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Measurement of financial assets of BSE-Listed information technology companies using fair value hierarchy

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Abstract
Measuring financial assets through fair value hierarchy is a rational and equitable estimate. The reliable assessment of financial assets value gave more accuracy, and it was helpful for stakeholders of the companies in their decision-making process. This study aims to exhibit the requirements of the Ind-AS 113 Framework for measuring Financial Assets. The researcher has examined the Measurement of financial assets using a fair value hierarchy in Information Technology Companies during the years 2021 and 2022. The study analyses the consolidated financial statements' fair value hierarchy information. That study found that large and mid-capitalization companies have used more level-1 and level-2 hierarchies than low-capitalization companies. Low capitalization companies have used more level-3 fair value hierarchy. Finally, the study concludes large-capitalization Information Technology companies adopted the fair value principle effectively and used more reliable and relevant information in their financial asset measurement.

Keywords: Fair value hierarchy, financial assets, market capitalisation

Introduction

"Fair value accounting," called "mark-to-market accounting," refers to valuing and disclosing financial instruments encompassing a range of assets, including stocks, bonds, and derivatives, based on their existing market value rather than their historical cost. "Fair Value means the price received to sell on assets or paid to transfer a liability at the measurement date in an orderly transaction between market participants. It allows for recognizing fluctuations in the worth of an asset or liability in the period they occur rather than waiting for the asset's sale or the settlement of liability. Fair Value can stipulate a more accurate depiction of an entity's financial condition and performance, particularly in volatile or rapidly changing market conditions. The fair value measurement principle involves high trust and stakeholders of financial statements, increasing the high confidence. Some stakeholders believe fair value accounting reduces trust and is costly in financial reporting. A positive relationship advances stronger beliefs in the theoretical framework of fair Value, giving more impactful insights into the trust of fair value accounting. The financial asset holding firms affected analyst prediction and gave significant evidence to standard setters. However, fair value accounting can also be subject to subjectivity and measurement uncertainty, as it relies on estimates of market values that may not be readily available or might it based on assumptions that are difficult to verify. As a result, fair value accounting has involved additional disclosures to help users understand and evaluate the presumptions and assessments used in the measurement process. It generally applies to all companies, including information technology (IT) companies in India.

IT companies in India may hold various financial instruments, such as equity stocks, debt, and derivative contracts, which could value at fair Value. For example, an IT company's equity security investments must be measured through fair Value through profit or loss (FVTPL), using the Pragmatic method for calculating the per-share Value or using the market price if it is available and reliable. In India, Information Technology Companies may possess non-monitory instruments such as property, plant, and equipment and intangible properties like copyrights, trademarks, and patents. Measuring these assets at fair Value may be necessary if they are intended for sale or regularly measured at fair Value.

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For example, An information technology corporation could possess a set of patents periodically valued at fair Value, utilizing either a discounted cash flow model or a market-based approach. Fair value accounting practices in IT companies in India aim to give financial statement followers relevant and reliable data about the company's financial position and performance based on current market values. However, it is essential to note that fair value measurements may be subject to measurement uncertainty and assumptions that may influence the reliability of the presented values.

Literature Review

The literature review on fair value measurement involves a historical development, the conceptual framework and principles, and the techniques used to determine fair Value; the researcher also reviews the challenges and limitations of fair Value and their influences on fair decision-making.

The research scrutinizes the influence of fair value accounting on global economic distress origin, spreading, and strengthening. It deficient a more significant impact on extending the economic crisis. The study concludes that Fair value accounting is no more effective than the impact on the spreading harmful effects of the financial crisis**.** The procedure of financial reporting has a complex association between markets, regulators, and accounting. Corporate reporting aims to furnish valuable financial data about the corporate reporting for prospective company stakeholders for making decisions regarding the entities' activities. The reliability of the worth of assets and liabilities gives accuracy and valuable information to capital market participants. The researcher has focused on changes in the required disclosures on annual financial statements after adopting IFRS. The study analyzed the level of disclosure of fair Value among consolidated financial statements of banking units. The study concludes that after implementing IFRS-13, examined banks' qualitative disclosures have increased rapidly. The study exhibits the correlation between fair value information and its benefit to users for company activity decisions. The study found that each qualitative characteristic affects different forms of decisions making. And evaluate stakeholders of financial records taking in the qualitative attributes of Fair Value data. The survey determined that Fair Value is a prerequisite for South African non-financial companies listed on the stock exchange. At the same time, the IFRS provides an option to choose whether to use Fair Value. As per the study's findings, this accounting method is more appropriate for assessing financial instruments. The proper uses of different measurement basis in financial reporting have fulfilled expected future needs. This study investigates how fair value estimation procedures affect the economic stability of commercial banks under varying economic conditions. The research analyses the banking sector that helps to generate reserves in the economy, enhance financial stability, and manage financial crises, ultimately promoting the overall economic efficiency of banks in their production. The article comprehensively reviews the literature on measuring fair Value in financial disclosure. The Background review identifies several themes related to market-based valuation, including the effect on the financial disclosure quality, the challenges associated with measuring fair Value, and the impact of financial stability. The authors conclude that fair value measurement can enhance reporting accuracy by furnishing more relevant and reliable information. The article presents an empirical analysis focusing on the

