**Editorial**

# Applying Disruptive Technologies to Audited Financial Statements

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**Abstract**

*In today's economy, both large shareholder investment groups and ordinary (retail) shareholders depend of the information provided in the audited financial statements for managing their portfolios. The problem is that Audited Financial Reports, that have not changed in their presentation format, or in their method of delivery, since the dawn of the industrial era or the age of the corporation (about 1850) when tangible assets such as land and machinery were the engines of growth. As a result, the Balance Sheet still shows that it is mainly these tangible 'non-current' assets' that drive business value.*

*This paper discusses an innovative approach to the presentation of financial statements that would be truly disruptive to the traditional account preparation and the audit functions, using the power of the technologies we have at our disposal today to show the true value of today's companies.*

**Keywords**

**Disruptive Technologies**
**Accounting Standards**
**Financial Reports**
**Intangible Assets**
**Emoticons**
**Financial Statement Presentation**
**Market vs. Book Values**
**Financial Statement Analysis**
**The Role of the Auditor**

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## Introduction

A financial statement audit is the examination of an entity's financial statements and accompanying disclosures by an independent auditor. The auditor's report must accompany the financial statements when they are issued to the intended recipients. The principal recipients are the shareholders, especially of listed companies where the audited financial statements are attached to the Annual Report of the company. In today's economy, much of the shares in listed companies are held by large shareholder investment groups such as pension funds. However, there are a significant amount of ordinary (retail) shareholders. Both these shareholder groups depend of the information provided in the financial statements for managing their portfolios.

Audits have become increasingly common as the complexity of the two primary accounting frameworks, *Generally Accepted Accounting Principles* (GAAP) and *International Financial Reporting Standards (IFRS),* have increased; and because there have been an ongoing series of disclosures of fraudulent financial reporting by major companies.

The problem is that *Audited Financial Reports*, that have not changed in their presentation format, or in their method of delivery, since the dawn of the industrial era or the age of the corporation (about 1850) when tangible assets such as land and machinery were the engines of growth. As a result, the Balance Sheet still shows that it is mainly these tangible 'non-current' assets' that drive business value.

## Financial Statement Presentation

Today's big businesses are knowledge-economy companies such as Google, Apple, Facebook, Microsoft, Uber, Air B&B, etc., with significant intangible assets which are not reported in the financial statements prepared under GAAP and IFRS. This has resulted today in knowledge-economy companies reporting audited financial statement (book) values that are widely divergent of their market values (Ratnatunga and Jones, 2007). Despite this divergence between market and book values, readers of financial statements

have little option but to rely on the numbers certified as 'true and fair' by the auditors. Very little analyses can be done on the veracity of the reported numbers by the *readers* of the financial statements. The reason is that the audited financial statements are provided to the intended recipients in *paper (word or pdf) format*. In large companies these are attached to the *printed* Annual Reports that contain other reports such as the chairpersons statement; directors' reports; operating and financial reviews and increasingly corporate social responsibility (CSR) reports.

Some listed companies around the world do present their Financial Statements in the *Excel format* on their corporate web-pages, but without any equations, only numbers. Therefore, before any analysis can be done, all the equations have to be inserted at appropriate places (e.g. the addition of all current assets into a 'Current Assets' sub-total, that itself then has to be added to the 'Total Assets' total). Further, all links to the numbers appearing in the *Notes* will similarly need to be inserted. This is despite the fact that the final *Profit & Loss account* and *Balance Sheet* would have most likely have been done on a package (e.g. SAP, Oracle Financials, etc.) that can be downloaded as an Excel file with the equations).

A majority of companies, however, provide only paper (or pdf) based Annual Reports. Once received in paper (or pdf) form, or as part of a printed and bound document, very little analysis can be done with these audited financial reports.

## Financial Statement Analysis

If the intended recipients want to analyse the reported numbers beyond the operating and financial reviews provided in the Annual Report itself; they would first need to re-key the numbers in the *profit and loss (P&L)* account; *balance sheet (BS); cash flow (CF) statement* and *'notes to the accounts'* into excel spreadsheets.

Then they would need to: (1) adjust the P&L performance numbers and BS asset values based on the 'notes'; (2) undertake financial ratio analyses including trend analyses and interfirm comparisons; and (3) make estimations of future income based on assumptions of future trends in sales, costs and investments.

