A Tutorial on the Ohlson and Feltham/Ohlson Models: Answers to Some Frequently Asked Questions*

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The Ohlson (1995) and Feltham and Ohlson (1995) papers are landmark works in financial accounting. The papers provide a logically consistent framework for thinking about the valuation of accounting numbers. They show how to use book value and income together in the same valuation model properly, rather than in an ad hoc fashion; they show how the valuation model can be used to capture different properties of different asset classes, such as operating and financial assets; and they use the model to illustrate the effect of conservative accounting on the relation between equity value, accounting book value, and future earnings. However, because the framework assumes so little yet claims so much, it has sometimes been held in suspicion. I have seen each of these papers presented in workshops, at conferences, and in Ph.D. seminars. In all of these forums, certain questions arise repeatedly. It is my intention, therefore, to discuss some of these frequently asked questions.

Probably the most frequently asked question in Ph.D. classes (and in private conversations among faculty) is "how does the model really work?" While everyone can follow the simple algebra that is used to go from one equation to the next, few people feel that they fully understand the model. There are also three questions asked repeatedly by empirical researchers: (1) what about nonaccounting information, (2) how can you claim dividend-irrelevancy when we know that dividend increases are good-news signals, and (3) how restrictive is the linear information dynamic? Finally, theorists frequently ask whether unbiased accounting is better or worse than conservative accounting and, a more philosophical question, what are the criteria by which we should judge the model?

* Accepted by Michael Gibbins. This discussion was prepared for the 1994 Contemporary Accounting Research Conference. I thank Vic Bernard and an anonymous reviewer for helpful comments.

I intend to address these questions with a series of two-period (three-date) examples. In order to illustrate what the model is and and what it isn't, some examples are consistent with the Ohlson and Feltham's assumptions and others are not. Along with answering the specific questions, the collection of examples taken together will, hopefully, illustrate how the models achieve their principal results.

The Model

Denote the ex-dividend equity price at date t as P_t, the dividend as d_t, the earnings as x_t and the book value as y_t. Denote the risk-free return as R_f (with a rate of return of R_f - 1), which is an intertemporal constant. There are three crucial assumptions in the Ohlson paper. The first two are as follows:

$$P_t = \sum_{\tau=1}^{\infty} R_f^{-\tau} E_t(d_{t+\tau}) \tag{A1}$$

and

$$y_t = y_{t-1} + x_t - d_t. \tag{A2}$$

Assumption (A1) is the equilibrium condition. By reference to Ohlson (1990), it actually follows from more primitive assumptions about the economy. In particular, assumption (A1) is the no-intertemporal arbitrage price that results when interest rates are nonstochastic, beliefs are homogeneous, and individuals are risk-neutral. The second assumption defines the clean-surplus relation as: book value this year equals last year's book value plus income minus dividends (and, therefore, a capital contribution corresponds to a negative dividend). Further, each of the variables on the right-hand side of assumption (A2) are primitives, so that the current dividend payment (d_t) has no effect on current earnings (x_t). This equation does not precisely match the present state of generally accepted accounting principles (GAAP), but it is a very reasonable approximation. Financial analysts have also lobbied for this definition of "comprehensive income" (Knutson 1992, 41). While still simplistic, this representation of earnings is a great improvement over previous models that define earnings simply as the terminal dividend plus noise. In particular, it explicitly ties earnings and book values together.

Armed with these two assumptions, Ohlson derives the following relation between price and accounting information:

$$P_t = y_t + \sum_{\tau=1}^{\infty} R_f^{-\tau} E_t[x_{t+\tau} - (R_f - 1) y_{t+\tau-1}], \tag{1}$$

Define abnormal earnings as the amount the firm earns in excess of the risk-free rate of interest on the book value: $x^a_{t+\tau} \equiv x_{t+\tau} - (R_f - 1)y_{t+\tau-1}$.

