


How Data travel through the market?

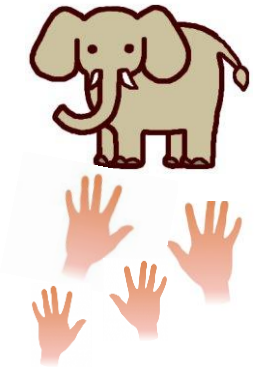
——Understand how financial information are used as "data" in the market, and explore how future accounting standard and disclosure should be——

IFRS Digital Reporting Workshop Extra-session

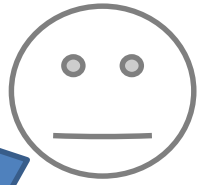
Date and time：10 Jan 2018, 18:30-20:30 (Tokyo time)

How Data travel through market and influence it

You may imagine that analysts read financial statements prepared by company, evaluate company's value and compare with peer companies….BUT, in reality, financial statements are used in various ways. **There are many quant analysts and passive investors using information as "data", which is standardized in a database (DB),** and **they have become the majority of market participants globally.** In such case, real time data distribution has important role on the impact on the stock price. Also, use of Artificial Intelligence (AI) in analysis and investment has become more common today. First, financial statements have to be converted into "Data" and then **the data can travel through the market**. Today we would like to share how financial data are used, but from a different angle than at previous workshops, and consider the role of future financial statements and accounting standards.



There is a parable about the "blind men and elephant", which resembles using financial statements data. Technological innovation related to data processing is remarkable, it is a truly urgent and critical issue how to organize the data of financial statements in the world in this era. **In other words, there is a risk of penetrating market with biased information as only data processing technology advances**, with the lessons of "blind men and elephant" still to be learnt.
Based on such a sense of crisis, I would like to listen to all of your experiences and explore what we can do as a standard setter in near future.



Accounting Setter

Attendees	**Extra Workshop 10th January (Tuesday)**
Categories	13 Investors (including Pension fund), 12 Information provider/Media/Researcher, 3 Sell-side/credit analyst/insurance, 6 CPA, 4 Company side, 2 Academic, 10 Regulator/Accounting setter/Analyst organization. (registration, some people absent)
Participants overseas by phone	Investors' organization, Regulators, CPAs from London

