1.605.062.174	103.757.339	155.419.078	0		0,064643813	0,09683057	0		✓
PRKME	529.550.018	108.024.565	39.046.934	0		0,203993129	0,07373606	0		✓
PGSUS	4.098.097.252	2.113.308.165	14.568.673	0		0,515680335	0,00355498	0		✓
PETKM	5.460.665.328	2.276.634.074	18.327.669	0		0,416915144	0,00335631	0		✓
SASA	699.561	141.604	2.068	0		0,202418374	0,00295614	0		✓
SODA	2.811.687.983	1.085.761.431	5.053.770	7.486.410		0,38616	0,00179741	0,002662603		✓
TATGD	654.584.122	135.984.291	1.154.601	0		0,207741506	0,00176387	0		✓
TAVHL	10.506.371	667.020	5.537.277	431.615		0,063487193	0,52703993	0,041081264		✓
TKFEN	5.626.055	1.379.244	14.604	0		0,245152954	0,00259578	0		
TKNSA	1.031.275	98.760	21.857	0		0,095764951	0,02119415	0		✓
KIPA	1.311.534	942.373	30.701	0		0,718527312	0,02340847	0		✓
TOASO	9.886.566	2.111.520	1.283.973	0		0,213574663	0,12987047	0		✓
TRKCM	5.626.505.323	2.679.603.460	19.993.078	22.591.024		0,476246499	0,00355337	0,004015108		✓
TRCAS	1.071.736.453	19.702.714	6.247	0		0,018383917	5,8289E-06	0		✓
TCELL	26.184.223	6.816.895	8.187.706	32.834		0,260343605	0,31269616	0,001253961		✓
TMSN	353.378.838	93.484.854	25.789.580	0		0,264545705	0,07297998	0		✓
TUPRS	25.470.116	11.479.744	59.409	0		0,450714241	0,0023325	0		✓
THYAO	47.638.000	33.191.000	258.000	36.000		0,6967337	0,00541584	0,000755699		✓
TTKOM	25.773.904	8.538.182	8.216.886	44.944		0,33127236	0,31880642	0,001743779		✓
TTRAK	2.016.048.336	469.389.061	120.890.449	0		0,232826293	0,05996406	0		✓
SISE	15.662.862.938	7.347.837.880	98.302.177	32.197.437		0,469124828	0,00627613	0,002055655		✓
ULKER	3.926.587.554	678.525.362	1.495.673	0		0,17280281	0,00038091	0		✓
VESTL	9.335.949	1.528.666	344.969	197.793		0,163739755	0,03695061	0,02118617		✓
YATAS	296.456.373	97.148.142	2.389.424	0		0,327697938	0,00805995	0		
ZOREN	5.617.555	4.022.422	18.787	0		0,71604497	0,00334434	0		✓

2015	
Total tangiables/TA	0,39017845
Total intangiables/TA	0,03887216
Goodwill/TA	0,0106644

2015	
Average of Tangiables/TA	0,304419467
Average of Intangibles/TA	0,060286368
Average of Goodwill/TA	0,014771651

2015	
the number of firms that audited by Big Four	62

Appendix 3 : Tangibles&Intangibles and Goodwill Information of the Companies in 2016

