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VOTRE LIEN AVEC CE QUI COMPTE — CONNECTS YOU TO WHAT MATTERS

w/ sample student answers

ADM4342B
Accounting Theory
Second Quiz
November 9, 2017

Instructor: **B. La Rochelle, Ph.D., C.P.A**
Duration: **70 minutes**
Value: **15% of your final grade**

Note to students: This is a closed-book quiz, containing 3 questions, worth 35 marks in total. Apart from sundry writing materials (pens, pencils and the like), no examination aids are permitted

NAME: _____

STUDENT #: _____

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Statement to be signed by the student:

I have read the text on academic integrity and I pledge not to have committed or attempted to commit academic fraud in this quiz.

Signed:_____

Note: A quiz without this signed statement will not be graded and will receive a grade of zero.

Question 1

Required (10 marks):

Explain Bayes' Theorem and its application to accounting.

Question 2

Required (10 marks):

From the perspective of Li (2010) and related research, discuss the utility of management discussion and analysis, as a component of financial disclosure.

Question 3

Required (15 marks):

Discuss the nature and importance of the Ball and Brown (1968) study, and the relationship of such study to earnings response coefficients.

Question 1

Bayes Theorem looks a revising prior probabilities based on subsequent events. In Bayes Theorem, prior probabilities (considered subjective due to investors' information) is revised based on objective information such as accounting information, but then assessed subjectively. Thus, Prior probabilities that are subjective go through the Bayes theorem and provides Posterior probabilities that are subjectives also.

Even though, probabilities are based on historicaly cost based information, the Bayes Theorem has information content which aligns with decision usefulness. This relates the notion of decision making and utility of financial information.

One application of Bayes theorem is assessed through the concept of utility in decision making. Scott assumes that utility is equal to the square root of the expected payout. In his analysis, Scott compared decision making while choosing between a certain option that pays $225 and one uncertain option that would pay $1600 if successful (Prob. 30)

This Prior Probality were assessed through Bayes theorem and the results were as follows:

- When using payout criterion, the person chose the certain option with a payout of $15 (as opposed to the $12 for the uncertain option)
- However, using utility approach, the decision changed and the person was willing to go for the uncertain option because it has a higher utility of 40 (compared to a utility of $15 for the certain option)

So, Bayes Theorem showed decision usefulness of accounting information but the decision can be different due to the subjectivity of investors.

Indeed, utility can be different based on the financial situation of the investor for example. An investor in a harsher financial position

might be willing to take higher risk because the utility is higher for him or her.

On the other hand it is also important to consider the type of payout is being considered. the consideration are different if one investment has cash payout and another has dividends or interests payout.

Q1 10/10 Superb

Bayes' Theorem is a device used to revise state (prior) probabilities to posterior probabilities with the addition of new evidence from financial statement releases.

An investor will first allocate prior probabilities to each state of nature defined by using all the information known to him. But as an investor is rational and risk-averse, he may seek additional information. If the investor is aware that financial statements will be released, he will wait to use the new information to revise his probabilities. The revision comes from a combination of the subjective prior probabilities and the objective probabilities of the information system. The information system specifies, conditional to the state of each evidence item, an objective probability for each evidence item from the financial statements. For example, if the investor assumes that the firm is in a high state of performance, he will allocate a probability of 0.8 for a good news earnings release. There will still be a 0.2 probability that bad news will be released for a high state performing firm. This is due to the weakening of the correlation between the current financial statements and the firm's future performance and are referred to as noise or low earnings quality.

Thus, Bayes' theorem is then applied to determine

the posterior probabilities of all released information and the revision of investor's belief due to good or bad news earnings reports.
This is consistent with the efficient market theory that the markers will react quickly to new information.
This also provides evidence of the decision usefulness of the financial statements. If these reports were not useful, investor would not use them to revise their beliefs. However, it is inherent that they are decision useful as current firm performance can be indicative of future firm performance and thus the use of Bayes' Theorem to revise probabilities is extremely important for a rational investor to determine expected payoffs in the form of returns on investments.

QUESTION 2:

Management discussion and analysis ("MD&A") refers to the explanations and elaborations offered by management (usually of a publicly traded firm, as it is required by IFRS) to accompany the financial statements. MD&A is quite forward-looking in nature, containing: projections & discussions of important trends, comparative analysis & explanation, and discussion of how current & past operating results could relate to future performance. We can see here that the contents & intents of MD&A seem to be guided by the Decision Usefulness Approach to financial reporting, which we studied in Ch 3 of Scott textbook.