Serious financial analysts can undertake further more in-depth analyses. They can use the CF Statement as a basis for calculating 'free-cash flow' (after adjusting for investment growth in fixed assets and working capital) in order to calculate the '*shareholder value-added (SVA)'* and the *'economic value added (EVA)'* of the company. For these last two computations, the *weighted average cost of capital* (WACC) needs to be ascertained; which is not reported directly in the financial statements.

All of the above analyses require a substantial amount of effort by the readers of these hard-copy *Audited Financial Reports*. However, even if they were to spend considerable time and effort to analyse the financial statements; they still must rely as the starting point of their analysis the numbers as reported in the financial statements. They must take a 'leap of faith' that these reported numbers have been arrived at by the preparers of the financial statements (and the auditors) by correctly interpreting GAAP and IFRS!

Unfortunately, this is often a too big 'leap of faith''; because despite the introduction of IFRS and IAS worldwide, the approach to accounting standards still varies in different countries. For instance, the United States still employs a rule-based approach, while Europe follows a principle-based approach. Some accountants claim that compliance with rules (form) does not mean reports present a true and fair view (substance) of a company's situation (Chapman, 2003). Others believe that both approaches are subject to vagueness and manipulation as the foundation upon which accounting reports and related standards are based upon are fundamentally outdated, especially in the measurement and valuation of assets (Ratnatunga and Jones, 2007).

## Vagueness and Manipulation

This vagueness and manipulation is very much present in rules pertaining to assets, with issues such as (1) how companies' account for goodwill; (2) when should expenses be

capitalized into assets, or (3) the current value of assets, continuing to be controversial (Gray, 2002). This flexibility in accounting policy choices provided by the vagueness of rules opens the door to opportunistic behaviour of managers seeking to maximise their own utility so that accounting numbers may not necessarily reflect the real operating performance of the firm (Penno, 2008). For example, a study examined the extent to which firms make policy choices in five areas that either align with US GAAP or with IAS options that are not acceptable under US GAAP. The five areas were tangible assets, available-for-sale marketable securities, identifiable intangible assets, research and development expenditure and goodwill amortization periods. The firms studied were domiciled in the United Kingdom, France, Germany, Japan and Australia, and it was found that foreign listing (especially in the US) and leverage were significant factors for policy choice (Tarca, 2002).

The problem for the readers and analysts of financial statements is that there is *no transparency* as to how these policy choices were made. The notes to the accounts present the policy choice ultimately made as a 'fait accompli' rather than giving readers a method of ascertaining what the numbers would look like if an alternative choice was made.

The only *technological reason* that the results of alternative policy choices and their impact on earnings 'bottom line' in the P&L and the shareholder value 'bottom line' in the BS cannot be provided is because we are clinging onto an (outdated) print-based presentation of the financial statements.

## The Annual Report as an Item of News

In the news industry, print media is dying, suffering another year of circulation and revenue drops and staff firings; and while the digital audience is surging, readers apparently do not spend much time surfing the web pages of print sites. At the start of 2015, 39 of the top 50 digital news websites have more traffic to their sites and associated applications coming from mobile devices than from desktop computers. These changing news habits have a tremendous impact on how and to what extent a country functions within an informed society. So too does the state of the organizations producing the news and making it available to its citizens (Mitchell, 2015).

The Annual Report should be regarded as an item of 'news', principally to the company's shareholders. Just as different reporters have different interpretations to how the news is reported, Tarca (2002) and other researchers have shown that different account preparers and auditors make different policy choices when alternatives interpretations are available. Today, we have the technology to easily show the readers of Annual Reports what the results of alternative policy choices and their impact on the financial statement 'bottom lines' would be. *In other word the Annual Report should go truly digital.*

This does not mean that a pdf of the Annual Report should be made available digitally. Obviously, this is very common practice.

*What is being recommended is that different interpretations of the Financial Statements in the Annual reports be made available digitally to the readers in a format such as Excel, so that the readers themselves can undertake various financial statement analyses of these different reports.*

The reports and their order of presentation are suggested as follows:

***Cash Flow Statement***

This should be the principal statement. Cash is cash and difficult for any numbers manipulations.

***Accrual Based Financial Statements***

This is the traditional mode of presenting financial statements and is based on GAAP and the Historical cost doctrine. Some 'Earnings Management' is possible in the area of discretionary accruals, and it is hoped that the auditors are able ensure that such manipulations are kept to a minimum.

***IFRS Based Financial Statements***

Here digital technologies enable *multiple reports* based on different interpretations of

IFRS. To avoid information overload, ideally not more than 5 reports should be generated; and that too only if there are significant variations in earnings results and book values between different interpretations of a IFRS standard.