	COMPANY NAME	COMP	TOTAL ASSET	TANGIABLE	INTANGIABL	GOODWIL	TANGIABI	INT. AS/TA	GOODWI	big four
1	AFYON ÇİMENTO	AFYO	589.252.419	516.709.178	944.050	0	0,87688936	0,001602115	0	✓
2	AKENERJİ ELEKTR	AKEN	5.044.551.542	3.974.599.720	113.364.043	0	0,78789952	0,022472571	0	✓
3	AKSA AKLİRİK Kİ	AKSA	2.632.970	756.840	78.326	5.989	0,28744726	0,029748155	0,002275	✓
4	AKSA ENERJİ ÜRE	AKSE	4.152.553.954	2.453.630.577	60.978.594	0	0,59087265	0,0146846	0	✓
5	ALARKO HOLDİN	ALAR	2.343.846.633	521.011.055	16.319.941	12.043.473	0,22228889	0,006962888	0,005138	✓
6	ALCATEL LUCENT	ALCT	377.549.820	8.856.572	1.005.888	0	0,02345802	0,002664252	0	✓
7	ALKİM ALKALİ Kİ	ALKI	349.489.823	130.991.680	1.091.126	0	0,37480828	0,003122054	0	✓
8	ANADOLU CAM SA	ANCM	2.465.141.251	2.045.876.923	605.458	3.067.876	0,8299228	0,000245608	0,001245	✓
9	ANADOLU EFES Bİ	AEFES	25.628.559	7.302.670	9.964.139	1.675.218	0,28494267	0,388790451	0,065365	
10	ANEL ELEKTRİK P	ANEL	1.173.604.191	39.043.966	606.999	0	0,03326843	0,000517209	0	
11	ARÇELİK A.Ş	ARCL	16.909.368	2.750.411	1.910.508	393.752	0,16265605	0,112985181	0,023286	✓
12	ASELSAN ELEKTR	ASELS	8.604.951	967.522	697.131	0	0,11243783	0,081015104	0	✓
13	AYGAZ A.Ş	AYGA	4.314.350	658.238	19.119	0	0,15256945	0,00443149	0	✓
14	BAGFAŞ BANDIRM	BAGFS	1.151.288.647	656.649.225	543.883	0	0,5703602	0,000472412	0	
15	BANVİT BANDIRM	BANV	1.110.737.612	574.404.278	3.700.124	0	0,51713769	0,003331231	0	
16	BEŞİKTAŞ FUTBOL	BJKAS	394.216.594	9.525.500	59.782.999	0	0,02416311	0,151650133	0	✓
17	BİM BİRLEŞİK MA	BIMAS	4.989.137	2.090.824	7.402	0	0,41907528	0,001483623	0	✓
18	BİZİM TOPTAN SA	BIZIM	579.208.528	104.084.374	27.621.817	0	0,17970104	0,047688899	0	✓
19	BORUSAN MANNE	BRSAN	3.543.459.244	2.287.243.680	3.084.877	0	0,64548328	0,000870583	0	✓
20	BRİSA BRIDGESTO	BRISA	2.836.268.145	1.089.522.968	70.917.208	0	0,38413962	0,025003704	0	✓
21	CARREFOURSA CA	CRFSA	3.023.254.986	665.519.110	75.332.983	774.396.869	0,2201333	0,02491784	0,256147	✓
22	COCA-COLA İÇECİ	CCOLA	10.945.946	5.084.815	1.406.473	671.195	0,46453865	0,128492594	0,061319	✓
23	ÇELEBİ HAVA SER	CLEBI	689.822.528	156.759.806	137.172.028,00	32.556.051	0,22724657	0,198851186	0,047195	✓
24	ÇEMTAŞ ÇELİK MA	CEMTS	292.650.087	98.489.689	1.366.050	0	0,3365442	0,004667861	0	
25	DEVA HOLDİNG A	DEVA	1.017.527.019	324.181.457	218.770.229	1.782.731	0,31859739	0,215001887	0,001752	✓
26	DOĞAN ŞİRKETLE	DOHO	7.831.896	1.167.901	1.116.872	403.713	0,14912111	0,142605571	0,051547	✓
27	DOĞUŞ OTOMOTİV	DOAS	4.851.854	780.965	26.226	0	0,16096218	0,005405356	0	✓
28	EGE ENDÜSTRİ VE	EGEEN	330.385.279	55.035.432	10.104.506	0	0,16657955	0,030584008	0	✓
29	EİS ECZACIBAŞI İL	ECILC	3.992.703	122.388	35.066	24.117	0,03065292	0,008782522	0,00604	✓
30	ENKA İNŞAAT VE	ENKAI	26.698.832	5.637.774	86.086	194.147	0,21116182	0,003224336	0,007272	✓
31	ERBOSAN ERCİYA	ERBOS	274.177.381	68.336.343	0	0	0,24924136	0	0	
32	EREĞLİ DEMİR VE	EREGL	23.651.277	12.151.972	205.479	0	0,51379771	0,008687861	0	✓
33	FENERBAHÇE FUT	FENER	610.694.529	15.185.456	97.946.627	0	0,02486588	0,16038563	0	✓
34	FORD OTOMOTİV S	FROTO	9.286.152.113	3.302.744.781	552.563.438	0	0,35566344	0,059504026	0	✓
35	GALATASARAY SP	GSRAY	654.210.051	10.349.365	89.827.383	0	0,01581964	0,137306639	0	✓
36	GLOBAL YATIRIM	GLYHO	3.874.544.147	754.500.121	1.709.911.238	71.533.722	0,19473262	0,441319333	0,018462	✓
37	GOODYEAR LASTİ	GOOD	807.940.670	231.653.538	0	0	0,28672098	0	0	✓
38	GÖLTAŞ GÖLLER E	GOLTS	708.435.512	370.163.882	4.113.115	363.448	0,52250893	0,005805913	0,000513	
39	GSD HOLDİNG A.Ş	GSDHO	1.453.703	352.112	257	0	0,24221729	0,00017679	0	✓