With this definition the valuation expression can be written even more succinctly as:

$$P_t = y_t + \sum_{\tau=1}^{\infty} R_f^{-\tau} E_t[x_{t+\tau}^a], \tag{2}$$

This result, although originally presented in Preinreich (1938), has been largely ignored in the accounting literature. Its revival constitutes a major contribution to modern financial accounting. By using earnings, book value, and the clean surplus equation to carry the dividend information, we can rewrite the discounted dividend valuation as a discounting of accounting numbers (and the proof of equation [2] is exactly this substitution).

The third assumption is by far the most controversial. Before adding it, I will give an example that illustrates both the valuation expression in (2) and the importance of the final assumption.

Example 1

The firm begins at t=0 with a 100 capital contribution and immediately purchases productive assets that will pay nothing at t=1 (due to their required setup time) and an uncertain amount z at t=2. The firm will liquidate some of its assets at t=1 to pay a dividend d_1 and pay a terminal dividend at t=2. These amounts are summarized in Table 1.

TABLE 1
Realized values for Example 1

t	y_t	x_t	d_t
0	100	0	-100
1	100 - d_1	0	d_1
2	0	z	100 - d_1 + z

Using equation (1), this yields prices

$$\begin{aligned} P_0 &= 100 + R_f^{-1}E[0 - (R_f-1)100] + R_f^{-2}E[z - (R_f-1)(100 - d_1)] \\ &= R_f^{-1}E(d_1) + R_f^{-2}[E(z) - E(d_1) + 100] \end{aligned}$$

and

$$\begin{aligned} P_1 &= 100 - d_1 + R_f^{-1}[E(z) - (R_f-1)(100 - d_1)] \\ &= R_f^{-1}[100 - d_1 + E(z)]. \end{aligned}$$

One can immediately see that discounting the d_t series given in the right-hand column of Table 1 yields exactly these prices. Thus, the valuation formula based on book value and abnormal earnings works!

But something seems awry. The introduction to Ohlson's paper stresses that the model has the Modigliani and Miller (MM) dividend irrelevancy property; that is, the current price should not depend on when future dividends are paid. Why then does P_1 depend on $E(d_1)$? Further, by examining the dividend column of Table 1, we see that P_1 *should* depend on $E(d_1)$. Every dollar paid out in d_1 is a dollar not paid out in the terminal dividend at t=2, but the firm earns z at t=2 regardless of the book value of the firm remaining after the t=1 dividend. Since money has time value, the firm should therefore pay a large dividend at t=1 and its value at t=0 should depend on its dividend policy. So, while the valuation based on earnings and book values works, it is not yet completely free of the dividend policy.

The third assumption in the Ohlson paper provides the additional structure necessary to yield dividend irrelevancy. Before considering the assumption, however, think carefully about the sequence of earnings and dividends in Example 1. Is it reasonable to assume that the earnings at t=2 are independent of the dividend paid at t=1? If all the productive assets were liquidated to pay the t=1 dividend, could the firm still earn z at t=2? The sequence of earnings and dividends is a bit unrealistic when you consider carefully how earnings must be linked to dividends. One of the benefits of Ohlson's model is that it forces you to think about the relation between earnings and dividends. It also provides an assumption that specifies the relation between dividends and earnings in such a way that we can safely ignore the dividend policy. This assumption is discussed next.

The third and final assumption in Ohlson's paper is referred to as the "linear information dynamic." It defines the stochastic process for abnormal earnings and nonaccounting information v_t as

$$\begin{aligned} x^a_{t+1} &= \omega x^a_t + v_t + \varepsilon_{1t+1} \\ v_{t+1} &= \qquad \gamma v_t + \varepsilon_{2t+1} \end{aligned} \tag{A3}$$