Areas where different interpretations of standards may result in significant differences in reported numbers are: revenue recognition; accounting for leases; fair-values of major tangible assets, available-for-sale marketable securities, identifiable intangible assets, research and development expenditure and goodwill amortization periods.

If the earnings or book values would differ substantially when 'rules' were applied instead of 'principles' (or vice-versa) these should also be shown. Here significant 'Earnings Management' is possible; especially in the area of obtaining opinions of experts as to fair-valuations. Therefore, the auditors should ensure that companies do not cherry-pick the multiple reports in such a way as to show the public only the results they want published.

### *Calculation of Multiple Market to Book Ratios*

Providing this information goes beyond that currently covered in current financial statements. Analyst are of the view that there is value in book value (despite the many distortions and vagueness of such values); such as calculating market-book value multiples and comparing within industry averages. One could argue that providing multiple reporting result that are significantly divergent with different interpretations of IFRS standards would enable a better understanding of how these compare with a representative industry standard; and form a more informed basis for value investing. In time, industry 'market-book ratios' under different IFRS interpretations may be available.

### *Valuation of Un-Identifiable Intangible Assets*

This is more of a 'wish list' as IFRS is silent on such valuations. Whilst there are many models developed to value intangibles (see Leadbeater, 2000), and even value 'capabilities' (Ratnatunga, Gray and Balachandran, 2004); these have still to find its way to conventional balance sheets. In its simplest form, the valuation of un-identifiable intangible assets would be the difference between market value on balance sheet date and the book value on that date obtained under different IFRS interpretations. One needs to recognise that market value is essentially supply/demand, and arguably based on the marginal supply/demand on a given day (the balance sheet day). Therefore, the definition of intangible assets needs to be fairly all-inclusive, and include such factors as the risk premiums incorporated into market price, such as illiquidity premiums, which would not be reflected in conventional definitions of intangible assets.

### *Calculation of Cost of Capital*

Calculations of the company's cost of equity; cost of debt and the weighted average cost of capital (at balance sheet date) should be provided. This will enable advanced financial analysis of the multiple IFRS reports to be undertaken.

## The Role of the Auditor

Such reporting may make the requirement for an auditor to give a single 'True-and Fair' opinion on a single set of financial statements unnecessary. In the new digital regime that is being recommended, once the (multiple) financial statements are prepared by the accountants of the company, the auditors need to only undertake: (1) planning and risk assessments of the company to gain an understanding of the business its environment in order to assess whether there may be risks that could impact the financial statements; (2) internal controls testing to assess the effectiveness of an entity's suite of controls, concentrating on such areas as proper authorization, the safeguarding of assets, and the segregation of duties; and (3) substantive procedures that involves a broad array of audit procedures to confirm the veracity of the transactions that give rise to the reported numbers (i.e. the historical costs).

Once these basic audit stages are completed, the alternative interpretations of GAAP and IFRS can be presented digitally as alternative

**Table 1: Five-Years of Profit & Loss Accounts**

| XYZ Ltd- Five Year Profit & Loss Statement Summary | | | | | |
|---|---|---|---|---|---|
| **Accounts Summary**<br>Actuals (in millions of Dollars) | **20-1**<br>**Dec. 31** | **20-2**<br>**Dec-31** | **20-4**<br>**Mar-31** | **20-5**<br>**Mar-31** | **20-6**<br>**Mar-31** |
| **Sales** | 461.7 | 884.1 | 1,390.50 | 1,242.10 | 996.9 |
| Operating expenses | 387.9 | 758.2 | 1,172.60 | 1,016.50 | 847.3 |
| **Operating Profit** | 73.8 | 125.9 | 217.9 | 225.6 | 149.6 |
| Other income | 19 | 69.8 | 92.8 | 162.6 | 192.0 |
| **Earnings Before Interest & Tax** | 92.8 | 195.7 | 310.7 | 388.2 | 341.6 |
| Interest charge | 12.5 | 29.7 | 118.7 | 215.9 | 196.1 |
| **Profit Before Tax** | 80.3 | 166 | 192 | 172.3 | 145.5 |
| Tax charge | 15.9 | 31.7 | 36.8 | 34.5 | 20.4 |
| **Profit After Tax** | 64.4 | 134.3 | 155.2 | 137.8 | 125.1 |
| Minority interest | -0.2 | 2.5 | 7.2 | 11 | 25.9 |
| **Earnings** | 64.6 | 131.8 | 148 | 126.8 | 99.2 |
| Extraordinary Items | 4.3 | | -42 | 25.7 | 49.5 |
| **Profit for The Year** | 60.3 | 131.8 | 190 | 101.1 | 49.7 |
| Dividends | 45.5 | 86.4 | 112.3 | 95.8 | 95.9 |
| **Retained Profit** | 14.3 | 45.4 | 77.7 | 5.3 | -46.2 |
| Year-end share price (in cents) | 224 | 240 | 219 | 189 | 173 |
| Adjusted number of shares (in millions) | 396.522 | 608.4 | 621.6 | 646 | 649.2 |

