



Ferdowsi University of Mashhad

Iranian Journal of Accounting, Auditing & Finance

Received: 2021-06-20

Accepted after revision: 2021-07-17

Published online: 2021-07-30

RESEARCH ARTICLE

DOI: 10.22067/IJAAF.2021.40337

The Impact of Intangible Assets on Firm Performance: Evidence from an Emerging Economy

Arash Arianpoor

Assistant Professor of Accounting Department, Attar Institute of Higher Education, Mashhad, Iran

Abstract

This research investigates intangible assets' role in firm performance in the Tehran Stock Exchange's firm performance. Multiple Linear Regression is conducted to examine a large pool of data for 1350 company-year over ten years from 2008 to 2018. Four measures are used for performance: return on assets, return on equity, net profit, and profit margin. The findings show that unrecorded and recorded intangible assets positively impact firm performance (return on assets, return on equity, net profit, and profit margin). The authors also find that last year's recorded intangible assets and performance (return on assets, return on equity, net profit, and profit margin) are related positively. This paper magnifies the significant role of intangible assets on firm performance. The current study outcomes may give managers insight to provide serious attention to intangible assets in developing nations to improve performance.

Keywords: Recorded intangible assets, Unrecorded intangible assets, Firm performance

Corresponding author: Arash Arianpoor
Email: arash.arianpoor@attar.ac.ir

Number of Tables: 5
Number of References: 41
Pages: 61-77

1. Introduction

Accounting researchers and practitioners have long discussed the ability, or indeed inability, of standard financial reports to reflect the actual value (Lev, 2008; Skinner, 2008; Penman, 2009). In particular, intangibles' accounting treatment is one of the most debated, repeated, and unresolved issues in accounting, both in academic research and standard-setting (Skinner, 2008; Wrigley, 2008; Penman, 2009; Lev, Radhakrishnan and Zhang, 2009). The widening gap between the market value of companies and reported book values are cited as an indication of the significance of intangibles in the modern economy, with the difference between market and book values, in some cases, reaching as high as 80 percent (Penman, 2009; Lev, Radhakrishnan and Zhang, 2009). In the past two decades, merging, companies' interactions, and combined information technology have contributed to magnify the role of intangible assets as the dominant reason for the increase in firm value (Rezaei & Poor Ghayoumi, 2019). Intangible assets are believed to be the most significant assets in a company; however, accounting researchers struggle to measure them effectively in financial statements (Namazi & Mousavi Nejad, 2017). Apple's financial records show that its book value is substantially lower than its ballooning market value. The hidden, or unaccounted, value between Apple's market and book values, and many other companies, such as Microsoft and Dell, are categorically attributed to intangible (intellectual) assets (Penman, 2009; Lev, Radhakrishnan and Zhang, 2009; Edvinsson, 2013).

Despite the significance of intangible assets in the modern economy, accounting researchers are challenged by identifying, measuring, and systematically disclosing intangible assets. Accounting practitioners believe that the excess of the market value over the book value in a firm shows unrecorded intangible assets (Lev, 2008; Lev, Radhakrishnan and Zhang, 2009; Wrigley, 2008). Intangible assets play a significant role in how a business creates value (Chen, Cheng, and Hwang, 2005; Lev, Radhakrishnan and Zhang, 2009; Stam, 2009; De Santis & Giuliani, 2013). On the other hand, if the book value surpluses the market value, there are unrecorded intangible liabilities (Harvey & Lusch, 1999; De Santis & Giuliani, 2013; Haji & Mohd Ghazali, 2018).

In Agency relations, maximizing the assets is the owners' goal; therefore, they monitor the managers' performance. Performance evaluation, which compares the actual results with the budget, is essential in terms of accountability. To compare, financial statements prepared by management accountants are used (Stam, 2009). Performance evaluation, which collects data, identifies and exaggerates a firm's strengths to perform more favorably. Because of this fact, analyzing the company's background maximizes positive performance (Marzo, 2014).

Although prior studies showed the positive relationship between intangible assets and performance (Chen, Cheng, and Hwang, 2005; Lev, Radhakrishnan, and Zhang, 2009), the link between the recorded and unrecorded intangible assets and last year's intangible assets and performance is still a matter of debate between accounting practitioners.

Considering the resource-based theory, resources play a significant role in performance (Long Kweh, ChuannC Han, and Wei Kiong Ting, 2013). Resources are defined at all in-control assets, capabilities, organizational processes, firm characteristics, information, knowledge, etc., facilitating the implementation of the strategies leading to improved efficiency and productivity. Considering Intangible assets as a type of asset, they can improve efficiency and productivity (Haji & Mohd Ghazali, 2018).

This paper mainly discusses how intangible assets affect performance. Hence, this research investigates the role of intangible assets (recorded, unrecorded, and last years) in firm performance on the Tehran Security market. This study contributes to the financial literature for three main reasons. First, there are not enough studies on intangible assets (recorded and unrecorded). Second, this paper has a broader look at the recorded and unrecorded intangible assets and their impact on performance,

while prior studies have significantly focused on the word "intangible assets." Third, standard makers, researchers, and practitioners are silent on recorded and unrecorded intangibles. Generally, this study can provide brighter empirical shreds of evidence about the relationship between recorded and unrecorded intangible assets and performance in listed companies on the Tehran Stock Exchange. I believe that this research can significantly contribute to future studies.

The next section reviews intangible assets literature, followed by the third section in which theories and hypotheses are introduced. Research methods are expanded in the fourth section, including the research scope and statistic society. In the fifth section, the algorithm and variables are shown. Data and findings, analysis are explained in section six. And finally, the findings are discussed and concluded in the seventh section.

2. Literature Review and hypothesis development

Leading researchers and practitioners view intangibles as a productive organizational resource that can help firms achieve sustained competitive advantage (Edvinsson & Malone, 1997; Hall, 2001; Brennan, 2001; Lev, 2001; Edvinsson, 2013). According to the International Accounting Standard (No. 38), intangible assets are non-monetary, identically, and non-physical assets used in production and demand, rent, or other administrative utilization.

According to the Accounting Standard, intangible assets, performance, and cash-flow are related. Recent studies show the correlation between intangible assets and performance (Corona & Carlos, 2006). Therefore, identifying and reporting intangible assets help the decision-making process. Furthermore, the management is responsible for all resources and liabilities in hand, including intangible assets (Namazi & Mousavi Nejad, 2017). Many intangible assets cannot be reported to follow the historical cost of goods since they cannot be approved and measured (Rowbottom & Nicholas, 1988). Intangible assets are conceptualized as the firm's market value and book value (Hall, 2001; Lev, 2008; Wrigely, 2008). Hence, the excess of market value to book value is named unrecorded intangible assets (Wrigely, 2008; Lev, 2008). The pieces of evidence show that the market value is significantly higher (lower in a few cases) than the book value (Lev, 2001; Penman, 2009; Lev, Radhakrishnan and Zhang, 2009; Ahmed Haji, 2016). Penman (2009), for instance, demonstrates that Microsoft and Dell, two well-known American companies, had significant hidden amounts of intangibles of 84.14 (market to book value of 6.3) and 90.93 (market to book value of 11), in 2008, respectively.