40	GÜBRE FABRİKAL	GUBRE	3.383.132.381	1.219.905.720	29.129.804	188.461.258	0,36058468	0,008610306	0,055706	✓
41	HACI ÖMER SABA	SAHOL	308.267.839	4.964.509	672.769	1.014.815	0,01610453	0,002182417	0,003292	✓
42	HÜRRİYET GAZET	HURG	933.675.887	130.076.762	277.201.815	0	0,13931683	0,296892978	0	✓
43	İHLAS HOLDİNG A	IHLAS	2.485.376.078	247.653.049	14.442.639	5.433.942	0,09964409	0,005811048	0,002186	
44	İZMİR DEMİR ÇELİ	IZMDC	2.992.871.184	1.828.978.139	979.958	0	0,61111155	0,000327431	0	✓
45	KARDEMİR KARAI	KRDM	5.656.009.653	3.827.013.541	32.301.405	5.411.705	0,67662783	0,005710988	0,000957	✓
46	KARSAN OTOMOT	KARSN	1.603.313.027	445.226.451	187.770.033	0	0,27769153	0,11711377	0	✓
47	KARTONSAN KAR	KARTN	351.314.360	202.976.149	1.205.543	0	0,57776218	0,003431522	0	
48	KOÇ HOLDİNG A.Ş	KCHOL	23.739.485	5.347.860	734.437	843.745	0,22527279	0,03093736	0,035542	✓
49	KONYA ÇİMENTO	KONY	407.607.388	177.119.684	590.207	0	0,43453502	0,001447979	0	✓
50	KORDSA TEKNİK T	KORDS	2.543.674.117	1.215.832.426	30.562.245	45.595.167	0,47798278	0,012015	0,017925	✓
51	METRO TİCARİ VE	METRO	1.003.829.938	211.539	75.206	0	0,00021073	7,49191E-05	0	
52	MİGROS TİCARET	MGRO	6.337.404	1.268.333	107.038	2.252.992	0,20013447	0,016889881	0,355507	✓
53	NETAŞ TELEKOMÜ	NETAS	3.076.619.249	1.648.095.244	3.406.549	0	0,53568385	0,001107238	0	
54	ODAŞ ELEKTRİK Ü	ODAS	951.536.711	575.948.339	19.481.619	0	0,60528231	0,020473849	0	
55	OTOKAR OTOMOT	OTKAI	1.784.267.642	105.101.885	181.931.713	0	0,05890478	0,101964363	0	✓
56	PARK ELEKTRİK Ü	PRKM	507.445.139	197.023.643	46.069.169	0	0,3882659	0,090786502	0	✓
57	PEGASUS HAVA T	PGSUS	5.618.017.995	3.848.615.403	20.357.729	0	0,68504861	0,00362365	0	✓
58	PETKİM PETROKİ	PETKM	6.268.527.788	1.903.849.406	22.398.670	0	0,30371556	0,003573195	0	✓
59	SASA POLYESTER	SASA	1.032.187	175.955	1.509	0	0,17046814	0,001461944	0	✓
60	SODA SANAYİİ A.Ş	SODA	3.316.879.770	1.209.263.206	8.064.837	8.740.506	0,36457855	0,002431453	0,002635	✓
61	TAT GIDA SANAYİ	TATGD	691.466.792	153.518.066	841.586	0	0,22201799	0,001217103	0	✓
62	TAV HAVALİMANI	TAVHL	11.505.370	654.456	6.336.667	503.918	0,05688266	0,550757342	0,043799	✓
63	TEKFEN HOLDİNG	TKFEN	6.668.809	1.487.673	16.678	0	0,22307926	0,002500896	0	
64	TEKNOSA İÇ VE DI	TKNSA	768.418	98.744	22.287	0	0,12850298	0,029003745	0	✓
65	TESCO KİPA KİTLİ	KIPA	2.123.764	1.771.812	19.510	0	0,83427914	0,00918652	0	✓
66	TOFAŞ TÜRK OTOI	TOASO	11.829.708	2.320.618	1.770.199	0	0,19616866	0,149640126	0	✓
67	TRAKYA CAM SAN	TRKCM	6.879.394.683	3.282.318.439	18.708.027	26.349.387	0,47712315	0,002719429	0,00383	✓
68	TURCAS PETROL A	TRCAS	1.154.665.888	46.507.903	56.790.416	0	0,04027823	0,049183419	0	✓
69	TURKCELL İLETİŞİ	TCELL	31.600.158	8.195.705	8.203.155	32.834	0,25935646	0,259592215	0,001039	✓
70	TÜMOSAN MOTOR	TMSN	436.889.208	106.477.847	38.201.634	0	0,24371819	0,087440095	0	✓
71	TÜPRAŞ-TÜRKİYE	TUPRS	31.218.180	11.741.476	55.106	0	0,3761102	0,001765189	0	✓
72	TÜRK HAVA YOLL	THYAO	65.074.000	47.422.000	259.000	44.000	0,72873959	0,003980084	0,000676	✓
73	TÜRK TELEKOMÜ	TTKOM	26.874.451	8.685.917	8.341.272	44.944	0,32320351	0,310379252	0,001672	✓
74	TÜRK TRAKTÖR V	TTRAK	2.302.191.070	458.901.767	178.086.580	0	0,19933262	0,077355256	0	✓
75	TÜRKİYE ŞİŞE VE	SISE	19.152.495.948	8.633.325.814	109.450.129	38.157.768	0,45076766	0,005714667	0,001992	✓
76	ÜLKER BİSKÜVİ S	ULKER	5.526.188.949	1.032.162.499	1.573.673	0	0,18677655	0,000284766	0	✓
77	VESTEL ELEKTRO	VESTL	9.651.215	1.642.927	395.315	197.793	0,17023007	0,040960128	0,020494	✓
78	YATAŞ YATAK VE	YATAS	348.602.808	117.966.332	2.922.957	0	0,33839754	0,008384778	0	
79	ZORLU ENERJİ ELİ	ZOREN	6.841.244	4.385.368	24.577	0	0,64101909	0,003592475	0	✓