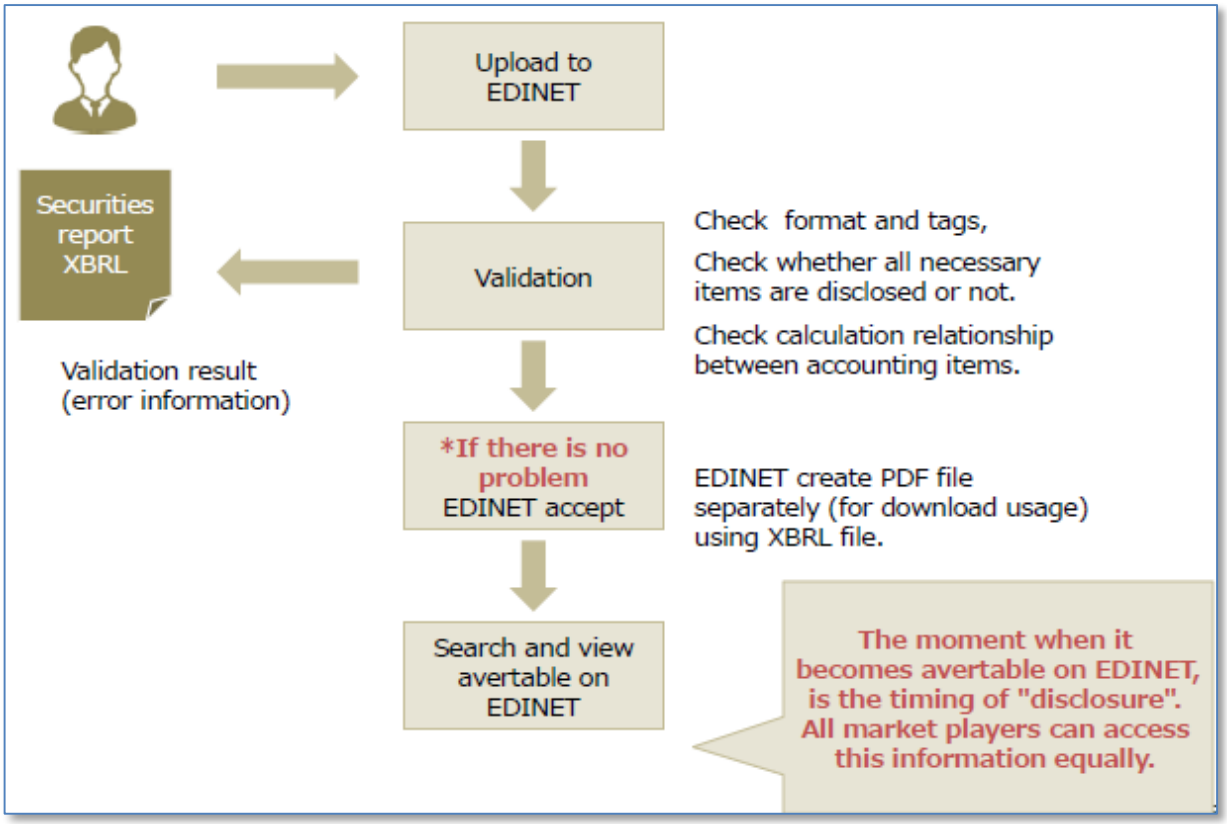
1. Public filing systems in Japan

1. Fundamental environment, Regulatory filing system and digital reports (XBRL)

In Japan companies must file their regulatory reports to EDINET, which is provided by the Japan FSA. The public cannot access this information before companies have filed it, so EDINET provides us (users) with the quickest possible access to this information. The regulatory reports are edited in XBRL format, it means, there are no argument whether to see or not to see XBRL, if we want to use data immediately.

In Japan, company also disclose preliminary reports, known as “the earning digests”, that are not audited. These documents also must be filed with another disclosure system (TDnet; Timely disclosure network) provided by the Tokyo Stock Exchange.

As with regulatory reports, the pubic cannot access this information before it is filed. For investors to obtain the information immediately after it is disclosed, they must access TDnet.



2. Use of financial data on a real-time basis

"What if XBRL is not attached? →We can not report that company's result"

We are more than just a newspaper, we also provide data terminal services to market players. We provide real-time data and news relating to financial results to customers who instantly make deals based on the information in earning digests, changes in management forecasts, or other event information.
Our customers do not have time to closely follow every company's announcement, especially when many companies are publishing earning digests at the same time. This explains why many customers follow the headlines provided by the information terminal.
Stock prices react to the news instantly, we think it most important to provide data on a real-time basis.

We automatically produce "News" (ie articles) from XBRL based data submitted to the TSE. Since around last year, the TSE does not require XBRL data when companies announce changes to management forecasts at the same time as publication of the quarterly earning digest. However, some companies misunderstand that "XBRL data is not required for change in management forecast" does not apply to cases when they announce a change in management forecasts that is unaccompanied by the publication of the quarterly earning digest. As a result there are many cases where XBRL data is missing from the filings. This means that the data is not always complete and correct because some companies fail to include XBRL filing. This results in us having to manually check the data to avoid distributing incorrect information. Currently XBRL can't utilize without visual check....

Real time
News media

Accounting
Setter

Why did it happen? Lack of compliance? Quality of standards or rules?

Current rules are not clear

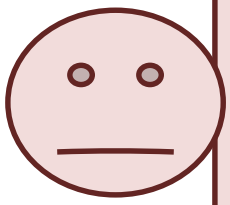
Global information provider

These are the two most important assumptions when using XBRL in real time.
1. PDF and XBRL contents are always same
2. PDF and XBRL submission timings are always same
In addition, it is important regulators (accounting standard setters) provide clear rules for utilizing XBRL in real-time.

If correctly provided, XBRL data produces a powerful message that allows companies to not only provide real-time data, but also directly transfer financial data to investors around the world without translation..

3. Data use in today's market

Increasing Passive investment



Representative of an investor group in Japan

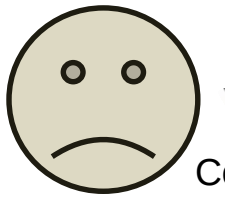
In passive investment portfolio management, the list of stocks included in the index and the index-weights are the only necessary information. Financial statement information may be used to select shares included in the index, but it is not used by investors.
Indices are classified based on market capitalization size or industries. The TOPIX index is one of the commonly used benchmarks; it includes all of the shares listed on TSE 1st section (approx. 2000 shares).