On the other hand, Volkswagen's market value, for instance, significantly decreased by 70% due to its financial crisis. Several possible approaches account for intangible assets among accounting researchers (Walker, 2009; Dumay, 2012). One view negotiates that hidden values or the gap between market and book value is due to the unrecorded intangible assets (Lev, 2008). They believe that intangibles have grown both in value and importance, and now they are the key driver to a firm's performance (Bloom, 2009; Lev, Radhakrishnan and Zhang, 2009; Penman, 2009; Edvinsson, 2013). Moreover, they argue that the decision-making process can be misleading for investors and other users because there is hidden information in the balance sheet (Lev, 2008; Wrigley, 2008). Evidence proves that information users value non-financial related to intangible assets tremendously (Merkley, 2014). This study provides an empirical account of the role of intangible assets in the firm's performance. In particular, the impact of recorded and unrecorded intangible assets on performance will be magnified.

Besides, the effect of the last year's intangible assets is discussed. The definition of performance is agreed to be looked at as efficiency and effectiveness, in which efficiency means performing correctly. Effectiveness means the extent to which the actual results have been achieved to fulfill the

desired income or do accurate things. Hence, both internal reasons (efficiency) and external reasons (effectiveness) are included. To better understand the firm's performance, it is suggested to use leading indicators rather than lagging indicators. Lagging indicators focus on past-based events; however, leading indicators emphasize future-based events (Azeez et al., 2015). Economic theories indicate that intangible assets are indeed capable of influencing firm performance. Considering the interest theory's point of view, firms in the same business line have different performance results; therefore, performance is much dependent on the assets (Galbraeth, 2005). Lev, Radhakrishnan, and Zhang (2009) claim that companies that significantly invest in their intangible assets such as high-tech systems, employee development programs, or efficient reward systems lead to better performance.

There are several approaches to measure performance. Return on Assets is a traditional way of measurement, which was suggested in 1980 by DuPont System. Return on assets is calculated by dividing net profit by the book value of assets. ROA plays an alert role in monitoring assets more carefully since it signals expenses, net profit, and sale amount. ROA is used to track management performance over time. Return on equity is counted as another way of performance evaluation. ROE is estimated by dividing net income by shareholders' equity, where net income is computed using the book value of shareholders' equity (Chen, Cheng, and Hwang, 2005).

Net income is another way of judging performance, which is a significant interest of investors and decision-makers. Net profit represents the final figure for profit and loss remaining after expenses. The fourth factor in evaluating performance is profit margin, profitability, and net profit as a percentage of revenue. There are several kinds of profit margin; gross profit margin, net profit margin, and profit margin before tax; however, the profit margin usually represents a net profit margin (Haji & Mohd Ghazali, 2018). Although several studies were conducted on performance, a few research pieces were done on the effects of intangible assets and liabilities on performance. Therefore, the relationship between intangible assets and liabilities is debated in the following.

Gogan et al. (2016) declared that intellectual properties affect ROA positively. The findings show that Human resources and performance are positively related. However, it is concluded that there is no relation between structural capital and return.

Andonova and Ruíz-Pava (2016) understood that intangible assets affect performance positively.

Ozkan, Cakan, and Kayacan (2017) found a positive correlation between intellectual properties and performance. Liu (2017) acknowledged that intangible assets and performance are related positively. Dai, Parwada, and Zhang (2017) declared a positive relationship between company investment and performance. Haji & Mohd Ghazali (2018) concluded that last year's intangible assets positively affect the current year's performance, and last year's intangible liabilities had a negative impact on the current year's performance. Labidi and Gajewski (2019) showed that the increase in intangible assets disclosure results in a distinctive rise in cash flow. Mitra (2019) found that identifying intangible assets is the reason for fluctuation in total salary expense.

In Iran, Rahmani & Esmaili (2013) examined the relationship between intangible assets on profit value. The findings show that intangible assets affect profit value. They play an essential role in assessing the firm's market value. Arefmanesh et al. (2016) found a positive relationship between intangible assets and the firm's market value. Identifying intangible assets in companies in line with medium or high-tech activities can be a proper anticipation index for profitability and cash flow. Therefore, intangible assets provide useful information for decision-makers. Namazi & Mousavi Nejad (2017) investigated the positive relationship between intangible assets and the firm's financial performance. Rezaei & Poor Ghayoumi (2019) showed that intangible assets and financial structure are negatively correlated.

There is a positive relationship between intangible assets and management ownership, and the

board of directors' independence. However, no relation was found between intangible assets and dividends variables. Generally, this study focused on the impact of intangible assets on governance systems. Taleb Nia & Bodaghi (2019) acknowledged a positive relationship between intangible assets and firm performance. Nik Kar, Hematfar, and Asami (2019) declared that intangible assets are significant in recording superior value. In other words, intangible assets are a vital means of improvement and growth in most economic sectors. It is also concluded that intangible assets can influence the relation between firm financial health (firm performance variable) and agency costs (dividend system). Moreover, they can have an impact on the relation between solvency and liability ratio. Based on the mentioned literature, the research hypotheses are presented as follow:

Considering the above, the following hypotheses are therefore proposed:

H₁: There is a positive relationship between recorded intangible assets and return on assets (ROA).

H₂: There is a positive relationship between recorded intangible assets and return on equity (ROE).

H₃: There is a positive relationship between recorded intangible assets and net profit.

H₄: There is a positive relationship between recorded intangible assets and profit margin.

H₅: There is a positive relationship between unrecorded intangible assets and return on assets (ROA).

H₆: There is a positive relationship between unrecorded intangible assets and return on equity (ROE).

H₇: There is a positive relationship between unrecorded intangible assets and net profit.

H₈: There is a positive relationship between unrecorded intangible assets and profit margin.

H₉: A positive relationship exists between the prior year's intangible assets and returns on assets (ROA).

H₁₀: There is a positive relationship between the prior year's intangible assets and return on equity (ROE).

H₁₁: There is a positive relationship between the prior year's intangible assets and net profit.

H₁₂: There is a positive relationship between the prior year's intangible assets and profit margin.