**Table 2: Five-Years of Balance Sheets**

| XYZ Ltd - Five Year Balance Sheet Summary | | | | | |
|---|---|---|---|---|---|
| **Accounts Summary**<br>Actuals (in millions of Dollars) | **20-1**<br>**Dec-31** | **20-2**<br>**Dec-31** | **20-4**<br>**Mar-31** | **20-5**<br>**Mar-31** | **20-6**<br>**Mar-31** |
| Property | 96.8 | 136.6 | 225.2 | 205.3 | 179.6 |
| Other tangible FA | 278.8 | 393.5 | 487.2 | 132 | 116.2 |
| Other fixed assets | 298.6 | 801.3 | 1,838.30 | 3,219.80 | 2,687.60 |
| **Total Fixed Assets** | 674.2 | 1,331.40 | 2,550.70 | 3,557.10 | 2,983.40 |
| Stock | 60.3 | 79.9 | 100.3 | 108.4 | 110.3 |
| Debtors | 132.4 | 179.2 | 447.2 | 431.4 | 468.4 |
| Cash and Securities | 229.8 | 101.8 | 75.8 | 66.6 | 39.9 |
| Other CA | -38.4 | 3.3 | 52.7 | 21.4 | 14.6 |
| **Current Assets** | 384.1 | 364.2 | 676 | 627.8 | 633.2 |
| **Total Assets** | 1,058.30 | 1,695.60 | 3,226.70 | 4,184.90 | 3,616.60 |
| **Shareholders' Equity** | 522.2 | 1,003.40 | 1,019.40 | 1,006.30 | 867.7 |
| Non-current liabilities | 36 | 39.8 | 62.2 | 366.6 | 305.8 |
| Long & medium loans | 175.9 | 230 | 1,428.70 | 1,670.80 | 1,438.00 |
| Short term loans | 134.8 | 138.8 | 296.3 | 505.5 | 350.9 |
| **Net Capital Employed** | 868.9 | 1,412.00 | 2,806.60 | 3,549.20 | 2,962.40 |
| Creditors | 111.9 | 142.8 | 310.1 | 472.1 | 462.1 |
| Current tax due | 32.4 | 55.6 | 34.7 | 67.8 | 96.2 |
| Proposed dividends | 45.1 | 85.2 | 75.3 | 95.8 | 95.9 |
| **Current Liabilities** | 189.4 | 283.6 | 420.1 | 635.7 | 654.2 |
| **Liabilities and Equity** | 1,058.30 | 1,695.60 | 3,226.70 | 4,184.90 | 3,616.60 |

valuation outcomes with the auditor attesting to the fairness of presentation of the (multiple) financial statements and related disclosures based on each interpretation.

## Use of Emoticons

Further, the requirement of an auditor to give a single audit opinion on a set of financial statements can be replaced the preparers of the accounts making it easy for the readers by the use of 'emoticons' to signify performance in the key business areas. For example, a number indicating 'above average' performance can be accompanied by a smiley face, etc. Possible emoticons can be as follows:

**Table 3: Five-Years of Horizontal Ratio Analyses with Emoticons**

| Financial Ratio | Definition | 12 months Dec 20-1 | 12 months Dec 20-2 | 15 months Mar 20-4 | 12 months Mar 20-5 | 12 months Mar 20-6 |
|---|---|---|---|---|---|---|
| ***Profitability*** Profit Margin | Operating profit / Sales | 16.00% | 14.20% | 15.70% | 18.20% | 15.00% |
| Return on Equity | Profit after Tax / Capital & Reserves | 12.30% | 13.30% | 15.20% | 13.60% | 14.40% |
| ***Liquidity*** Current Ratio | Current Assets / Current liabilities | 2 | 1.3 | 1.6 | 1 | 1 |
| Acid test | Quick assets / Current liabilities | 1.7 | 1 | 1.4 | 0.8 | 0.8 |
| ***Solvency*** Gearing | Borrowings / Capital & Reserves | 59% | 37% | 169% | 216% | 206% |
| Interest cover | PBIT / Interest | 7.4 | 6.6 | 2.6 | 1.8 | 1.7 |
| ***Asset Structure*** Intangible ratio | Intangible assets / Total assets | 26% | 20% | 15% | 52% | 57% |

This is not an outlandish idea. A significant number of studies in the in the financial environment suggest that using cartoon graphics (emoticons) may be superior to conventional methods in both their communication and decision making qualities (Smith,Taffler and White, 2002).