Passive investor's engagement is expected under the Japan FSA stewardship code (introduced 3 years ago). Fundamental information such as capital efficiency, policy on shareholder returns are required for engagement purposes. It is unrealistic to engage with all of the companies included in the index, therefore we need comparable data on companies to perform screening, and ultimately to decide on the target companies for engagement.

One of the leading investors states that the reason professional investors cannot outperform the market average is because of expense charges (management + transaction fee). Investment based on the index is a long-term investment strategy. According to portfolio theory, the market portfolio is the optimal portfolio. For such reasons, passive investment (index funds) became preferred among long-term investors such as pension funds. As a result, the percentage allocation to passive investment is increasing. In Japan, GPIF, holder of as much as 30 TR JPY of Japanese shares, has 80% of its total investments in passive strategies. Also, the BOJ recently has been buying enormous amounts of ETFs (majority are index fund tracking TOPIX or Nikkei 225). As a result, approximately 60% of investment held by investment trusts and pension funds are in passive strategies.

This upward trend in passive investing is also seen in Europe and USA (33% of assets in EU, 47% in US). In the US, it is expected that the allocation to passive funds will overtake active funds in 2019.

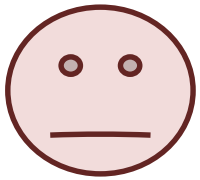
These days we have more interest in how can we get into index, not how we should disclose well for investors.



Company IR person

3. Data use in today's market

Work of quant analysts

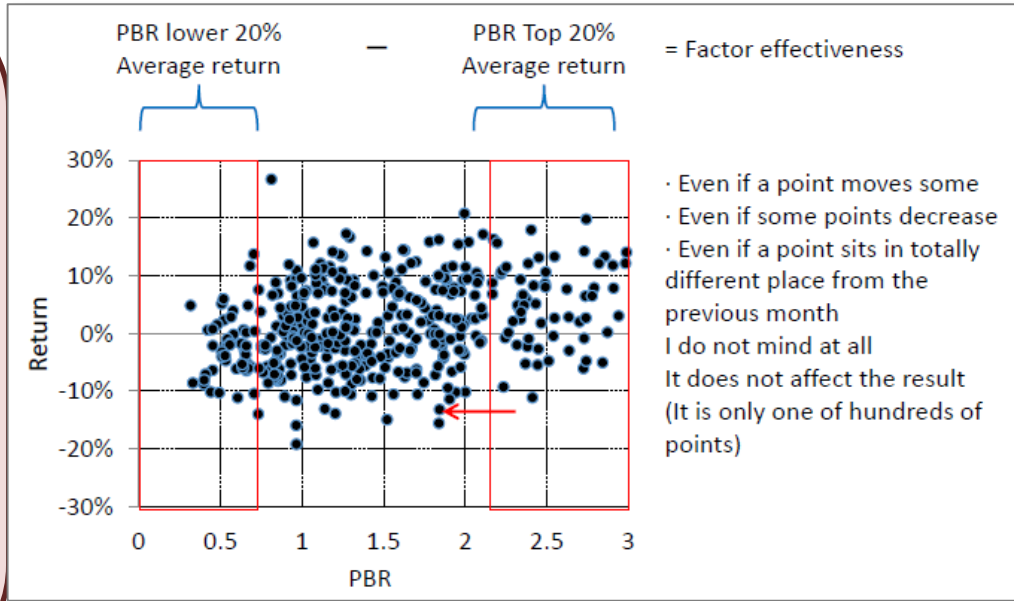


Quants analyst

Quant analysts predict which factor will be the most effective on stock price performance during the next month. This is an active operation by the Quants that changes over time, which is in contrast to smart beta, where the analyst declares a factor such as PBR (Price/Book Ratio), etc. (passive quants.).
In the case of the PBR factor, when the effectiveness is positive, it means that stocks with lower PBR outperform stocks with higher PBR. Usually there are some concerns for companies with low PBR (such as bankruptcy) , but the fact that the effectiveness of the PBR factor becomes positive in low PBR companies means that we can now buy it. On the other hand, when the effectiveness of the PBR factor is negative, it means that the high PBR companies outperform the low PBR companies. In this case, we interpret this as 'Market participants are predicting widening-disparity in performance'.