3. Research Methodology

Our empirical study is included as inductive and leading accounting researches. I employed multiple linear regression using combined data. Audited financial information is collected by the Rahavard Novin software and the Codal website. Excel is utilized to categorize data, and Eviews 9 is applied to analyze data.

This study's sample is drawn from 135 listed companies on the Tehran Stock exchange over ten years from 2008 to 2018.

Three main criteria grounded our sampling approach.

1. The selected companies must have been on the Tehran Stock Exchange from 2008 to 2018.
2. The selected companies must have recorded share transactions and must not have stopped their activities for more than three months.
3. Their fiscal year must end in March.
4. The selected companies must not be banks, investment companies, investment funding companies, or leasing firms.

3.2. Research Models

To test the hypotheses, different regression models are utilized (Haji & Mohd Ghazali, 2018):

Model 1: Testing the first to the fourth hypotheses

$$\begin{aligned}
& ROA_{it}/ROE_{it}/NIncome_{it}/PMargin_{it}/ \\
& = \gamma_0 + \gamma_1 IntangAssets_{it} + \gamma_2 GROWTH_{it} + \gamma_3 AGE_{it} + \gamma_4 LEV_{it} + \gamma_5 SIZE_{it} \\
& + \gamma_6 CFO_{it} + \gamma_7 LOSS_{it} + \gamma_8 PPE_{it} + \gamma_9 INVENT_{it} + \gamma_{10} REC_{it} \\
& + \gamma_{11} CurrentRatio_{it} + \gamma_{12} Industry_{it} + \gamma_{13} Year_{it} + \varepsilon_{it}
\end{aligned}$$

Model 2: Testing the fifth to the eighth hypotheses

$$\begin{aligned}
& ROA_{it}/ROE_{it}/NIncome_{it}/PMargin_{it}/ \\
& = \gamma_0 + \gamma_1 IntangAssetsUnrecord_{it} + \gamma_2 GROWTH_{it} + \gamma_3 AGE_{it} + \gamma_4 LEV_{it} \\
& + \gamma_5 SIZE_{it} + \gamma_6 CFO_{it} + \gamma_7 LOSS_{it} + \gamma_8 PPE_{it} + \gamma_9 INVENT_{it} + \gamma_{10} REC_{it} \\
& + \gamma_{11} CurrentRatio_{it} + \gamma_{12} Industry_{it} + \gamma_{13} Year_{it} + \varepsilon_{it}
\end{aligned}$$

Model 3: Testing the ninth to the twelfth hypotheses

$$\begin{aligned}
& ROA_{it}/ROE_{it}/NIncome_{it}/PMargin_{it}/ \\
& = \gamma_0 + \gamma_1 IntangAssets_{it-1} + \gamma_2 GROWTH_{it-1} + \gamma_3 AGE_{it-1} + \gamma_4 LEV_{it-1} \\
& + \gamma_5 SIZE_{it-1} + \gamma_6 CFO_{it-1} + \gamma_7 LOSS_{it-1} + \gamma_8 PPE_{it-1} + \gamma_9 INVENT_{it-1} \\
& + \gamma_{10} REC_{it-1} + \gamma_{11} CurrentRatio_{it-1} + \gamma_{12} Industry_{it-1} + \gamma_{13} Year_{it-1} + \varepsilon_{it}
\end{aligned}$$

3.3. Research variables:

3.3.1. Dependent variables

I used four firm performance measures (ROA, ROE, net income, and profit margin) to ascertain that the correlation between financial performance and intangible assets is reliable enough.

- 1- Return on assets (ROA_{it}): net profit after tax divided by the asset's book value of the company I in the year.
- 2- Return on equity (ROE_{it}): net profit after tax divided by shareholders' equity book value of the company i in the year t.
- 3- Net profit (NIncome_{it}): net profit after tax divided by assets' market value of the company i in the year t.
- 4- Profit Margin (PMargin_{it}): net profit after tax divided by net sales of the company i on the year t.

3.3.2. Independent variables

Recorded intangible assets (IntangAssets_{it}): patents, trademarks, copyrights, goodwill, brand recognition, franchise, computer software, formulas, models, and forming intangible assets. The detailed information of intangible assets is extracted from the notes to financial statements. It is calculated by dividing the recorded intangible assets by assets' book value.

Unrecorded intangible assets (IntangAssetsUnrecord_{it}): the excess amount of equity's market value and book value in the company i in the year t.

Unrecorded intangible assets are calculated as follow:

$$IntangAssetsUnrecord_{it} = [MV_{it} - (BV_{it} + TD_{it})]/Assets_{it}$$

IntangAssetsUnrecord_{it}: unrecorded intangible assets in the company i in the year t.

MV_{it}: equity's market value (number of shares multiplied by the market value of per share) in the company i in the year t.

BV_{it}: equity's book value in the company i in the year t.

TD_{it}: liability's book value in the company i in the year t.

Assets_{it}: assets' book value in the company i in the year t.

Studies show that intangible liabilities also exist, which identified if a firm's book value is greater than the market value (Harvey & Lusch, 1999; De Santis & Giuliani, 2013; Haji & Mohd Ghazali, 2018). In this paper, I consider both recorded and unrecorded intangible assets; therefore, if the firm's market value is less than the book value, I consider the unrecorded intangible assets zero (Harvey &

Lusch, 1999; De Santis & Giuliani, 2013; Haji & Mohd Ghazali, 2018).

Prior year intangible assets ($\text{IntangAssets}_{it-1}$): prior year unrecorded intangible assets divided by assets' book value of the company i in the year $t-1$

3.3.3. Control variables

Net Sale Growth (GROWTH_{it}): net sale growth of the company i in the year $t-1$. It is computed as the net sale in the year t minus net sale in the year $t-1$ divided by net sale in the year $t-1$. Net sale growth indicates current and future superior performance (Haji & Mohd Ghazali, 2019).

Firm age (AGE_{it}): natural logarithm of firm age beginning from establishing the company i in the year t or $t-1$ (Demerjian, Lev, and McVay, 2012). Companies face sale fluctuations during their age due to the economic, political, industrial, etc., status, impacting their performance (Chang, Deng, and Wang, 2018).

Leverage (LEV_{it}): firm's liability is divided by the company's firm assets of the company i in the year t or $t-1$. Companies with higher leverage ratios face more difficulties attracting investors, such as lower sales and unsatisfying performance (Lev, 2001).

Firm Size (SIZE_{it}): natural logarithm of assets' book value of the company i in the year t or $t-1$.

The bigger a company is, the more sales they make and the less fluctuated performance.

Operational cash flow (CFO_{it}): net operational cash flow divided by assets' book value of the company i in the year t or $t-1$. Since operational cash flows are related to a company's main business activities, it leads to a more desired performance (Labidi and Gajewski, 2019).