relevance of fair value measurements and the reporting of fair value hierarchy within the European Union (EU). The research shows that fair value measurements are generally relevant but that the relevance varies based on the fair value hierarchy level. The researchers conclude that fair value measurements and the fair value hierarchy are essential tools for financial reporting in the EU. Their value relevance depends on the hierarchy level and other firm-specific factors. The study investigates the Employment of fair market valuation in Nigerian deposit money banks (DMBs). And evaluate their potential for cosmetic accounting. The research conducts a case study of four Nigerian DMBs to examine their Measurement of fair value application and identify cosmetic accounting instances. The authors conclude that while fair value measurement can elevate the standard of financial reporting, it also presents risks related to cosmetic accounting. The study suggests that regulators focus on improving the Integrity of fair value estimates and increasing transparency in financial reporting to mitigate these risks. The study exhibits the literature in the fair value field after the 2008-2009 financial crises. Fair value accounting has grown increasingly from the last 30 years of revolutionary changes in accounting. After the 2008-2009 financial crisis performed, an increasing number of research publications in leading journals worldwide, and discussion began on fair value practices. The study has focused on the pertinence of a firm's equity and earnings book value depending on fair value accounting. The study analysed financial firms with non-financial firm balance sheets and income statements. The study result shows that the pertinence of the balance sheet in the financial firm is more significant than the income statement. More use of financial assets is higher depending on fair value accounting. Finally, the balance sheet holds greater significance for investors.

Objectives of the Study

1. To study the requirements of Ind AS 113 Framework for measuring Financial Assets.
2. To examine the Measurement of financial assets using fair value hierarchy in IT companies.

Hypothesis

H_0: There is no substantial difference in using the Fair Value Hierarchy for measuring financial assets among BSE-listed large-cap, mid-cap, and low-cap IT Companies.

H_1: There is a substantial difference in using the Fair Value Hierarchy for measuring financial assets among BSE-listed large-cap, mid-cap, and low-cap IT Companies**.**

Research Methodology
Population and Sampling

The study encompassed a comprehensive review of BSE-listed Information Technology Companies as of February 16, 2023, totalling 100 IT Services and Consulting companies. The study uses a quartile-based approach to classify companies into large, mid, and small-cap segments to ensure representation across market capitalization.

Selection Criteria

The top 10 companies were chosen from each quartile using judgmental sampling methods based on the market capitalization approach aimed to capture diverse company profiles within each market capitalization, resulting in a balanced representation of the IT sector.

Data Collection and Analysis
Annual financial statements for the financial years 2020-2021 and 2021-2022 were obtained from respective company websites. The primary focus was on fair value hierarchy disclosures related to financial assets. The collected data underwent detailed content analysis and averaging for comparative analysis.

Statistical Analysis: The study uses Statistical Package for the Social Sciences (SPSS) version 26 for statistical analysis. ANOVA tests were conducted to discern significant differences in fair value hierarchy usage among large-cap, mid-cap, and small-cap IT companies.

Requirements of Ind-AS 113 Framework for measuring Financial Assets
Ind-AS 113 "Fair Value Measurement" is a specific accounting standard under the Indian Accounting Standards (Ind-AS) framework. It guides how to measure fair Value, not when to measure it. There are various Ind-AS that requires measuring assets or liabilities at fair Value, and whenever it is needed to be fair valued, one looks at Ind-AS 113. This accounting standard will cover the requirements of another standard where fair value measurement and disclosure are required. However, some particular exclusion applies to initial and subsequent Measurements as required by respective Accounting Standards. E.g., Fair Value is less expensive to sell as required under Ind AS 105 for assets held for sale, FVTPL and FVOCI, as required under Ind-AS 109 for Financial Instruments, and biological assets are measured at fair Value under Ind-AS 41 for biological assets.