Most of Quants analysts also do not use detailed information on financial statements. In addition, we do not usually use historical results, we often use the forecasts – especially net profit estimates. I use the 2-year forecast data that T company provides.
When calculating the effectiveness of factors, it does not matter if some companies are missing from the dataset. This is because we have plenty of alternatives to substitute for companies that do not disclose the forecast data.
Also, comparability problems due to differences in accounting standards do not matter to our approach. In fact, many Quants analysts do not know the difference between IFRS and J - GAAP.
Most of Quants analysts are not concerned about the company's fundamental value, instead we want to understand how other market participants view the company.

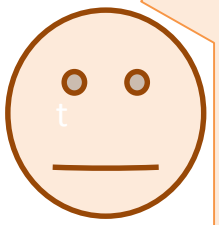
Comparability is not important?



I do not need to care about comparability because it is guaranties by information providers, I don't care which company adopt IFRS.

3. Data use in today's market

Mission of Data Analysts of Banks

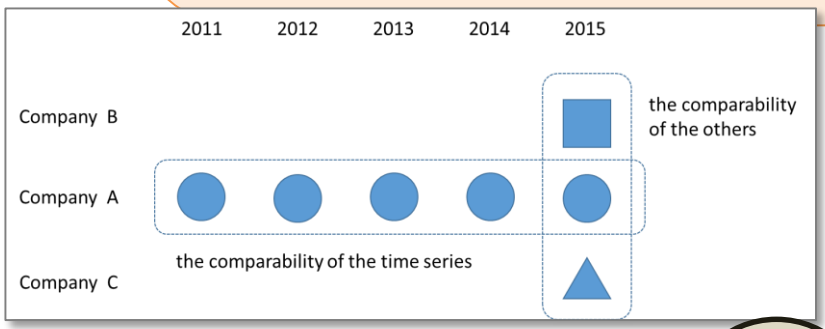


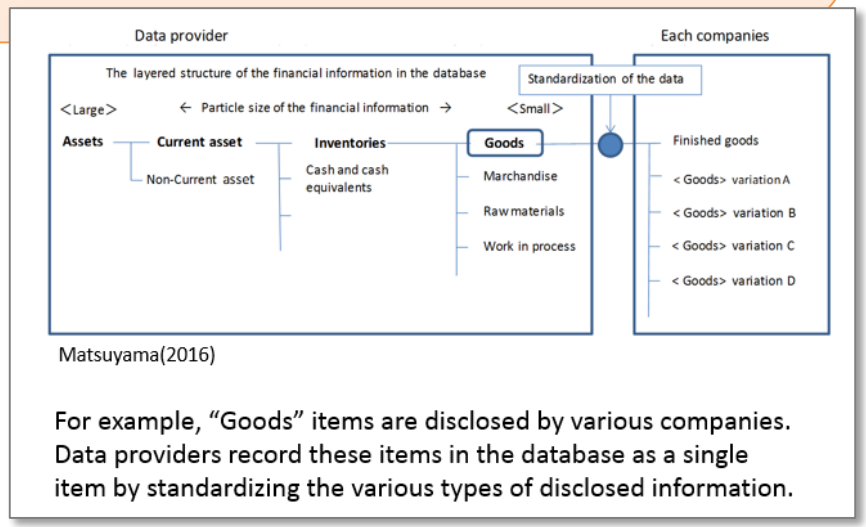
Data analyst of Bank

I am in charge of editing and planning databases used for investment and financing at a bank. It is necessary to process as "data", not directly from the disclosed information. The figure on the left shows the basic view of investors. In the example of company A, it is necessary to ensure that its data has continuity over time (from 2011 to 2015) and comparability with other companies (company B and C). If these conditions are not met, the disclosed information will not reach users.

If the accounting standard changes in the middle of this period, then the definition of the disclosed items would change. This means that not only is continuity not guaranteed but potentially comparability as well. Therefore, there is a possibility that the user can not use the data effectively.