The company's loss virtual variable (LOSS_{it}): this dummy variable calculates the company's loss. If the company is on loss in the year t or $t-1$, it is one, otherwise zero. Loss shows poor performance (Marzo, 2014).

Plants & machinery (fixed tangible assets) (PPE_{it}): plants & machinery divided by assets' book value of the company i in the year t or $t-1$. Fixed tangible assets, as well as materials and labors, are the main parts of production. Therefore, larger amounts of fixed tangible assets show superior performance (Ozkan, Cakan, and Kayacan, 2017).

Inventory (INVENT_{it}): firm's inventory divided by the asset's book value of the company i in the year t or $t-1$. In the current competitive market, a lack of inventory flexibility can result in loss; therefore, inventory increase or decrease can drive performance (Ahmad Haji, 2016).

Receivables (REC_{it}): receivables divided by the asset's book value of the company i in the year t or $t-1$. Sales can be in cash or credit; therefore, performance can be driven by receivables (Taleb Nia & Bodaghi, 2018).

Current ratio (CurrentRatio_{it}): current assets divided by current liabilities of the company i in the year t or $t-1$. A higher current ratio indicates a more desired performance (Gogan et al., 2016).

Random effects in terms of industry (Industry_{it}): including four groups: first, vehicles, machinery, and metals; second, chemistry and medicine; third, minerals; fourth, other industries. A dummy variable is considered to apply random effects in the industry (Namazi & Mousavi Nejad, 2016).

Random effects in terms of the year (Year_{it}): considering the study's period, ten virtual variables are selected from 2008 to 2018. A dummy variable is considered to apply random effects in terms of the year (Haji & Mohd Ghazali, 2018).

4. Research Findings

4.1. Descriptive results

The descriptive results are shown in Tables 1 and 2, explaining descriptive parameters separately; the parameters include information on central indexes such as minimum, maximum, average, median,

and dispersion indexes such as standard deviation. The most significant central index is the average, which shows the balance point and center of gravity.

In Table 1, the average return on assets is 0.081, the median of 0.073, standard deviation of 0.132, minimum and maximum of -0.337, and 0.441, and the firm's profitability to assets' book value of 8.1 are presented.

The average return on equity is 0.240, the median is 0.239, the standard deviation is 0.267, the minimum and maximum are -0.388 and 0.702, and the firm's profitability to equity's book value is 0.24.

The net profit to assets' market value ratio is 0.051, the median is 0.052, the standard deviation is 0.082, minimum and maximum are -0.501 and 0.722, and the firm's net profit to assets' market value is 5.1.

The average of 0.105, the median of 0.091, the standard deviation of 0.208, minimum and maximum of -0.493 and 0.691, and the net profit of the net sale of 10.5 are calculated.

In Table 1, the average of intangible assets to current assets is approximately 0.005, and the average of intangible assets to prior year assets is 0.005, which shows no significant change in two years. Furthermore, the average of unrecorded assets to assets is computed as 0.145, which shows a significant part of the intangible assets is not recorded.

In Table 2, the cumulative relative frequency of loss is estimated at 17 percent, which means 17 percent (225 year-firm) of considered year-firm are in loss. However, the cumulative relative frequency for the prior year's loss is estimated at 15 percent, which means 15 percent (201 year-firm) of the considered year-firm are in loss.

4.2. Data analysis

I employ panel data regression analyses to determine the role of intangible assets and firm performance. First, the synchronicity between the independent variables of the study was assessed through variance analysis. If the variance is bigger than 5, there might be a probable error. However, if it is greater than 10, a serious error occurs. Our analysis shows that the variance is not a big figure. Therefore, independent variables are not synchronized. Durbin-Watson test was employed to check the independent variable's autocorrelation. The Durbin-Watson statistic will always have a value between 0 and 4. A value of 2.0 means that there is no autocorrelation detected in the sample. Values from 0 to less than 2 indicate positive autocorrelation, and values from 2 to 4 indicate negative autocorrelation. Data can be time, sectional, or combined series.

The data used in this study are combined; Chow Model is utilized to test whether the coefficients in two linear regressions on different data sets are equal. I conducted the Hausman specification test to identify the appropriate method between the fixed-effects model and the "random-effects model." The Hausman specification test suggests that if the test's probability value (p-value) is greater than 0.05, the random-effects model should be used and vice-versa. The findings are illustrated in table 3, table 4, and table 5. According to the findings, the fixed-effects model is the appropriate model to test models 1 to 3 in all four proxies of assessing firm performance.

The first hypothesis stated that "recorded intangible assets affect the return on assets positively." As shown in Table 3, the coefficient of recorded intangible assets (IntangAssets_{it}) is 1.003, and the T statistic is 5.804. The first hypothesis is accepted at the 95% significance level. Therefore, recorded intangible assets can positively cause an increase in return on assets (firm performance).

Table 1. Descriptive statistic of the variables

Variables	Sign	Ave	Med	ST Dev	Min	Max
Return on Assets	ROA _{it}	0.081	0.073	0.132	-0.337	0.441
Return on Equity	ROE _{it}	0.240	0.239	0.267	-0.388	0.702
Net Profit to Assets' Market Value	NIncome _{it}	0.051	0.052	0.082	-0.501	0.722
Profit Margin	PMargin _{it}	0.105	0.091	0.208	-0.493	0.691
Recorded Intangible Assets to Assets' Book Value	IntangAssets _{it}	0.005	0.002	0.009	0	0.096
Recorded Intangible Assets in Prior Year to Assets' Book Value in Prior Year	IntangAssets _{it-1}	0.005	0.001	0.009	0	0.096
Unrecorded Intangible Assets to Assets' Book Value	IntangAssetsUnre cord _{it}	0.145	0	0.237	0	0.615
Net Sale Growth	GROWTH _{it}	0.184	0.138	0.341	-0.577	1.025
Sale Growth in Prior Year	GROWTH _{it-1}	0.201	0.151	0.340	-0.320	1.070
Firm Age	AGE _{it}	3.618	3.737	0.367	2.484	4.219
Firm Age in Prior Year	AGE _{it-1}	3.591	3.713	0.378	2.397	4.204
Leverage	LEV _{it}	0.642	0.652	0.183	0.196	0.919
Leverage in Prior Year	LEV _{it-1}	0.637	0.649	0.176	0.203	0.901
Firm Size	SIZE _{it}	14.027	13.861	1.365	10.504	19.374
Firm Size in Prior Year	SIZE _{it-1}	13.908	13.744	1.357	10.504	19.149
Operational Cash Flow to Assets	CFO _{it}	0.112	0.098	0.122	-0.189	0.511
Operational Cash Flow in Prior Year to Assets in Prior Year	CFO _{it-1}	0.116	0.102	0.125	-0.186	0.519
Plants and Machinery (fixed assets) to Assets	PPE _{it}	0.258	0.214	0.177	0.019	0.808
Plants and Machinery in Prior Year (fixed assets) to Assets in Prior Year	PPE _{it-1}	0.259	0.217	0.177	0.020	0.814
Inventory to Assets	INVENT _{it}	0.240	0.226	0.120	0.044	0.586
Inventory to Assets in Prior Year	INVENT _{it-1}	0.241	0.228	0.118	0.0045	0.586
Receivable to Assets	REC _{it}	0.252	0.227	0.172	0.003	0.728
Receivables in Prior Year to Assets in Prior Year	REC _{it-1}	0.289	0.272	0.169	0.021	0.731
Current Ratio	CurrentRatio _{it}	1.281	1.184	0.743	0.083	9.956
Current Ratio in Prior Year	CurrentRatio _{it-1}	1.273	1.183	0.707	0.083	9.956