Li did research on decision usefulness (specifically, that of MD&A disclosures). Under the Decision Usefulness Approach we recognize that accountants can't produce theoretically correct financial statements (FS), but we can try to make sure that they are as useful as possible to investors (that is, they help rational investors make good decisions).

So, Li wanted to know: is MD&A info useful to investors? I will discuss his procedure more closely in Question 1 on Bayes' Theorem, but he essentially categorized ~19600 MD&As as being positive, negative, or neutral, then compared the categorization with the following quarter's earnings.

He found that firms whose MD&As had been categorized as positive reported, on average, good news ("GN") in terms of their earnings in the following quarter, and vice versa for those categorized as negative (they reported bad news ("BN")).

He concluded from this that MD&A disclosures have decision usefulness, in his research released in 2010.

Just after, in 2011, Brown-Tucker released a study on the decision usefulness of MD&A info. They found that MD&A's wordings were more different from the prior year when there were greater distinctions in economic activity, meaning MD&A's were following the spirit of the guidelines. Secondly, they found reactions to stock price after the release of MD&A, but lessening reactions as time went on - they concluded MD&A info has decision usefulness, but it decreases over time.

The prompt says, "as a component of financial disclosure": Well, what about the other components? Earnings/income info seems to have the greatest impact → is the most most decision useful, as will be discussed next in Question 3.

Balance sheet info: hard to determine, because it's difficult to know when investors become aware of this type of info

Cash flows: would expect high utility of this type of info, but from evidence (Nortel, Shopify), it doesn't seem to be that important to investors

Q2

Li (2010) studied the tone used in MD and A reports. He began by having 15 students with accounting knowledge (which should be questioned as to whether they had enough knowledge) classify 13,000 forward-oriented management discussion and analysis sentences based on tone. He used words such as "will" or "expect" to determine the sentences used. The results gave prior probabilities of 20% positive tone, 40% negative tone and 40% neutral tone. He then used each word as an evidence item to create his information system. He could then create posterior probabilities using the prior probabilities and the information system (which was a probability for each word, conditional on the tone of the sentence the word was in). He concluded that the most common tone was negative, however, he did use data from 1997-2007 and thus covering Enron and the stock market crash.

Another study in relation to Li, was Brown and Tucker, who studied the changes in MD&A wording from year over year analysis. They argued that a greater change in wording would stem from a greater change in economic activity for the firm (as there would be many new aspects to explain so wording would need to change). They concluded though that there was an apparent reduction in the market's reaction to the

release of MD+A as more firms increased their use of boilerplate and minimal disclosures, or the information provided by the MD+A could be found from other sources.

From Li's study, we see that MD+A as a component of financial disclosures has the utility to portray the management's sentiment about the firm's future performance over the next four quarters. It would be interesting to note which reports just met the standard requirements or went above and beyond in their disclosure of, for example, risk factors or off-balance sheet items that may affect the firm's future performance.

In Brown and Tucker, we see that MD+A as a financial disclosure has been decreasing in its utility as more firms do use boilerplate disclosures or information has been released elsewhere.

Going forward, MD+A may continue to decrease in value relevance as investors have greater options to discover the information provided by MD+A earlier.

Q3

The methodology of the Ball & Brown study was as follows.

- Analyze the share price of many companies over an extended period of time.
- estimate expected earnings.
- Seperate the firm-specific from the market-wide returns of the stocks over that period.
- Observe the reaction of the share prices to the releases of financial information/earnings reports and classify them by whether the release of information contained good News (GN) or Bad News (BN). This was determined by whether the abnormal/unexpected return was positive or negative based on the expected return, which was estimated for the study.

how were they calculated

This study essentially came to 2 main conclusions:

① Narrow window study: In the month of the earnings release (month zero), we could see causation, whereby the stock price would react to the earnings report. Firm-specific returns increased, on average, as a result of good news, and decreased as a result of BN. This showed that the accounting information released had value relevance, since it was influencing share price and volume.

② wide window study: when looking at the 12 months prior to the release of earnings information, it is clear that there was a trend of the market anticipating the GN where the stock price would increase, or decrease for BN. This showed more of a correlation, or association of the two.

This is because both the share price and the earnings in the period are a measure of the same underlying economic performance of the firm.

when looking at a firm's stock price fluctuation in relation to its unexpected / abnormal earnings, we see that the magnitude of the market's reaction is not always the same. This is explained by the firm's Earnings Response Coefficient (ERC). This coefficient measures the change in share price in response to unexpected earnings.