Measurement exclusion
Ind AS 113 has described the exceptions for some specific standards, hence which standards itself to identify the process of determining the fair values of the items of the standards. The exclusion items explained below
1. Share-based payment transaction comes under Ind AS 102
2. Leasing transaction reported following Ind AS 116
3. Net realizable Value, inventories and Impairment of assets are reported through different accounting standards; these standards have some similarities, like fair Value but not fair Value.

Disclosure exclusion
a) The standard gives disclosure exclusion for plan assets because Ind AS 19 Employee Benefits give guidance to measure at fair value based on Ind AS 19
b) According to Ind AS 36, the recoverable amount of certain assets is determined by comparing two values: fair Value fewer costs of disposal is the estimated amount the asset would sell for in the market, minus any direct selling price.

Fair Value of asset
As per Ind AS 113 fair value of assets or liabilities is based on the characteristics of the assets or liabilities; generally, assets or liabilities have restrictions based on some conditions and location. These restrictions or the state of assets that can influence the future economic benefit from the asset must be deliberated while determining the asset's fair Value. The limits or conditions are not related to a particular entity because it is based on the assumption of market participants rather than entity restriction. In contrast, if entity-specific limits are not considered fair Value, it is considered asset or liabilities-specific fair value. The Measurement of fair Value assumes that the asset's sale or transfer of the liability occurs either in the principal market or in the market that provides the most advantageous terms.

Principal Market
In this market, people generally transact assets or liabilities with the most significant volume with a higher activity level than any other market available for similar transactions. The principal market is essential because it gives the most reliable information about the asset's fair Value. This market decides where most buyers and sellers are located, so the price is more likely to represent the fair Value. For example, if Infosys company has a more significant number of shares that are traded in two different stock exchanges like NSE and BSE in India, the principal market decided by which stock exchange has the greater volume and level of activity and that price used to determine the fair Value of stock or asset. The principal market is affected by various factors, i.e., the volume of activity, level of liquidity, information availability and transaction cost incurred for entering the market.

Most Advantages Market
The most advantages market is where the assets or liability could be sold for the highest price or can be extinguished for the lower cost. The market would give the entity the most significant benefit or advantage in pricing or other transaction terms.

Evaluation of the most advantageous market

Factors	Description
Pricing	The market with the highest selling price for assets or the lowest transfer price for liabilities is considered the most advantageous market.
Transaction costs	The market with the lowest transaction costs, such as brokerage fees, taxes, or other expenses, is considered the most advantageous market.
Market conditions	The market with favourable conditions, such as high demand, low supply, or low-price volatility, is considered the most advantageous market.
Market access	The market with easy access, high liquidity, or a large number of buyers and sellers is considered the most advantageous market.
Specific attributes	Certain markets may have unique characteristics or features that make them more advantageous for a particular asset or liability. For example, a market that specializes in a specific industry or geographic location may provide better pricing or a more accurate representation of the fair value.

While Ind AS 113 primarily focuses on the principal market for fair value measurement, if there is no principal market, the entity should consider the most advantageous market, considering various factors to determine the fair value of assets or liabilities.

Valuation Techniques
Ind AS 113 establishes a framework for determining fair Value, ensuring consistency and transparency in the valuation process. The standard acknowledges that fair value measurement requires appropriate valuation techniques for the asset or liability's specific circumstances and characteristics. It emphasizes the importance of greater use of observable inputs and minimal use of unobservable inputs, to the extent possible, to enhance the reliability and relevance of fair value measurements.
To measure fair Value effectively, Ind AS 113 outlines three fundamental approaches below:
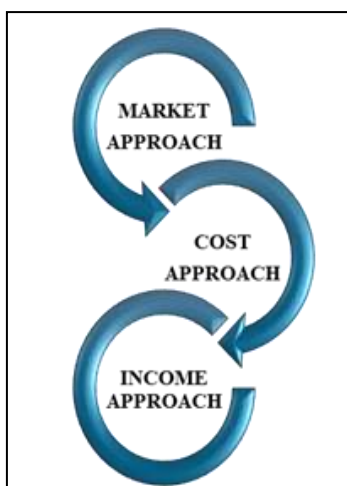
1. **Market Approach:** This approach emphasizes utilizing market prices and observable market data as the primary inputs for fair value measurement. It involves comparing the subject asset or liability to recent transactions of similar assets or liabilities and making necessary adjustments to estimate fair Value.
2. **Income Approach:** The income approach provides a robust and forward-looking perspective on fair value measurement by considering the expected cash flows and their present value. It helps stakeholders in financial reporting to gain insights into the underlying economic value of assets or liabilities and facilitates informed decision-making. This approach considers factors such as projected revenues, expenses, growth rates, and risk, using valuation techniques such as discounted cash flow techniques or capitalization of earnings methods.
3. **Cost Approach:** The cost approach focuses on determining fair Value by considering the cost required