Table 2. Descriptive statistic of dummy variables

Variable	Sign	Condition	Absolute Frequency	Frequency Percent
Firm Net Loss	LOSS _{it}	Yes= 1	225	17%
		No= 0	1125	83%
		Total	1350	100%
Firm Net Loss in Prior Year	LOSS _{it-1}	Yes= 1	201	15%
		No= 0	1149	85%
		Total	1350	100%

Table 3. The results of the first to the fourth hypotheses

Performance Evaluation Variables	ROA _{it}			ROE _{it}			NIncome _{it}			PMargin _{it}			VIF
	coefficient	T statistic	Significant level	coefficient	T statistic	Significant level	coefficient	T statistic	Significant level	coefficient	T statistic	Significant Level	
Fixed Part	0.155	25.078	0.003	-0.120	-1.831	0.067	0.085	4.878	0.000	-0.091	-2.199	0.028	
IntangAssets _{it}	1.003	5.804	0.000	1.305	2.874	0.004	0.445	4.329	0.000	1.573	6.821	0.000	1.206
GROWTH _{it}	0.040	9.374	0.000	0.115	9.524	0.000	0.011	4.574	0.000	0.030	4.715	0.000	1.153
AGE _{it}	0.007	2.100	0.035	-0.008	-0.892	0.372	-0.004	-1.945	0.051	0.021	4.623	0.000	1.151
LEV _{it}	-0.292	-21.957	0.000	-0.081	-2.499	0.012	-0.191	-23.210	0.000	-0.433	-20.893	0.000	2.584
SIZE _{it}	0.012	11.447	0.000	0.024	8.168	0.000	0.008	10.693	0.000	0.028	15.381	0.000	1.532
CFO _{it}	0.175	13.717	0.000	0.434	13.204	0.000	0.045	5.909	0.000	0.126	7.398	0.000	1.208
LOSS _{it}	-0.102	-22.561	0.000	-0.246	-16.029	0.000	-0.082	-27.853	0.000	-0.199	-23.912	0.000	1.453
PPE _{it}	-0.053	-5.442	0.000	-0.192	-8.493	0.000	-0.044	-7.033	0.000	-0.090	-5.184	0.000	1.752
INVENT _{it}	0.085	5.725	0.000	0.154	4.206	0.000	0.031	3.336	0.000	-0.030	-1.544	0.122	1.722
REC _{it}	0.044	4.009	0.000	0.043	1.522	0.128	0.020	2.992	0.002	0.033	2.137	0.032	2.014
CurrentRatio _{it}	0.018	3.963	0.000	0.014	1.564	0.118	-0.001	-0.720	0.471	0.014	2.181	0.029	2.263
Industry _{it}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year _{it}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted Coefficient		0.770			0.581			0.744			0.756		
Durbin-Watson Statistic		1.095			1.809			1.840			1.953		
F Statistic		197.397			82.386			172.345			183.596		
Fisher Significant Level		0.000			0.000			0.000			0.000		
F Limer statistic		6.836			8.319			2.826			7.859		
Chow Significant Level		0.000			0.000			0.000			0.000		
Hausman Statistic		90.101			67.902			139.319			133.632		
Hausman Significant Level		0.000			0.000			0.000			0.000		

The second hypothesis stated that "recorded intangible assets positively impact the return on equity." As shown in Table 3, the coefficient of recorded intangible assets (IntangAssets_{it}) is 1.305, and the T statistic is 2.874, which is meaningful in error level of 0.004 and a significant level of 95%. Therefore, recorded intangible assets affect the return on equity (firm performance) positively.

The third hypothesis stated that "recorded intangible assets have a positive impact on net profit." As shown in table 3, the coefficient of recorded intangible assets (IntangAssets_{it}) is 0.445, and the T statistic is 4.329, with an error level of 0.000. Therefore, recorded intangible assets affect the net profit (firm performance) positively.

The fourth hypothesis stated that "recorded intangible assets have a positive impact on net profit margin." As shown in Table 3, the coefficient of recorded intangible assets (IntangAssets_{it}) is 1.573, and the T statistic is 6.821, with an error level of 0.000. Therefore, recorded intangible assets have a positive impact on profit margin (firm performance).

The fifth hypothesis explained that unrecorded intangible assets and return on assets are positively correlated. As shown in Table 4, the coefficient of unrecorded intangible assets ($\text{IntangAssetsUnrecord}_{it}$) is 0.093, and the T statistic is 31.231, with an error level of 0.000. Therefore, the

The fifth hypothesis is accepted at 95% of a significant level, and unrecorded intangible assets positively impact return on assets (firm performance).

The sixth hypothesis stated that unrecorded intangible assets and returns on equity are positively related. As shown in Table 4, the coefficient of unrecorded intangible assets ($\text{IntangAssetsUnrecord}_{it}$) is 0.205, and the T statistic is 11.780, with an error level of 0.000. Therefore, the sixth hypothesis is accepted at 95% of a significant level, and unrecorded intangible assets positively impact return on equity (firm performance).

The seventh hypothesis explained that unrecorded intangible assets and net profit are positively related. As shown in Table 4, the coefficient of unrecorded intangible assets ($\text{IntangAssetsUnrecord}_{it}$) is 0.032, and the T statistic is 7.661, with an error level of 0.000. Therefore, the

The seventh hypothesis is accepted at 95% of a significant level, and unrecorded intangible assets positively impact net profit (firm performance).

The eighth hypothesis stated that unrecorded intangible assets and profit margin are positively correlated. As shown in Table 4, the coefficient of unrecorded intangible assets ($\text{IntangAssetsUnrecord}_{it}$) is 0.076, and the T statistic is 7.740, with an error level of 0.000. Therefore, the

The fifth hypothesis is accepted at 95% of a significant level, and unrecorded intangible assets positively impact profit margin (firm performance).