2016	
Total Tangibles/TA	0,416610915
Total Intangibles/TA	0,03587462
Goodwill/TA	0,009567625

2016	
Average of Tangibles/TA	0,322475154
Average of Intangibles/TA	0,060708695
Average Goodwill/TA	0,013858344

2016	
The number of firms that audited by Big Four	65

Appendix 4 : Firms That Have Goodwill in Their Balance Sheet in 2015 and 2016

2015		
1	AKSA AKLİRİK KİMYA SANAYİ	5.989 ₺
2	AKSA ENERJİ ÜRETİM	6.848.196 ₺
3	ALARKO HOLDİNG A.Ş.	12.043.473 ₺
4	ANADOLU CAM SANAYİİ A.Ş.	2.120.003 ₺
5	ANADOLU EFES BİRACILIK VE MALT SANAYİİ A.Ş	1.334.738 ₺
6	ARÇELİK A.Ş	163.450 ₺
7	CARREFOURSA CARREFOUR SABANCI TİCARET M	773.936.519 ₺
8	COCA-COLA İÇECEK A.Ş	606.621 ₺
9	ÇELEBİ HAVA SERVİSİ A.Ş.	26.182.142 ₺
10	DEVA HOLDİNG A.Ş.	1.782.731 ₺
11	DOĞAN ŞİRKETLER GRUBU HOLDİNG A.Ş.	403.713 ₺
12	EİS ECZACIBAŞI İLAÇ, SINAİ VE FİNANSAL YATIRI	24.117 ₺
13	ENKA İNŞAAT VE SANAYİ A.Ş.	160.406 ₺
14	GLOBAL YATIRIM HOLDİNG A.Ş	56.242.758 ₺
15	GÖLTAŞ GÖLLER BÖLGESİ ÇİMENTO SANAYİ VE T	363.448 ₺
16	GÜBRE FABRİKALARI T.A.Ş	188.461.258 ₺
17	HACI ÖMER SABANCI HOLDİNG A.Ş	1.014.355 ₺
18	İHLAS HOLDİNG A.Ş	19.838.211 ₺
19	KARDEMİR KARABÜK DEMİR ÇELİK SANAYİ VE T	9.338.820 ₺
20	KOÇ HOLDİNG A.Ş	2.899.913 ₺
21	KORDSA TEKNİK TEKSTİL A.Ş.	45.595.167 ₺
22	MİGROS TİCARET A.Ş	2.251.427 ₺
23	NETAŞ TELEKOMÜNİKASYON A.Ş	53.290.807 ₺
24	SODA SANAYİİ A.Ş	7.486.410 ₺
25	TAV HAVALİMANLARI HOLDİNG A.Ş	431.615 ₺
26	TRAKYA CAM SANAYİİ A.Ş.	22.591.024 ₺
27	TURKCELL İLETİŞİM HİZMETLERİ A.Ş.	32.834 ₺
28	TÜRK HAVA YOLLARI A.O	36.000 ₺
29	TÜRK TELEKOMÜNİKASYON A.Ş	44.944 ₺
30	TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.	32.197.437 ₺
31	VESTEL ELEKTRONİK SANAYİ VE TİCARET A.Ş	197.793 ₺
Total		1.267.926.319 ₺