to replace the asset or reproduce the liability. It involves evaluating the current price of acquiring a similar asset or incurring an equal liability, considering depreciation and obsolescence adjustments.

Fair value hierarchy in financial reporting
It is a measurement technique utilized to ascertain the present worth of assets and liabilities during financial reporting. Ind AS-113 prescribes three different hierarchy levels, and the differentiation of the hierarchy depends on the inputs used to report an entity's assets and liabilities.

Fair Value Levels	Inputs	Description
Level-1	Quoted prices in active market	Highest level trustworthiness
Level-2	Observable inputs not quoted in active markets	Observable Quoted in active markets
Level-3	Unobservable inputs	Lowest level least reliable data

Level-1: Inputs are the highest level of the hierarchy and involve quoted prices in existing active markets. These inputs are considered the most acceptable and exhibit higher reliability and trustworthy data for company stakeholders.

Level-2: Inputs are observable but not quoted in active markets; generally, companies use observable inputs during the measurement time. When quoted prices are unavailable during reporting, the second-highest level of the hierarchy has used, as prescribed by the standard. Examples of these inputs include interest rates, yield curves, credit risk, and volatilities, which are observable in nature.

Level-3: Inputs are considered the lowest level hierarchy and involve unobservable inputs. Companies generally use these inputs in the absence of the above two-level inputs are unavailable because these level inputs have the least reliability. Level-3 inputs involve some assumptions made by accountants, and companies often employ present value methods when determining assets and liabilities, particularly non-financial ones.
In financial reporting, assessing the actual worth of assets and liabilities is very important because it shows companies' exact position, so companies must adopt proper measurement systems like Fair Value; in this system, with the help of prioritized inputs, entities determine the present worth of the assets and liabilities.

Result and Discussion
The result of the study includes quantitative data on fair value hierarchy practices employed by Information Technology companies.

Table 1: Fair Value hierarchy of assets measured at fair value by IT Companies. (Rs in cr)

Sl. No	Companies	Level 1	Level 2	Level 3
1	TCS	29878	441.5	64.5
2	INFY	12958	3502.5	318
3	HCL	1556	5214	0
4	WIPRO	2129.35	17063.85	1327.55
5	LTIMINDTREE	2936.4	340.2	0.1
6	TECH	6681.55	575.65	44.95
7	MPHISIS	1340.415	382.069	0
8	PERSISTENT	618.2635	18.9525	17.2745
9	ORACLE	0	22.155	0
10	COFORGE	6.2	213.5	0
Total	Large-CAP Average	5810.418	2777.438	177.2375
1	DATAMATICS GLOB	152.918	0	0.75
2	GENESYS INT	7.0857	0	0
3	SASKEN TECH	390.39785	11.58005	1.35
4	RPSG VENTURES	123.675	37.94	55.04
5	AXISCADES TECH	21.80775	11.1848	204.4272
6	QUICK HEAL TECH	336.69	19.7	20.275
7	XCHANGING SOL	0	0	0
8	ONWARD TECH	0	0.29785	0
9	3I INFOTECH	0	0	29.93
10	ALLIED DIGITAL	0	0	1.81
Total	MID-CAP AVERAGE	879.66	80.7	312.83
1	NETTLINX	0	0	0
2	GOLDSTONE TECH	0	0	0
3	INSPIRISYS SOLU	0	0	0
4	CG-VAK SOFTWARE	0	0	0
5	PALRED TECH	0.1147	0	0
6	DANLAW TECH	0	0	0
7	INDIAN INFOTECH	0	0	0
8	SECUREKLOUD TEC	0	0	0
9	PRESSMAN ADVT	0	0	0
10	ALPHALOGIC TECH	0.8445	0	15.92265
Total	SMALL-CAP AVERAGE	0.96	0	15.92

(**Source:** Sample companies consolidated annual financial statements)

Table 4: Result of ANOVA for Level-1 Fair Value Hierarchy

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	220885135.699	2	110442567.850	3.796	.035
Within Groups	785621082.757	27	29097077.139		
Total	1006506218.456	29			

The p-value is significant at <0.005 level.