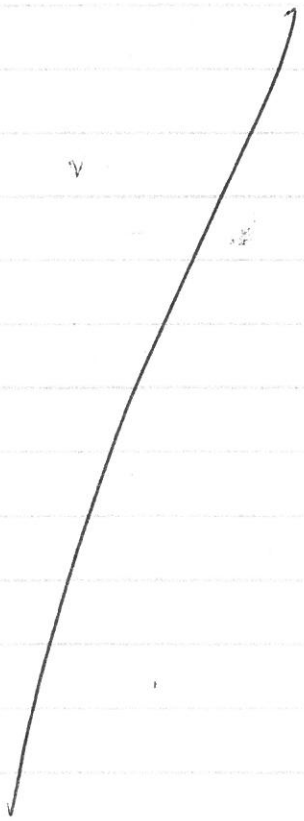
$$ERC = \frac{\text{change in market price}}{\text{Amount of unexpected earnings}}$$

ERC is influenced by a multitude of factors including.

- Beta: Firms with higher beta have lower ERCs
- Capital structure: Higher debt/equity ratio means lower ERC, since the benefit of unexpected earnings is transferred to bondholders
- Growth opportunities: current earnings expected to be a reflection of future opportunities. Increases ERC
- similarity of investor expectation: Increases ERC since investors will be more likely to have the same reaction
- Informativeness of share price: Lower ERC, since with big firms who are covered in the news and have high analyst following, investors already have most of the information from more timely sources
- Quality of earnings: High quality ≠ high ERC.
  ↳ quality of accruals (low chance for manipulation)
  ↳ Persistence of earnings

Usefulness of studying ERC for accounting is on how to increase the value relevance of financial information.
If we increase the ERC, it means the market has a greater reaction to earnings reports, showing us it has value relevance.

Studying ERC can lead to finding ways of improving value relevance & quality



18/15 + nice

Q3

Ball and Brown (1968) was the first study of the securities market reaction to the release of financial statement earnings in a narrow window and then a wide window.

At the time, Ball and Brown used one month as the narrow window (as there wasn't daily data then) to study the market's reaction to the release of financial earnings and share return. They discovered that, on average, good news unexpected earnings correlated with a positive abnormal share return that could be attributable to the release of the earnings (as in a short, narrow window, you are able to eliminate all other firm-specific events). What this meant was that the net income and unexpected earnings were the causation of the security price movement.

Ball and Brown repeated their study with a wide window of 11 months prior and 6 months following the earnings report. What was discovered was that the market anticipated the good or bad news 12 months prior to the actual release of the earnings report. This leads to the conclusion that in a wide window, the security price is affected by many events and factors and so it can only be said that the net income and unexpected earnings are associated with the share price movement.

Following Ball and Brown's study, it was

then questioned as to why the market would react more strongly to certain firms good or bad news releases than others (as Ball and Brown was an average), for example, there was a strong correlation between good news earnings report and a positive abnormal share return in the narrow window, and for the wide window, the good news strongly outperformed the sample whereas the bad news greatly underperformed, on average.). This question lead to the identification and explanation of the reasons for differential market responses. These reasons are in relation to the earnings response coefficients, which is defined as the abnormal share return divided by unexpected earnings. These reasons include:

1) Beta: the higher the beta, the lower the earnings response coefficient (ERC) as it indicates that the firm is riskier in relation to the market and will be heavily affected by market-wide factors.

2) Capital Structure: the higher levered firms will result in a lower ERC as investors will know that any good news earnings will go to debtholders first.

3) Earnings quality: while it is hard to measure earnings quality, there are two ways to measure it:

a) Earnings persistence; when earnings are highly persistent, whether or regardless if it's Good news or bad news persisting, the ERC will be higher as investors gain more confidence that current firm performance is indicative of future firm performance. It also matters that it is permanent persistence, such as unexpected earnings from operational efficiencies rather than an unexpected gain from a sale of equipment. The first kind leads to a higher ERC.

b) Accrual quality; accruals are non-cash working cap items and managers have significant control over their timing and amounts. This decreases their quality compared to working cap items as those are of general higher quality (already earned, for example) and the main way to know if an accrual is of high quality is whether it becomes working cap in the next period.

4) Growth opportunities; the more firm-specific growth opportunities there are, the higher the ERC.

5) Similarities in investor's expectation; the more similar expectations are, means that investors value the information provided by the earnings report and thus

there is a higher ERC.
6) Informativess of price: the more informative the earnings report, the greater the ERC as markets use all information to determine the market price.

The study of Ball and Brown was revolutionary in its findings of stock market reactions to earnings reports in narrow and wide windows. Their findings have lead to many studies that now use daily data. It still stands that narrow windows can show that net income can cause abnormal share return and wide windows can only show association, as firms are subject to many factors. The ERC allows a breakdown of where and what is creating the differing market responses that are not inside the average, or not are, which all followed the study of Ball and Brown.