	2016	
1	AKSA AKLİRİK KİMYA SANAYİ	5.989
2	ALARKO HOLDİNG A.Ş.	12.043.473
3	ANADOLU CAM SANAYİİ A.Ş.	3.067.876
4	ANADOLU EFES BİRACILIK VE MALT	1.675.218
5	ARÇELİK A.Ş	393.752
6	CARREFOURSA CARREFOUR SABANC	774.396.869
7	COCA-COLA İÇECEK A.Ş	671.195
8	ÇELEBİ HAVA SERVİSİ A.Ş.	32.556.051
9	DEVA HOLDİNG A.Ş.	1.782.731
10	DOĞAN ŞİRKETLER GRUBU HOLDİNC	403.713
11	EİS ECZACIBAŞI İLAÇ, SINAİ VE FİNA	24.117
12	ENKA İNŞAAT VE SANAYİ A.Ş.	194.147
13	GLOBAL YATIRIM HOLDİNG A.Ş	71.533.722
14	GÖLTAŞ GÖLLER BÖLGESİ ÇİMENTO	363.448
15	GÜBRE FABRİKALARI T.A.Ş	188.461.258
16	HACI ÖMER SABANCI HOLDİNG A.Ş	1.014.815
17	İHLAS HOLDİNG A.Ş	5.433.942
18	KARDEMİR KARABÜK DEMİR ÇELİK	5.411.705
19	KOÇ HOLDİNG A.Ş	3.130.215
20	KORDSA TEKNİK TEKSTİL A.Ş.	45.595.167
21	MİGROS TİCARET A.Ş	2.252.992
22	NETAŞ TELEKOMÜNİKASYON A.Ş	64.500.278
23	SODA SANAYİİ A.Ş	8.740.506
24	TAV HAVALİMANLARI HOLDİNG A.Ş	503.918
25	TRAKYA CAM SANAYİİ A.Ş.	26.349.387
26	TURKCELL İLETİŞİM HİZMETLERİ A.Ş	32.834
27	TÜRK HAVA YOLLARI A.O	44.000
28	TÜRK TELEKOMÜNİKASYON A.Ş	44.944
29	TÜRKİYE ŞİŞE VE CAM FABRİKALAR	38.157.768
30	VESTEL ELEKTRONİK SANAYİ VE TİC	197.793
Total		1.288.983.823

Appendix 5 : The Method for Calculation of Recoverable Amount

2015			
	VIU	**FVLCTS**	**Undetermined**
1	arçelik	tüpraş	şişecam
2	carrefour	ttkom	anadolu cam
3	global yatırım	migros	coca cola
4	ihlas holding		deva
5	vestel		doğan holding
6	koç		enka inşaat
7	turkcell		eis eczacıbaşı
8	ÇELEBİ		thy
9			kardemir
10			sabancı
11			soda sanayi
12			tav
13			anadolu efes
14			aksa akrilik
15			gübre
16			
2016			
	VIU	**FVLCTS**	**Undetermined**
1	çelebi	migros	alarko
2	netaş		anadolu cam
3	anadolu efes		carrefour
4	aksa akrilik		coca cola
5	arçelik		deva
6	global yatırım		doğan holding
7	ihlas holding		eis eczacıbaşı
8	koç		enka inşaat
9			gübre
10			kardemir
11			kardosa
12			sabancı
13			şişecam
14			soda sanayi
15			ttkom
16			tav
17			turkcell
18			thy
19			trakya cam
20			vestel
21			göltaş

Appendix 6 : The Choice of Discount Rate is Used for Cash Flow Projections

2015				
WACC	**PRE-TAX**	**COUNTRY GROWTH RA**	**UNDETERMINEI**	**POST-TAX**
NETAŞ	ÇELEBİ	DEVA	ŞİŞECAM	GLOBAL
ARÇELİK	CARREFOUR		ANADOLU EFES	VESTEL
EİS ECZACIBA	KARDOSA		AKSA AKRİLİK	MİGROS
İHLAS	TAV		AKSA ENERJİ	
KARDEMİR	TTKOM		ALARKO	
KOÇ			ANADOLU CAM	
TURKCELL			COCA COLA	
			DOĞAN HOLDİNG	
			ENKA İNŞAAT	
			GÜBRE	
			SABANCI HOLDİNG	
			SODA SANAYİ	
			THY	

2016				
WACC	**PRE-TAX**	**COUNTRY GROWTH RA**	**UNDETERMINEI**	**POST-TAX**
NETAŞ	ÇELEBİ		ANADOLU EFES	GLOBAL YATIR
AKSA AKRİLİK	CARREFOUR		DOĞAN HOLDİNG	MİGROS
ALARKO	TAV		DEVA HOLDİNG	
ANADOLU CAM			COCA COLA	
ARÇELİK			ENKA İNŞAAT	
EİS ECZACIBAŞI			GÜBRE	
İHLAS			SABANCI	
KARDEMİR			VESTEL	
KOÇ			ŞİŞECAM	
			SODA SANAYİ	
			TTKOM	
			TURKCELL	
			THY	
			TRAKYA CAM	

Appendix 7 : Financial Ratios Before and After Impairment Calculations in 2015 and 2016 (ROA)