where ω and γ are known parameters between zero and one, and the ε's are mean zero and uncorrelated with other variables in the model. Assumption (A3) says that both abnormal earnings and nonaccounting information are autoregressive. Further, nonaccounting information is an additive shock to next period's abnormal earnings. The nonaccounting information can be completely unpredictable ($\gamma = 0$) or partially predictable ($\gamma = 1$), but it must flow through abnormal earnings in the next period (although this could easily be adapted to longer horizons). For example, if the firm gets a new contract at date 0, then an additive shock arrives in abnormal earnings in the next period. The distinction between v_t and ε_{1t+1} is that v_t is partially forecastable while ε_{1t+1} is completely nonforecastable. Note also that the nonaccounting shock to abnormal earnings in period t becomes part of the autoregressive process for x^a_{t+1} going forward. Hence, nonaccounting information generates shocks autoregressively and these shocks flow through future abnormal earnings autoregressively. In this way the model handles nonaccounting information very nicely. We may not always think of nonaccounting information as becoming earnings in the next period but, of course, it must become earnings sometime in the future if it is value-relevant.

One property of assumption (A3) is that paying dividends reduces next period's earnings by the amount of risk-free interest the firm could have earned on the assets. To see this, substitute the definition of abnormal earnings into the x^a_{t+1} process and rearrange to get the "normal" earnings process:

$$x_{t+1} = (Rf - 1)y_t + \omega x^a_t + v_t + \varepsilon_{1t+1}.$$

Recall that paying dividends reduces the current book value but has no affect on current earnings (by the clean surplus relation), so we have

$$\partial E(x_{t+1})/\partial d_t = -(R_f - 1).$$

A dollar of dividends reduces next period's expected earnings by the interest that could be earned on that dollar. (This last result is also sometimes referred to as a Modigliani/Miller or MM property.) It was this property that was violated in Example 1, where the earnings z at $t=2$ was independent of the dividend at $t=1$. Absent all sources of abnormal earnings ($\omega=0$ and $v_t=0$), assumption (A3) says that expected earnings is simply the risk-free rate times the book value.

We can adapt Example 1 to be consistent with assumption (A3) simply by accruing interest on the book value, as shown in Example 2.

Example 2
The firm begins at $t=0$ with a 100 capital contribution and immediately purchases productive assets that pay riskless interest of $R_f - 1$ on their book value and an uncertain amount z at $t=2$. The firm will liquidate some of its investment at $t=1$ to pay a dividend d_1 and will pay a terminal dividend at $t=2$. These amounts are summarized in Table 2.

TABLE 2
Realized values for Example 2

t	y_t	x_t	d_t
0	100	0	-100
1	$R_f 100 - d_1$	$(R_f - 1)100$	d_1
2	0	$(R_f - 1)[R_f 100 - d_1] + z$	$R_f[R_f 100 - d_1] + z$

In this example abnormal earnings are 0 at $t=1$ and z at $t=2$. There is no nonaccounting information in this example and the abnormal earnings z does not depend on the previous abnormal earnings so $\omega=0$ and the value z should be interpreted as the error term ε_{1t+1}. By applying the valuation formula in (2) we have

$$P_0 = 100 + R_f^{-2}E(z) \text{ and}$$

$$P_1 = R_f 100 - d_1 + R_f^{-1}E(z),$$

which again can be verified as being the same prices that discounting the dividend stream yields. All that has changed from Example 1 is that the book value accrues interest at the rate of $(R_f - 1)$. Now, however, the future dividend policy is irrelevant in the valuation and a dollar increase in the current dividend simply decreases the current price by exactly one dollar $(\partial P_t/\partial d_t = -1)$. Example 2 can also be adapted to illustrate nonaccounting information. Suppose that z is nonaccounting information known to all at $t=1$. To incorporate this information simply add a v_t column to Table 2 with $v_1=0$, $v_1=z$ and $v_2=0$ and, because z is unpredictable, $\gamma=0$ in (A3). In this case P_l remains the same and $E(z)$ is replaced by z in P_1.

The contrast between Example 1 and Example 2 highlights the importance of the linear information dynamic in (A3). The valuation formula in (2) applies in both situations, but many of the desirable properties in the Ohlson model depend on (A3). The descriptive validity of (A3) is ultimately an empirical question, but its theoretical elegance cannot be denied. By assuming an autoregressive process for *abnormal* earnings, the assumption ties normal earnings and dividends together in such a way as to render the dividend policy irrelevant.