It was claimed that the prior year's intangible assets have a positive impact on return on assets in the ninth hypothesis. As shown in Table 5, the coefficient of intangible assets for the previous year ($\text{IntangAssets}_{it-1}$) is equal to 1.063 and T statistic 5.204, in error level 0.000. Therefore, the Ninth hypothesis is accepted at 95% of significant level and recorded intangible assets in the prior year increase return on assets (firm performance).

It was claimed that the prior year's intangible assets positively impacted the return on equity in the tenth hypothesis. As shown in Table 5, the coefficient of intangible assets for the previous year ($\text{IntangAssets}_{it-1}$) is equal to 1.911 and T statistic 3.711, an error level of 0.000. Therefore, the Ninth hypothesis is accepted at 95% of significant level and recorded intangible assets in the prior year increase return on equity (firm performance).

Table 4. The results of the fifth to the eighth hypotheses

Performance Evaluation	ROA _{it}			ROE _{it}			NIncome _{it}			PMargin _{it}			VIF
	coefficient	T statistic	Significant level	coefficient	T statistic	Significant level	coefficient	T statistic	Significant level	coefficient	T statistic	Significant Level	
Fixed Part	0.109	18.113	0.000	-0.180	-2.809	0.005	0.112	6.701	0.000	-0.094	-2.349	0.019	-
IntangAssetsUnrecord _{it}	0.093	13.231	0.000	0.205	11.780	0.000	0.032	7.661	0.000	0.076	7.740	0.000	1.457
GROWTH _{it}	0.029	7.145	0.000	0.098	8.234	0.000	0.015	5.984	0.000	0.023	3.645	0.000	1.187
AGE _{it}	0.002	0.749	0.453	-0.013	-1.448	0.147	-0.005	-2.314	0.021	0.015	3.593	0.000	1.122
LEV _{it}	-0.254	-19.533	0.000	0.004	0.143	0.885	-0.204	-24.534	0.000	-0.393	-18.654	0.000	2.062
SIZE _{it}	0.014	12.534	0.000	0.027	9.473	0.000	0.007	9.862	0.000	0.029	15.700	0.000	1.546
CFO _{it}	0.159	12.973	0.000	0.377	11.732	0.000	0.061	8.041	0.000	0.118	6.877	0.000	1.240
LOSS _{it}	-0.104	-23.439	0.000	-0.262	-17.214	0.000	-0.081	-27.653	0.000	-0.204	-24.259	0.000	1.449
PPE _{it}	-0.037	-4.006	0.000	-0.182	-7.923	0.000	-0.049	-7.927	0.000	-0.077	-4.376	0.000	1.746
INVENT _{it}	0.068	4.749	0.000	0.100	2.818	0.004	0.026	2.881	0.004	-0.059	-2.913	0.003	1.687
REC _{it}	0.046	4.500	0.000	0.056	2.033	0.042	0.016	2.528	0.011	0.025	1.638	0.101	1.967
CurrentRatio _{it}	0.015	3.633	0.000	0.002	0.250	0.802	-0.001	-0.645	0.518	0.012	1.795	0.072	2.280
Industry _{it}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year _{it}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted Coefficient		0.790			0.627			0.751			0.751		
Durbin-Watson Statistic		1.909			1.892			1.709			1.975		
F Statistic		222.563			99.694			177.605			178.845		
Fisher Significant Level		0.000			0.000			0.000			0.000		
F Limer statistic		6.133			3.862			3.136			7.651		
Chow Significant Level		0.000			0.000			0.000			0.000		
Hausman Statistic		221.547			120.318			145.205			162.884		
Hausman Significant Level		0.000			0.000			0.000			0.000		

Table 5. The results of the ninth to the twelfth hypothesis

Performance Evaluation Variables	ROA _{it}			ROE _{it}			NIncome _{it}			PMargin _{it}			VIF
	coefficient	T statistic	Significant level	coefficient	T statistic	Significant level	coefficient	T statistic	Significant level	coefficient	T statistic	Significant Level	
Fixed amount	0.052	1.646	0.099	-0.248	-3.237	0.001	0.096	4.554	0.000	0.013	0.302	0.762	-
IntangAssets _{it-1}	1.063	5.204	0.000	1.911	3.711	0.000	0.460	3.697	0.000	1.344	4.860	0.000	1.221
GROWTH _{it-1}	0.040	7.459	0.000	0.083	6.148	0.000	0.020	5.847	0.000	0.022	3.026	0.002	1.158
AGE _{it-1}	0.002	0.066	0.946	-0.001	-0.176	0.859	-0.005	-2.141	0.032	0.017	3.397	0.000	1.146
LEV _{it-1}	-0.258	-14.994	0.000	0.010	0.275	0.782	-0.179	-16.637	0.000	-0.395	-15.614	0.000	2.655
SIZE _{it-1}	0.009	6.315	0.000	0.024	7.124	0.000	0.007	6.980	0.000	0.021	9.747	0.000	1.520
CFO _{it-1}	0.234	15.255	0.000	0.506	14.217	0.000	0.098	10.376	0.000	0.198	10.204	0.000	1.254
LOSS _{it-1}	-0.055	-8.551	0.000	-0.100	-4.937	0.000	-0.048	-11.237	0.000	-0.091	-8.887	0.000	1.374
PPE _{it-1}	-0.059	-5.206	0.000	-0.125	-4.245	0.000	-0.053	-6.330	0.000	-0.109	-4.931	0.000	1.906
INVENT _{it-1}	0.075	3.989	0.000	0.141	3.192	0.001	0.022	1.794	0.072	-0.063	-2.393	0.016	1.769
REC _{it-1}	-0.012	-0.827	0.408	0.024	0.660	0.509	-0.005	-0.006	0.995	-0.065	-3.146	0.001	2.401
CurrentRatio _{it-1}	0.008	1.499	0.134	0.021	2.189	0.028	-0.007	-2.294	0.021	0.008	10.83	0.279	2.245
Industry _{it-1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year _{it-1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted Coefficient		0.594			0.455			0.576			0.623		
Durbin-Watson Statistic		1.987			1.840			1.614			1.947		
F Statistic		87.127			50.068			80.749			98.145		
Fisher Significant Level		0.000			0.000			0.000			0.000		
F Limer statistic		4.707			4.441			2.310			5.982		
Chaw Significant Level		0.000			0.000			0.000			0.000		
Hausman Statistic		206.520			127.566			140.033			157.199		
Hausman Significant Level		0.000			0.000			0.000			0.000		

The eleventh hypothesis states that the prior year's intangible assets have a positive impact on net profit. As shown in Table 5, the coefficient of intangible assets in the prior year. ($\text{IntangAssets}_{it-1}$) is equal to 0.460 and T statistic 3.697, an error level of 0.000. Therefore, the Eleventh hypothesis is accepted at 95% of the significance level and recorded intangible assets in the prior year increase net profit (firm performance).