2015	CC	TA	TANa	INTa	G	TANa imp	G imp	INTa imp	TA+Imp	NS	(a.imp) NS/TA	(b.imp)NS/TA	NP	a.imp NP	b. imp(ROA)
1	BANVT	1.050.753.461	529.221.832	4.113.161	0		3.927.719		1.054.681.180	2.001.062.565	1,904407303	1,897315135	-99.674.871	-0,09486	-0,094507111
2	CRFSA	3.026.180.906	834.685.775	86.742.957	773.936.519	17.456.730			3.043.637.636	1.007.906.473	0,333062201	0,331151929	-31.687.012	-0,01047	-0,010410902
3	CCOLA	8.945.818	4.366.714	1.154.210	606.621	7.818			8.953.636	2.334.410	0,260949865	0,260722013	126.653	0,014158	0,014145427
4	ECILC	3.369.830	102.181	33.348	24.117		4.042		3.373.872	262.875	0,078008386	0,07791493	54.979	0,016315	0,01629552
5	EREGL	6.408.891	3.520.075	69.596	0	1.980			6.410.871	2.060.291	0,321473871	0,321374584	1.162.309	0,181359	0,181302821
6	IZMDC	2.085.583.238	1.205.050.675	1.082.710	0	6.793.885			2.092.377.123	112.146.635	0,053772313	0,053597716	-203.363.429	-0,09751	-0,097192531
7	KARSN	1.669.804.271	450.715.111	164.876.838	0	709.757			1.670.514.028	1.026.071.041	0,614485817	0,614224738	-70.148.980	-0,04201	-0,041992452
8	KORDS	2.174.031.816	1.045.102.304	31.699.405	45.595.167	2.003.561			2.176.035.377	315.068.516	0,144923599	0,144790163	116.354.117	0,05352	0,053470692
9	SASA	699.561	141.604	2.068	0	8.909			708.470	1.111.408	1,58872207	1,568743913	70.731	0,101108	0,099836267
10	SODA	2.811.687.983	1.085.761.431	5.053.770	7.486.410	2.103.330			2.813.791.313	475.055.685	0,168957469	0,168831172	441.073.019	0,156871	0,156753991
11	TAVHL	10.506.371	667.020	5.537.277	431.615		897		10.507.268	3.026.180	0,288032852	0,288008262	604.732	0,057559	0,057553686
12	TKNSA	1.031.275	98.760	21.857	0	22.430		7.473	1.061.178	3.167.165	3,071115852	2,98457469	-94.573	-0,0917	-0,08912077
13	TRKCM	5.626.505.323	2.679.603.460	19.993.078	22.591.024	8.103.959			5.634.609.282	2.118.194.118	0,376467096	0,375925643	-169.043.282	-0,03004	-0,030000888
14	TCELL	26.184.223	6.816.895	8.187.706	32.834	18.657			26.202.880	5.002.919	0,191066162	0,190930119	1.905.790	0,072784	0,072732081
15	TTKOM	25.773.904	8.538.182	8.216.886	44.944	27.336	1.000	5.385	25.807.625	14.522.855	0,563471293	0,562735044	862.850	0,033478	0,033433917
16	SISE	15.662.862.938	7.347.837.880	98.302.177	32.197.437	36.161.288			15.699.024.226	2.178.956.486	0,139116105	0,138795664	804.866.447	0,051387	0,051268565

2016	CC	TA	TANa	INTa	G	TANa imp	G imp	INTa imp	TA+Imp	NS	(a.imp) NS/TA	(b.imp)NS/TA	NP	(a.imp) NP/TA	(b. imp) NP/TA
1	AEFES	25.628.559	7.302.670	9.964.139	1.675.218		54.051		25.682.610	4.090.615	0,159611588	0,159275673	40.055	0,001562905	0,001559616
2	CRFSA	3.023.254.986	665.519.110	75.332.983	774.396.869			4.652.054	3.027.907.040	4.492.466.037	1,485969942	1,483686909	432.167.297	0,142947684	0,14272806
3	CCOLA	10.945.946	5.084.815	1.406.473	671.195	21.734	54.051		11.021.731	7.050.245	0,644096454	0,639667671	22.391	0,002045598	0,002031532
4	DOHOL	7.831.896	1.167.901	1.116.872	403.713			12.779	7.844.675	7.774.247	0,992639203	0,99102219	233.886	0,02986327	0,029814619
5	KRDMI	5.656.009.653	3.827.013.541	32.301.405	5.411.705			2.927.115	5.658.936.768	2.336.737.097	0,413142346	0,412928646	123.877.113	0,021901857	0,021890528
6	KARSN	1.603.313.027	445.226.451	187.770.033	0	709.757			1.604.022.784	769.740.613	0,480093781	0,479881346	96.454.423	0,060159446	0,060132826
7	KONYA	407.607.388	177.119.684	590.207	0	2.644.821			410.252.209	273.859.688	0,671871257	0,667539825	41.382.930	0,101526447	0,100871925
8	MGROS	6.337.404	1.268.333	107.038	2.252.992	24.608	202.175		6.564.187	11.059.224	1,745071641	1,684781984	292.918	0,046220503	0,044623653
9	TKNSA	768.418	98.744	22.287	0	1.722			770.140	3.074.087	4,000540071	3,991595035	160.613	0,209017748	0,208550393
10	TRKCM	6.879.394.683	3.282.318.439	18.708.027	26.349.387	8.103.959			6.887.498.642	3.016.237.618	0,438445206	0,437929323	575.088.820	0,083595846	0,083497486
11	TCELL	31.600.158	8.195.705	8.203.155	32.834	43.198	3.181		31.646.537	14.100.863	0,446227611	0,44557365	1.563.451	0,04947605	0,049403541