What about dividend signaling?

The Ohlson model's prediction that a dollar of current dividends reduces price by a dollar has frequently been challenged by empirical researchers who cite the well-known result that price increases on the announcement of a dividend increase (see, for example, Asquith and Mullins 1983). The explanation for this empirical regularity is that the dividend is a costly "signal" used by a manager with good private information to separate himself from a manager with bad private information. Can this empirical result be reconciled with the Ohlson model? We can use Example 2 to show how the main thrust of the Ohlson model holds even when dividend signaling is present.

Suppose that the series of book values, earnings and dividends are exactly as in Example 2, with the exception that the manager chooses d_1 at t=1 knowing the future value of z, but outside investors are uninformed about z. In this case there is the potential for the manager's choice of d_1 to signal some information about z. For a separating equilibrium to arise, there must be some signaling friction that makes paying a large d_1 relatively less costly for a manager with a high z than for a manager with a low z. For example, it could be that, for the same size dividend, the probability of bankruptcy is lower for managers with higher z values. Whatever the exogenous signaling costs, in a separating equilibrium the value of d_1 is at least partially informative about z, so that outside investors form the expectation $E(z|d_1)$ at $t=1$. With this, the price at t=1 will be

$$P_1 = R_f 100 - d_1 + R_f^{-1} E(z|d_1)$$

and

$$\partial P_1/\partial d_1 = -1 + R_f^{-1} \partial E(z|d_1)/\partial d_1. \tag{3}$$

The exact relation between $E(z|d_1)$ and d_1 will be determined in equilibrium as the manager takes this expectation into account when choosing d_1 but, if the equilibrium is separating, then $\partial E(z|d_1)/\partial d_1$ is positive. If in some regions small dividend increases imply very large increases in z, then we may observe empirically that the second term in (3) dominates the first term and the price increases for small increases in dividends. However, the negative effect of a dividend increase (the -1 in [3]) is still present. And surely the negative effect of paying a dividend must dominate the signaling effect for sufficiently large dividends. If the firm pays out most its assets in dividends then the value of a claim on the remaining few assets must be lower. In this sense, the negative effect is primary in (3) and the dividend signaling effect is only secondary.

Unbiased vs. conservative accounting

Before answering the question, "is unbiased accounting more or less desirable than conservative accounting," we need to first illustrate how bias and conservatism are characterized in the Feltham and Ohlson's paper. They define the accounting as unbiased if the expected difference at date t between future price and future book value eventually becomes zero: $E_t(P_\tau - y_\tau) \rightarrow 0$ as $\tau \rightarrow \infty$. They define the accounting as conservative if $E_t(P_\tau - y_\tau) \rightarrow k > 0$ as $\tau \rightarrow \infty$. Note how little this definition requires of unbiased accounting. As long as the price and book value are eventually equal in expectation the accounting is labeled unbiased. For example, regardless of how or when earnings are recorded in my previous examples, the accounting will always be unbiased because after the last dividend, price and book value both equal zero. A more useful definition would describe how many periods in the future, $\tau - t$, are necessary before $E_t(P_\tau - y_\tau) = 0$. With this definition a comparison of accounting systems would describe which becomes unbiased sooner. For my discussion, then, I will focus on a modified definition: the accounting is unbiased one period ahead if $E_0(P_1 - y_1) = 0$. This definition maintains the spirit of the Feltham and Ohlson's definition but is useable in a finite-horizon economy. The next example illustrates how the model represents conservative and unbiased accounting.

Example 3

Consider the same 100 investment described in Example 2. The accounting rules require recognition of the risk-free interest $R_f - 1$ each period, but there are varying rules for recognition of the risky gain or loss z. The value of z is known at t=1, so add to Table 2 the v_t column with values v_1=0, v_1=z and v_2=0.