The twelfth hypothesis claims that the prior year's intangible assets positively impact profit margin. As shown in Table 5, the coefficient of intangible assets in the prior year ($\text{IntangAssets}_{it-1}$) is equal to 1.344 and T statistic 4.860, an error level of 0.000. Therefore, the Twelfth hypothesis is accepted by 95% of the significant level and recorded intangible assets in the prior year increase profit margin (firm performance).

5. Discussion and Conclusion

According to the interest theory, companies in the same business line perform differently due to their resources. It is argued that greater investments in intangible assets such as high-tech systems, employees' improvement, and modern reward systems lead to more favorable performance results (Lev, Radhakrishnan, and Zhang, 2009).

The first and fourth hypotheses show a positive relationship between recorded intangible assets and performance (Return on Assets, Return on Equity, Net Profit, and Profit Margin). In other words, if the recorded intangible assets increase, four proxies of performance, which are Return on Assets, Return on Equity, Net Profit, and Profit Margin, rise. Since the central conflict among companies is intangible assets, it can be claimed that identifying and recording the results in more stable performance. The findings for the first, second, third, and fourth hypotheses are following Haji & Mohd Ghazali's (2018).

The research findings from the fifth, sixth, seventh, and eighth hypotheses address that unrecorded intangible assets and performance (Return on Assets, Return on Equity, Net Profit, and Profit Margin) are positively correlated. When unrecorded intangible assets are identified, return on assets, return on equity, net profit, and profit margin increase. Ignoring unrecorded intangible assets can underestimate total assets, which leads to the waste of company resources and poor performance. Therefore, according to this paper, the identification of unrecorded intangible assets causes a more desirable performance. These findings are following Haji & Mohd Ghazali (2018). The ninth to twelfth hypotheses findings show that the prior year's recorded intangible assets are positively correlated with performance (Return on Assets, Return on Equity, Net Profit, and Profit Margin). In other words, when the last year's recorded intangible assets increase, all four indicators of performance, including return on assets, return on equity, net profit, and profit margin improvement. Owing to this fact, identifying and recording intangible assets largely depended on their last year's value. The ninth, tenth, eleventh, and twelfth hypotheses follow Haji & Mohd Ghazali's (2018) study.

According to the findings, it is suggested to managers and board of directors to take intangible assets impact (recorded, unrecorded, and prior intangible assets) into great consideration. More precisely, they identify the intangible properties (in particular, unrecorded intangible assets), the most superior performance they have. I suggest that standard setters (in Iran) become alert to edit standard number 17th regarding identifying intangible assets. I recommend that listed companies on the Tehran Stock Exchange utilize the same approach to identify and disclose intangible assets to help investors and other users compare same line companies. Moreover, standard setters should have applied methods to monitor companies using the same approach.

I advise that researchers examine the impact of unrecorded, recorded, and prior intangible assets on the Profit & Loss Statement for future studies. Another aspect of intangible assets, such as human resources, communication resources, and organizational resources, is recommended to be

investigated. I will suggest assessing performance by other proxies such as economic added value or cash flow ratio in the future.

References

1. Ahmed Haji, A. (2016). Trend of hidden values and use of intellectual capital information: evidence from Malaysia. *Accounting Research Journal*, 29(1), pp. 81-105. <https://doi.org/10.1108/ARJ-08-2013-0052>.
2. Andonova, V. and Ruíz-Pava, G. (2016). The role of industry factors and intangible assets in company performance in Colombia. *Journal of Business Research*, 69(10), pp. 4377-4384. <https://doi.org/10.1016/j.jbusres.2016.03.060>.
3. Arefmanesh, Z., Rahmani, A., Hejazi, R. and Amirshahi, M. (2016). Investigation of the Relation Between the Value and Utility of Intangible Assets in the Forecast of Profit and Future Cash Flow. *Financial Accounting Knowledge*, 3(1), pp. 20-1 (In Persian).
4. Azeez, T., Olanrewaju Elelu, M. and Saka Abdulsalam, T. (2015). Impact of capital structure on corporate performance. *International Journal of Accounting Research*, 2(8), pp.1-20. <https://doi.org/10.12816/0017352>.
5. Bloom, M. (2009). Accounting for goodwill, *ABACUS*, 45(3), pp. 379-389. <https://doi.org/10.1111/j.1467-6281.2009.00295.x>.
6. Brennan, N. (2001). Reporting intellectual capital in annual reports: evidence from Ireland. *Accounting, Auditing & Accountability Journal*, 14(4), pp. 423-436. <https://doi.org/10.1108/09513570110403443>.
7. Chang, L., Deng, K. and Wang, X. (2018). The Dynamic Speed of Cash Holding Adjustment in a Transition Economy: A New Approach and Evidence. *Emerging Markets Finance & Trade*, 52(2), pp. 434-448. <https://doi.org/10.1080/1540496X.2016.1110460>.
8. Chen, M., Cheng, S.J. and Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firms market value and financial performance. *Journal of Intellectual Capital*, 6(2), pp. 159-176. <https://doi.org/10.1108/14691930510592771>.
9. Corona, j. and Carlos, P. (2006). Dynamic performance measurement with intangible assets. Ph.D. Dissertation, The Stanford University, California, Retrieved from Proquest digital dissertations database (AAT 3235206).[20 November 2011].
10. Dai, L., Parwada, J.T. and Zhang, B. (2017). The Governance Effect of the Media's News Dissemination Role: Evidence from Insider Trading. *Journal of Accounting Research*, 53(2), pp. 331–66. <https://doi.org/10.1111/1475-679X.12073>.
11. De Santis, F. and Giuliani, M. (2013). A look on the other side: investigating intellectual liabilities. *Journal of Intellectual Capital*, 14(2), pp. 212-226. <https://doi.org/10.1108/14691931311323850>.
12. Demerjian, P., Lev, B. and McVay, S. (2012). Quantifying managerial ability: A new measure and validity tests. *Management Science*, 58(7), pp. 1229-1248. <https://doi.org/10.1287/mnsc.1110.1487>.
13. Dumay, J.C. (2012). Grand theories as barriers to using IC concepts. *Journal of Intellectual Capital*, 13(1), pp. 4-15. <https://doi.org/10.1108/14691931211196187>.
14. Edvinsson, L. (2013). IC 21 – reflections from 21 years of IC practice and theory. *Journal of Intellectual Capital*, 14(1), pp. 163-172. <https://doi.org/10.1108/14691931311289075>.
15. Edvinsson, L. and Malone, M. (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding its Hidden Brainpower*. Harper Collins, New York, NY.
16. Galbraeth, J. (2005). Which resources matter most to firm success? An exploratory study of