Appendix 8 : Financial Ratios Before and After Impairment Calculations in 2015 and 2016 (Fixed Asset Ratio)

2015							
	CC	**TANa**	**TANa imp**	**TANa+TANa imp**	**NS**	**(a.imp) NS/FA**	**(b.imp) NS/FA**
1	CRFSA	834.685.775	17.456.730	852.142.505	1.007.906.473	1,207528034	1,182790985
2	CCOLA	4.366.714	7.818	4.374.532	2.334.410	0,534591915	0,533636512
3	EREGL	3.520.075	1.980	3.522.055	2.060.291	0,585297472	0,584968435
4	IZMDC	1.205.050.675	6.793.885	1.211.844.560	112.146.635	0,093063833	0,092542095
5	KARSN	450.715.111	709.757	451.424.868	1.026.071.041	2,276540138	2,272960826
6	KORDS	1.045.102.304	2.003.561	1.047.105.865	315.068.516	0,301471459	0,300894615
7	SASA	141.604	8.909	150.513	1.111.408	7,848704839	7,384132932
8	SODA	1.085.761.431	2.103.330	1.087.864.761	475.055.685	0,43753229	0,436686344
9	TKNSA	98.760	22.430	121.190	3.167.165	32,06930944	26,13388068
10	TRKCM	2.679.603.460	8.103.959	2.687.707.419	2.118.194.118	0,790487902	0,788104428
11	TCELL	6.816.895	18.657	6.835.552	5.002.919	0,733899965	0,731896853
12	TTKOM	8.538.182	27.336	8.565.518	14.522.855	1,700930596	1,695502245
13	SISE	7.347.837.880	36.161.288	7.383.999.168	2.178.956.486	0,296543898	0,295091648

2016							
	CCOLA	**TANa**	**TANa imp**	**TANa+TANa imp**	**NS**	**(a.imp) NS/FA**	**(b.imp) NS/FA**
1	CCOLA	5.084.815	21.734	5.106.549	7.050.245	1,386529303	1,380628091
2	KARSN	445.226.451	709.757	445.936.208	769.740.613	1,728874399	1,726122704
3	KONYA	177.119.684	2.644.821	179.764.505	273.859.688	1,546184376	1,523435831
4	MGROS	1.268.333	24.608	1.292.941	11.059.224	8,71949559	8,553541113
5	TKNSA	98.744	1.722	100.466	3.074.087	31,13188649	30,59828201
6	TRKCM	3.282.318.439	8.103.959	3.290.422.398	3.016.237.618	0,918935098	0,916671859
7	TCELL	8.195.705	43.198	8.238.903	14.100.863	1,720518613	1,711497635

Appendix 9 : Financial Ratios Before and After Impairment Calculations in 2015 and 2016 (Debt to Equity Ratio)

	2015					
	CC	E	TL	imp	(a.imp)TL/TE	(b.imp)TL/TE
1	BANVT	218.865.412	831.888.049	3.927.719	3,800911443	3,733903488
2	CRFSA	805.730.920	2.220.449.986	17.456.730	2,755820747	2,6973801
3	CCOLA	4.141.571.000	4.804.247.000	7.818.000	1,160005949	1,157820344
4	ECILC	2.740.060.000	629.770.000	4.042.000	0,229838033	0,229499487
5	EREGL	12.538.192.000	6.096.298.000	1.980.000	0,486218268	0,486141498
6	IZMDC	266.169.049	1.819.414.189	6.793.885	6,835558814	6,665425823
7	KARSN	241.868.691	1.427.935.580	709.757	5,903763625	5,886489883
8	KORDS	1.216.018.654	958.013.162	2.003.561	0,787827686	0,786531765
9	SASA	391.067	308.494	8.909	0,788852038	0,771281277
10	SODA	2.184.761.707	626.926.276	2.103.330	0,286954076	0,286678083
11	TAVHL	2.584.800.000	7.921.571.000	897.000	3,064674636	3,063611475
12	TKNSA	76.522.000	954.753.000	29.973.000	12,47684326	8,965237805
13	TRKCM	3.138.876.040	2.487.629.283	8.103.959	0,792522308	0,790481441
14	TCELL	14.399.254.000	11.784.969.000	18.657.000	0,818443025	0,817383947
15	TTKOM	4.993.368.000	20.780.536	33.721.000	0,004161627	0,004133712
16	SISE	9.502.536.325	6.160.326.613	36.161.288	0,648282354	0,645824709