Tables 1 and 2 provide 5-years of a company's profit & loss accounts and balance sheets. Typically, these are a mass of numbers that even an experienced financial analyst will need days to analyse, after carefully reading the Notes. Table 3, however provides a ratio analysis with emoticons, that will make interpreting the financial statements easy, for even the most financially illiterate of stakeholders.

As one can see from Table 3, no explanation is required as to the emotional impact of a number that is followed by one of the above emoticons. Of course, the idea of an external auditor providing an opinion whether a figure is over/under performance (regardless of whether using emoticons or words) could be seen as being outside of their skillset and could be seen as highly subjective.

Subjectivity will be diminished if the emoticon can be attached to a ratio, in which one has controlled for size, therefore inter-firm comparisons can be made.

There will be concern that the development of Multiple Reports on different interpretations of IFRS will be a time-consuming task for the account preparers and the auditors, and therefore that costs will escalate. However, once the basic GAAP statements based on the historical cost doctrine are ascertained, the adjustments required by IFRS on areas such as revenue recognition; leases; fair-values, marketable securities, intangible assets, R&D expenditure and goodwill, etc. will need to be done anyway by companies. Once this information is collected, simple algorithms can be developed to generate the Multiple Reports based on different interpretations of IFRS, and the application of 'rules' vs 'principles'. These algorithms will automatically change not only the numbers in the P&L and BS, but also the Notes to the accounts.

It must be also remembered that most Auditors of public companies undertake a multiplicity of audit tests, ratio analyses, cash flow reconciliations and going-concern tests; and also, evaluate different interpretations of accounting standards, before forming an opinion about the 'True-and-Fair' nature of their audit opinion. Much of what is being asked here in this paper is that the Auditor make available to the public much of this audit work, so that informed analyses can be undertaken of the true value of the company by interested stakeholders. The incremental cost of providing this will therefore be negligible.

## Summary

*Audited Financial Reports* have not changed in their presentation format, or in their method of delivery, since the dawn of the industrial era or the age of the corporation (about 1850) when tangible assets such as land and machinery were the engines of growth. As a result, the Balance Sheet still shows that it is mainly these tangible 'non-current' assets' that drive business value. Today's big businesses are knowledge-economy companies such as Google, Apple, Facebook, Microsoft, Uber, Air B&B, etc., with significant intangible assets which are not reported in the financial statements prepared under GAAP and IFRS. This has resulted today in knowledge-economy companies reporting audited financial statement (book) values that are widely divergent of their market values (Ratnatunga and Jones, 2007).

Despite this divergence between market and book values, readers of financial statements have little option but to rely on the numbers certified as 'true and fair' by the auditors. Very little analyses can be done on the veracity of the reported numbers by the *readers* of the financial statements. The reason is that the audited financial statements are provided to the intended recipients in *paper (word or pdf) format*.

What is being recommended in this paper is that different interpretations of the Financial Statements in the Annual reports be made available digitally to the readers in a format such as Excel, so that the readers themselves can undertake various financial statement analyses of these different reports.

The following reports and their order of presentation are also suggested: (1) *Cash Flow Statement; (2) Accrual Based Financial Statements; (3) Multiple IFRS Based Financial Statements; (4) Calculation of Multiple Market to Book Ratios; and (5) Valuation of un-identifiable intangible assets; and (6) Calculation of Cost of Capital.*

Such multiple reports in a format that makes in-depth analyses possible will make the requirement for an auditor to give a single 'True-and Fair' opinion on a single set of financial statements unnecessary; as the readers themselves have adequate disclosure themselves to make an informed opinion.

Such an approach to the presentation of financial statements would be truly disruptive to the traditional account preparation and the audit functions. There may be an argument that preparing such multiple reports will be cost prohibitive; but again, this again is a view of someone who has not grasped the power of the disruptive technologies we have at our disposal today.

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