- resource-based theory. *Technovision*, 25(9), pp. 979-987. <https://doi.org/10.1016/j.technovation.2004.02.008>.
17. Gogan, L.M, Artene, A., Sarca, L. and Draghici, A. (2016). The Impact of *Intellectual Capital* on Organizational Performance. *Procedia - Social and Behavioral Sciences*, 221(7), pp. 194-202. <https://doi.org/10.1016/j.sbspro.2016.05.106>.
 18. Haji, A.A. and Mohd Ghazali, N. (2018). The role of intangible assets and liabilities in firm performance: empirical evidence. *Journal of Applied Accounting Research*, 19(1), pp.42-59. <https://doi.org/10.1108/JAAR-12-2015-0108>.
 19. Hall, R.E. (2001). Struggling to understand the stock market. *American Economic Review*, 91(2), pp. 1-11. <https://doi.org/10.1257/aer.91.2.1>.
 20. Harvey, M.G. and Lusch, R.F. (1999). Balancing the intellectual capital books: intangible liabilities. *European Management Journal*, 17(1), pp. 85-92. [https://doi.org/10.1016/S0263-2373\(98\)00065-6](https://doi.org/10.1016/S0263-2373(98)00065-6).
 21. Labidi, M. and Gajewski, J.F. (2019). Does increased disclosure of *intangible assets* enhance liquidity around new equity offerings?. *Research in International Business and Finance*, 48, pp. 426-437. <https://doi.org/10.1016/j.ribaf.2019.01.009>.
 22. Lev, B. (2001). *Intangibles: Management, Measurement, and Reporting*. *Brookings Institution Press*, Washington, DC.
 23. Lev, B. (2008). A rejoinder to Douglas Skinner's 'accounting for intangibles – a critical review of policy recommendations. *Accounting and Business Research*, 38(3), pp. 209-213. <https://doi.org/10.1080/00014788.2008.9663334>.
 24. Lev, B., Radhakrishnan, S. and Zhang, W. (2009). Organization capital. *ABACUS*, 45(3), pp. 275-298. <https://doi.org/10.1111/j.1467-6281.2009.00289.x>.
 25. Liu, C.H. (2017). The relationships among *intellectual capital*, *social capital*, and performance - The moderating role of business ties and environmental uncertainty. *Tourism Management*, 61, pp. 553-561. <https://doi.org/10.1016/j.tourman.2017.03.017>.
 26. Long Kweh, Q., ChuannC Han, Y. and Wei Kiong Ting, I. (2013). Measuring intellectual capital efficiency in the Malaysian software sector. *Journal of Intellectual Capital*, 14(2), pp. 310-324. <https://doi.org/10.1108/14691931311323904>.
 27. Marzo, G. (2014). Improving internal consistency in IC research and practice: IC and the theory of the firm. *Journal of Intellectual Capital*, 15(1), pp. 38-64. <https://doi.org/10.1108/JIC-03-2013-0026>.
 28. Merkley, K.J. (2014). Narrative disclosure and earnings performance: evidence from R&D disclosures. *The Accounting Review*, 89(2), pp. 725-757. <https://doi.org/10.2139/ssrn.1974916>.
 29. Mitra, S. (2019). Intangible capital and the rise in wage and hours volatility. *Journal of Economic Dynamics and Control*, 100(2), pp. 70-85. <https://doi.org/10.1016/j.jedc.2018.09.007>.
 30. Namazi, M. and Mousavi Nejad, S.R. (2017). Investigating the Relationship between Intangible Assets and Financial Performance in the Companies Accepted in Tehran Stock Exchange. *Investment Knowledge*, 5(20), pp. 243-262. (In Persian).
 31. Nik Kar, J., Hematfar, M. and Asami, M. (2019). The Effect of Investment on Intangible Assets in Explaining the Effect of Financial Health and the Problems of Representation in the Company's Market Value. *Asset Management and Financing*, 6(1), pp. 28-11. (In Persian).
 32. Ozkan, N., Cakan, S. and Kayacan, M. (2017). Intellectual Capital and Financial Performance: A Study of the Turkish Banking Sector. *Borsa Istanbul Review*, 17(3), pp. 190-198. <https://doi.org/10.1016/j.bir.2016.03.001>.

33. Penman, S.H. (2009). Accounting for intangible assets: there is also an income statement. *Abacus*, 45(3), pp. 358-371. <https://doi.org/10.1111/j.1467-6281.2009.00293.x>.
34. Rahmani, A. and Ismaeili, G. (2013). Intangible assets in stock companies and their effect on the value relation of profit. *Empirical studies of financial accounting*, 11(43), pp. 23-1 (In Persian).
35. Rezaei, M, and Poor Ghayoumi, F. (2019). Investigating the Impact of Intangible Assets on Financial and Governance Policies in Tehran Stock Exchange. *Empirical Accounting Research*, 7(4), pp. 227- 248 (In Persian).
36. Rowbottom, D. and Nicholas, L. (1998). Intangible asset accounting and accounting policy selection in the football industry. Ph.D. Dissertation, The University of Birmingham. [Online]. <<http://www.theses.bham.ac.uk/899/>>. [20 November 2019].
37. Skinner, D.J. (2008). Accounting for intangibles – a critical review of policy recommendations. *Accounting and Business Research*, 38(3), pp. 191-204. <https://doi.org/10.1080/00014788.2008.9663332>.
38. Stam, C.D. (2009). Intellectual liabilities: lessons from the decline and fall of the Roman empire. *VINE*, 39(1), pp. 92-104. <https://doi.org/10.1108/03055720910962470>.
39. Taleb Nia, G, and Bodaghi, H. (2019). Investigating the Relationship Between Intangible Assets and Performance of Companies Accepted in Tehran Stock Exchange. *Research in Accounting and Economic Sciences*, 2(3), pp. 17-36 (In Persian).
40. Walker, R.G. (2009). Discussion of Lev, Radhakrishnan, and Zhang. *ABACUS*, 45(3), pp. 299-311. <https://doi.org/10.1111/j.1467-6281.2009.00290.x>.
41. Wrigley, J. (2008). Discussion of 'what financial and non-financial information on intangibles is value relevant? A review of the evidence. *Accounting and Business Research*, 38(3), pp. 257-260. <https://doi.org/10.1080/00014788.2008.9663337>.