	2016					
	CC	E	TL	imp	(a.imp)TL/TE	(b.imp)TL/TE
1	AEFES	14.817.022.000	10.811.537.000	54.051.000	0,729670038	0,72701795
2	CRFSA	374.512.367	2.648.742.619	4.652.054	7,072510423	6,985736193
3	CCOLA	4.996.467.000	5.458.999.000	75.785.000	1,092571811	1,076247592
4	DOHOL	3.017.164.000	4.814.732.000	12.779.000	1,595780674	1,589050355
5	KRDMD	2.237.386.061	3.418.623.592	2.927.115	1,527954273	1,525957901
6	KARSN	320.281.434	1.283.031.593	709.757	4,00595057	3,997092845
7	KONYA	334.720.865	72.886.523	2.644.821	0,217753151	0,216046047
8	MGROS	241.155.000	6.096.249.000	226.783.000	25,27938048	13,027899
9	TKNSA	61.915.000	830.333.000	1.722.000	13,41085359	13,04795952
10	TRKCM	3.586.721.252	3.292.673.431	8.103.959	0,918017654	0,91594813
11	TCELL	16.068.397.000	15.531.761.000	46.379.000	0,966603016	0,963821092

Appendix 10 : Financial Ratios Before and After Impairment Calculations in 2015 and 2016 (Short-term Liability to Total Asset Ratio)

	2015					
	CC	**TA**	**STL**	**imp**	**(a.imp)STL/TA**	**(b.imp)STL/TA**
1	BANVT	1.050.753.461	351.663.213	3.927.719	0,334677187	0,333430822
2	CRFSA	3.026.180.906	519.082.849	17.456.730	0,171530674	0,170546862
3	CCOLA	8.945.818.000	252.757.000	7.818.000	0,028254208	0,028229537
4	ECILC	3.369.830.000	189.962.000	4.042.000	0,05637139	0,056303855
5	EREGL	6.408.891.000	8.353.000	1.980	0,001303346	0,001303345
6	IZMDC	2.085.583.238	486.303.288	6.793.885	0,233173761	0,232416653
7	KARSN	1.669.804.271	141.078.086	709.757	0,084487798	0,084451901
8	KORDS	2.174.031.816	326.242.736	2.003.561	0,15006346	0,14992529
9	SASA	699.561	284.811	8.909	0,407128185	0,402008554
10	SODA	2.811.687.983	33.624.669	2.103.330	0,011958891	0,011949951
11	TAVHL	10.506.371.000	1.447.377.000	897.000	0,13776184	0,137750079
12	TKNSA	1.031.275.000	950.447.000	29.973.000	0,921623233	0,895593678
13	TRKCM	5.626.505.323	274.483.810	8.103.959	0,048784067	0,048713903
14	TCELL	26.184.223	4.646.769	18.657	0,17746446	0,177338102
15	TTKOM	25.773.904.000	8.552.927.000	33.721.000	0,33184445	0,331410852
16	SISE	15.662.862.938	658.119.434	36.161.288	0,042017825	0,041921041

2016						
	CC	**TA**	**STL**	**imp**	**(a.imp)STL/TA**	**(b.imp)STL/TA**
1	AEFES	25.628.559	117.754	54.051	0,00459464	0,00458497
2	CRFSA	3.023.254.986	809.972.917	4.652.054	0,267914192	0,267502571
3	CCOLA	10.945.946	109.184	75.785	0,009974835	0,009906248
4	DOHOL	7.831.896	1.088.428	12.779	0,138973756	0,138747367
5	KRDMD	5.656.009.653	6.000.000	2.927.115	0,001060819	0,00106027
6	KARSN	1.603.313.027	64.774.351	709.757	0,040400315	0,040382438
7	KONYA	407.607.388	46.424.386	2.644.821	0,113894859	0,1131606
8	MGROS	6.337.404.000	102.012.000	226.783.000	0,016096812	0,015540691
9	TKNSA	768.418	712.323	1.722	0,926999368	0,924926637
10	TRKCM	6.879.394.683	292.634.385	8.103.959	0,04253781	0,042487759
11	TCELL	31.600.158.000	3.474.254.000	46.379.000	0,109944197	0,10978307

(a.imp) NP/TA	(After Impairment) Net Profit/ Total Assets
(a.imp) NS/FA	(After Impairment) Net Sales/Fixed Assets
(a.imp) NS/TA	(After Impairment) Net Sales/ Total Assets
(a.imp) STL/TA	(After Impairment) Short Term Liabilities/Total Assets
(a.imp) TL/TE	(After Impairment) Total Liabilities/Total Equity
(b.imp) NP/TA	(Before Impairment) Net Profit/ Total Assets
(b.imp) NS/TA	(Before Impairment) Net Sales/Total Assets
(b.imp) STL/TA	(Before Impairment) Short Term Liabilities/Total Assets
(b.imp) TL/TE	(Before Impairment) Total Liabilities/Total Equity
CC	Company Code
E	Equity
FA	Fixed Assets
G	Goodwill
G imp	Goodwill Impairment
imp	Impairment
INTa	Intangible Assets
INTa imp	Intangible Assets Impairment
NP	Net Profit
NS	Net Sales
STL	Short-term Liabilities
TA	Total Assets
TA+Imp	Total Assets+Impairment
TANa	Tangible Assets
TANa imp	Tangible Assets Impairment
TE	Total Equity
TL	Total Liabilities