Based on Table 4, the p-value associated with the mean difference in using the Level-1 Fair Value Hierarchy for measuring financial assets among large-cap, mid-cap, and small-cap IT companies is less than 0.05. Consequently, the study rejects the null hypothesis, providing evidence of a significant difference in measuring financial assets using a fair value hierarchy. The statistical analysis indicates meaningful distinctions in measuring financial assets among different types of IT companies (large-cap, mid-cap, and small-cap) when employing the Level-1 Fair Value Hierarchy.

Table 5: Result of ANOVA for Level-2 Fair Value Hierarchy

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	51276954.536	2	25638477.268	2.722	.084
Within Groups	254322556.462	27	9419353.943		
Total	305599510.998	29			

The p-value is significant at >0.005 level.

Based on the analysis, the p-value of comparing financial assets measurement using the Level-2 Fair Value Hierarchy between large-cap, mid-cap, and small-cap IT companies was greater than 0.05. This result shows no significant difference in the financial assets measurement among these company types when utilizing the fair value hierarchy. Consequently, the study accepts the null hypothesis, suggesting no statistically significant contrast or variation in financial assets measurement based on the Level-2 Fair Value Hierarchy across large-cap, mid-cap, and small-cap IT companies. These findings interpret that the choice of the fair value hierarchy has a minimal impact on the financial assets measurement for these different company types.

Table 6: Result of ANOVA for Level-3 Fair Value Hierarchy

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	176726.643	2	88363.321	1.498	.242
Within Groups	1592388.258	27	58977.343		
Total	1769114.901	29			

The p-value is significant at >0.005 level.

In this case, the p-value of 0.242 exceeds the threshold of 0.05, indicating no statistically significant difference between the groups when using the Level-3 Fair Value Hierarchy. The F-value of 1.498 is used to evaluate the significance of the differences. A lower F-value suggests that the observed differences are less significant. Since the F-value is relatively low, it supports the interpretation that there is no meaningful difference between the groups. The statistical analysis reveals no substantial variation in how financial assets are measured among different types of IT companies (large-cap, mid-cap, and small-cap) when employing the Level-3 Fair Value Hierarchy. Therefore, the study concludes that their financial asset measurements using a fair value hierarchy are similar.

Findings
The analysis of fair value hierarchy usage among BSE-listed IT companies illustrates compelling differences across market capitalization segments. Large-cap companies demonstrated a robust reliance on Level-1 inputs, with an average of 5810.42 crore rupees, reflecting their active engagement in quoted markets. Conversely, mid-cap companies displayed a moderate dependence on Level-1 inputs (averaging 879.66 crore rupees), while small-cap companies scarcely engaged with Level-1 inputs, averaging a mere 0.96 crore rupees.
Statistical scrutiny revealed a substantial variance in Level-1 hierarchy usage among large-cap, mid-cap, and small-cap IT companies ($p<0.05$). However, the study found no statistically significant differences in Level-2 and Level-3 hierarchy usage across these market capitalization categories.

Conclusion
The research underscores the disparity in fair value hierarchy utilization across various market capitalization segments within BSE-listed IT companies. Larger firms' pronounced reliance on Level-1 inputs indicates their active engagement in quoted markets. Conversely, smaller entities, especially small-cap companies, showed minimal involvement with Level-1 inputs, favouring Level-3 inputs.
The findings carry significant implications for investors, regulators, and the companies themselves. Understanding the hierarchy usage patterns can aid stakeholders in gauging the reliability and relevance of fair value measurements, thereby influencing investment decisions and regulatory perspectives.
In light of the observed hierarchy usage disparities, it's imperative for smaller companies, particularly small-cap IT firms, to enhance their fair value hierarchy disclosures. This could involve transparently elucidating their valuation

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