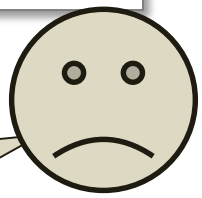
Also, as shown in the figure on the right, if a group of companies that disclose account items related to products as various names such as A ~ E, users may take the basic common item and so we will only store the item "goods" in the database. Then, various items such as "products", "work in progress", "raw materials" are gathered as "inventory assets", and items such as "inventory assets", "cash", "sales receivables" , "Liquid assets", etc, are categorized at the discretion of the database making side (ie criteria of data and editing). For ESG information, the database includes not only quantitative information but also qualitative information, which makes it the task of putting the criteria of information difficult, as well as creating difficulty for continuity and comparability when editing information.





Matsuyama(2016)

For example, "Goods" items are disclosed by various companies. Data providers record these items in the database as a single item by standardizing the various types of disclosed information.



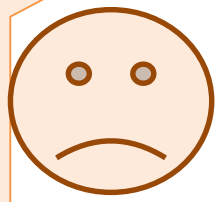
Should all disclosure, including non-financial information, be considered as well?

Company IR person

4. To have computer system “read” data in place of human

Potential risk of misreading data with current XBRL

I speak about XBRL in the Corporate Governance Report with the theme of information that can not be completely read from XBRL filings. This refers to new information on " Status of retired CEO etc. (whether they assigned as "advisor") in the report. The left figure is a good example as it states "There is no applicable person". In the XBRL data, it appears as "the total number of advisers who were former CEO is zero“ and is accompanied by the explanation that they have not had such a position since it was founded.
The right figure is an example of confusing disclosure. There is no mention of the existence of advisers in the report itself, but the attached XBRL data indicates the following: xsi: nil = "true" is written. This XBRL data implies "There is no number of people". What does that mean?? It is impossible to know the company’s intention with this data: does it mean: (i) there is no advisor, (ii) they do not know the number of advisors ("Advisor is usually not public. Sometimes, even company IR do not know), (iii) this data is not disclosed, or (iv) they do not want to disclose it even though they have... In order to efficiently convert this information into "data", we mechanically process and aggregate them, but problem is that both examples appear to have similar data, and so we need to do manual check. By the way, the latter is famous for the fact that the former president is actually advisor. So this is the case "exist but not disclosed".



Information provider

[Status of retired CEO etc]

Name of retired CEO or president holding “advisor” position

氏名	役職・地位	業務内容	勤務形態・条件（常勤・非常勤、報酬有無等）	社長等退任日	任期
Name	Title	Duty/objective etc	Full time / part time	Date of retirement of CEO	Term

Number of the retired CEO holding “advisor” position

その他の事項 更新

We do not have "advisor" position since we established. In addition, we institutionalize and have a practice that retired presidents do not to take any advisory position in the group.

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<tse-t-cg:InformationOnRetiredPresidentsOrCEOsHoldingAdvisoryPositionsIncludedOrOmitted
contextRef="CG">Disclose</>
<tse-t-cg:NumberOfRetiredPresidentsOrCEOsHoldingAdvisoryPositions contextRef="CG" decimals="0"
unitRef="NumberOfPersons">0</>
<tse-t-cg:OthersRetiredPresidentsOrCEOsHoldingAdvisoryPositions contextRef="CG"> We do not have "advisor"
position since we established. In addition, we institutionalize and have a practice that retired presidents
do not to take any advisory position in the group.
</>
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atus of retired CEO etc]

当社では、取締役会と各委員会の円滑な運営を確保するため、運営を担う専属機関として取締役会事務局を設置しています。
は、取締役会事務局長の管掌のもと、関連部門である経営計画部、グループ人事部、法務・渉外部、グループ監査部の責任者
り構成されています。また、上記に加え、監査委員会の職務を補助するため、監査委員会事務局を設置しています。各事務局
議事事項を説明するなど、社外取締役が各機関の会議において内容を踏まえた活発かつ実質的な審議を行えるよう補佐して
執行役および使用人は、法令違反、社内規程違反あるいは社会通念に反する行為等が行われていることを知った場合、また
行われ
ものと
役およ
報でき
適時的
外部の

Even writing a lots of words but no clear statement of "Status of persons who retired CEO etc."

内部通報窓口に対し、その根拠と共に
には監査委員会に報告することとして
会または監査委員会が指名する監査
における重要な会議に出席し、監査活
の他、監査委員会は、その職務を執行

務執行、監査・監督、指名、報酬決定等の機能に係る事項（現状のコーポレート・ガバナンス体制の概要）

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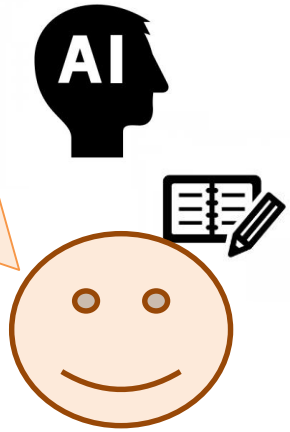
t-cg:InformationOnRetiredPresidentsOrCEOsHoldingAdvisoryPositionsIncludedOrOmitted
xtRef="CG">Not to disclose</>
t-cg:NumberOfRetiredPresidentsOrCEOsHoldingAdvisoryPositions contextRef="CG"
ef="NumberOfPersons" xsi:nil="true"/>
```

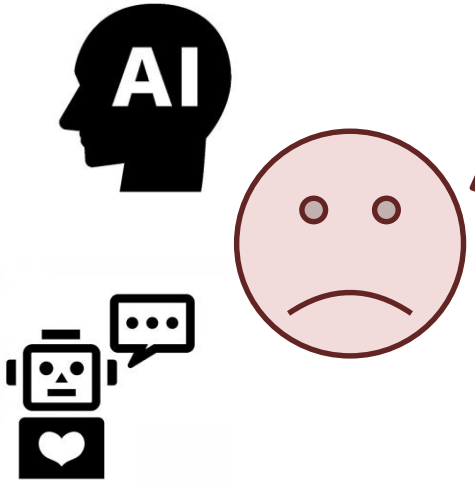
4. To have computer system “read” data in place of human

“Writing” articles about financial results by AI, its possibilities and challenges

As an information vendor, we aim to "prevent necessary documents from being buried and overlooked". I also explain what and how XBRL could help our process.
We are now,
1. Automatically creating news headlines that let users know the contents of the story/results.
2. Extracting the important parts from a huge amount of information and summarizing it automatically.
We started these efforts because all of EDINET's submission became XBRL, and TDnet requires companies to submit financial part in XBRL. Even without tags, XHTML is more helpful than simple PDF files. When reading data from PDFs, there can be garbled characters or collapsed tables . We work on the automatic creation of articles, there is a part which can not be read accurately in text part of filings, we check numbers from XBRL data and complement / correct them.
One of the problems we face occurs in cases where data in PDF filing is correct, but data in XBRL filing is incorrect. For the users watching our news articles, this would give the impression there was a problem with our processing instead of with the source data. Therefore, as with everyone else, **we focus on speed and process data by AI system, but we later confirm it by making manual comparisons with PDF**.



Information provider



Under current situation**, AI can write a news article?**
In one case, a Company wrote a lots of criticism about a previous board member in the earnings digest. Current AI can find which part of story is possibly important in the whole article. So the **AI article picked up this part of the earnings digest and sent out the article automatically.** That was really strange, because the article mentioned only criticism of previous management, even the article has to be the earning digest.
AI can not understand the meaning the same way a human can. Maybe in more than 50 years, needs to catch-up same level of human….. I bet.

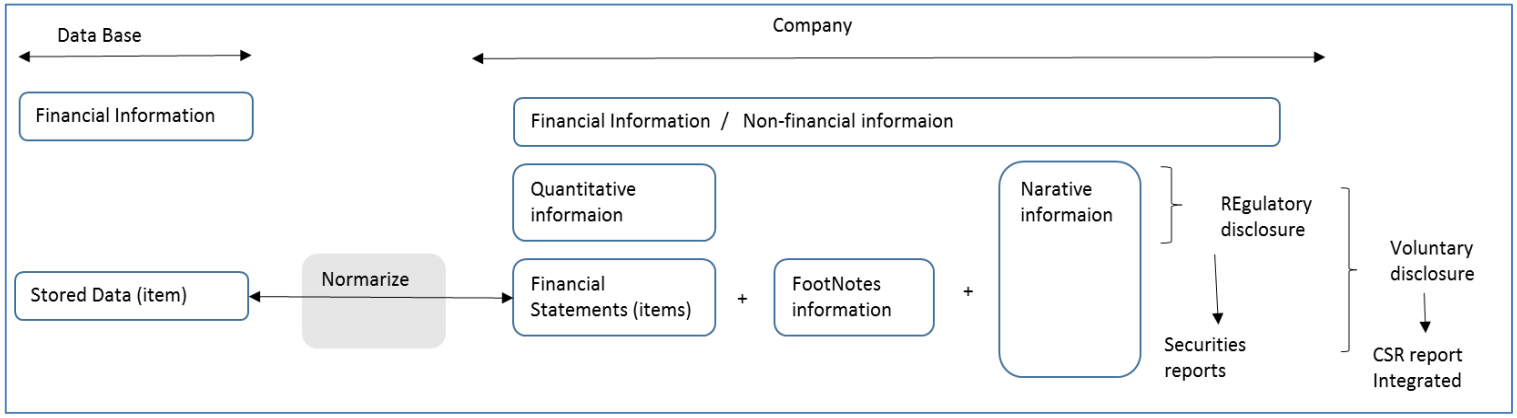
Current corporate reports unfit to capture as data

Financial/non-financial information on the database / issue of cost effectiveness

It can not be said that the convenience for users would improve only because various data become available in XBRL. In fact, to incorporate data into the database it must be checked by visual inspection. This means it costs money to record the data into the database. Furthermore, if the specification of XBRL changes, then this requires a system revision. The figure on the right is part of the table about renovation of the database when EDINET (XBRL) was revised in 2013. The renovation was quite large. Currently, such upgrades are increasing. However, even if the database gets renovated, we sometimes find that data hardly includes the new contents, or it is unsatisfactory.

procedure	What DBJ has to do
(1)Dimension	Checking dimensions
find way to detect data	Find way to extract data from Dimension and store to DB
Count target items	Categorize target items and counting number of items
(2) Form /Capturing facts	Checking Primary Financial Statements of the securities report
Find way to detect data	Examin difference between Third generation EDINET taxonomy and Current generation EDINET taxonomy. Find way how new data can store DB
Examin items	Categorize target items and counting number of items
Mapping items	Survey on correlation between account items and DB (standardized) items
How to transfee current mapping to next mapping for new generation EDINET	Find way of transission from Current EDINETtaxonomy mapping to Third generation EDINET taxonomy.
(3) Other procefure for this upgrade to Third generation EDINET	Examine difference between Third generation EDINET and Current EDINET. (Regarding with other specifications)
Changing the hierarchy of taxonomies	Investigation of program and database upgrade accompanying change of EDINET taxonomy hierarchy
Change extension link role	Investigation of cost of program and database upgrade accompanying change of extention link role
Integration of item schema	Investigation of cost of program and database upgrade accompanying change of items schema from separated industries type to integrated type.
(4) Compatibility from Current EDINET	With Consideration of current EDINET compliant XBRL data coming to the DB after third generation EDINET has launched, Need to find way to handle new data as same way of data for current EDINET.
Find Compatible functions	Find way to handle with data for Third generation EDINET while maintaining the current functions

Although Narrative disclosures are increasing, it is difficult to determine the criteria for continuity and comparability when capturing it in a database. For this reason, most of the information is stored as 1 or 0 information. It is 1 (if there is information), otherwise it is 0 (none). However, it should not be the company's intention that disclosed information are recorded under such circumstances. The figure below is the overall picture of information disclosed by companies. The right side of the figure shows what kind of items are recorded for each category such as financial, non-financial, statutory disclosure, voluntary disclosure, and the information disclosed by the company. The left side of the figure shows the connection between the items contained in the database and the information disclosed by the company. Regarding financial information, the items disclosed by companies are recorded with processing of standardization. Recently, companies are actively disclosing non-financial information and voluntary disclosure.



As a result, the information contained in the database captures a smaller portion of whole disclosure. If non-financial information is not included in the DB, it may be more reasonable to concentrate on activities that are highly appreciated by CDP or GRI, rather than creating high quality financial disclosure….

Where are we going? What should we do?

In the current situation, what we can do, what we should do?

- ✓ Increasing number of passive investors. They need comparable data on a large number of companies across markets. They do not have the time to read them carefully, just need screening systematically.
- ✓ Quants analyst challenges AI. AI needs to read data correctly first.
- ✓ But digital report (XBRL) is currently not perfect. Rules are not clear, allowing companies to make mistakes. Data usually needs manually checking.
- ✓ However, issues that we recognize on digital reporting today have happened on paper based disclosure already.

This situation has a risk actually like “blind men and elephant”. We might need to understand what is going on in the market and tighten rules if it is necessary. But the most important is….

Think and work together !