Suppose that the accounting rules dictate that z is not recognized until realized at t=2. In this case

$$P_1 = R_f 100 - d_1 + R_f^{-1} z \text{ and} \tag{4}$$

$$E_0(P_1 - y_1) = R_f^{-1} E(z).$$

The accounting rule that recognizes nothing at t=1 and everything at t=2 is only unbiased if $E(z) = 0$; it is conservative if $E(z) > 0$ and aggressive if $E(z) < 0$. This result simply says that if, *ex ante*, the news is good then failing to recognize it is conservative—the accounting book value will lag prices in its recognition of value.

Now suppose that the present value of the future z is recorded as earnings at t=1. This gives the sequence of values shown in Table 3.

All that has changed between Table 2 and Table 3 is that the earnings and book value are increased by the present value of z in t=1 and the earnings do not include z at t=2. Because v_1=z is known under either recognition rule, P_1 is given by (4), but since y_1 has changed we now have

$$E_0(P_1 - y_1) = 0 \text{ for all } E(z).$$

TABLE 3
Realized values for Example 3

t	y_t	x_t	d_t
0	100	0	-100
1	$R_f 100 - d_1 + R_f^{-1} z$	$(R_f - 1)100 + R_f^{-1} z$	d_1
2	0	$(Rf - 1)[R_f 100 - d_1 + R_f^{-1} z]$	$R_f[R_f 100 - d_1] + z$

If we recognized the nominal amount of earnings z at t=1 rather than the present value we would again have a biased accounting system because the price is based on the present value of z.

It is perhaps not surprising that an accounting system that reflects the present value of expected cash flows as soon as they are known is unbiased. The example illustrates, however, that to create an unbiased accounting system one must take care to recognize the earnings when the information is known *and* in the amount that reflects its present value. (The type of conservatism that fails to recognize earnings information when it is known could also be created in Feltham and Ohlson's infinite horizon model and can be measured using their defintion. If the unrecognized information were good news in expectation and for all points in time there were some amount of unrecognized information, then their definition would also measure this as a conservative accounting system.)

An alternative way to illustrate the nature of conservative accounting is to examine the relation between book value and earnings. In particular, for Example 3 price at t=1 is the same regardless of whether z is recognized at t=1 or t=2, but book value and abnormal earnings differ depending on which recognition rule is used:

$P_1 =$	y_1	+	$E(x_2^a)$	
	-----------		-----------	
$P_1 =$	$R_f 100 - d_1 + R_f^{-1} z$	+	0	when z is recognized at t=1
$P_1 =$	$R_f 100 - d_1$	+	$R_f^{-1} z$	when z is recognized at t=2

Conservative accounting (recognizing z at t=2) causes decreases in current book value and exactly offsetting increases in future expected abnormal earnings. The observation that conservatism in accounting understates book value is obvious, but I believe the offsetting increase in future abnormal earnings is not widely appreciated.

The next example illustrates a type of conservatism that cannot be captured in the Feltham and Ohlson model—recognizing bad news early but good news late.

Example 4
Suppose the present value of z is recognized at t=1 if z<0 but z is not recognized till t=2 if z>0 (analogous to a lower-of-cost-or-market rule). This yields the sequence of values given in the top of Table 4 when z<0 and in the bottom of Table 4 when z>0 (labeled as 1' and 2').

TABLE 4
Realized values for Example 4

t	y_t	x_t	d_t
0	100	0	-100
1	$R_f 100 - d_1 + R_f^{-1} z$	$(R_f - 1)100 + R_f^{-1} z$	d_1
2	0	$(Rf - 1)[R_f 100 - d_1 + R_f^{-1} z]$	$R_f[R_f 100 - d_1] + z$
1'	$R_f 100 - d_1$	$(R_f - 1)100$	d_1
2'	0	$(Rf - 1)[R_f 100 - d_1] + z$	$R_f[R_f 100 - d_1] + z$

If z<0 then the sequence of values in Table 4 is the same as in Table 3, so $E_0(P_1 - y_1) = 0$. However, if z>0 then the sequence of values is as in Table 2, yielding the same P_1 given in (4) but the y_1 shown in the table for t=1'. Thus,

$$E_0(P_1 - y_1) = Prob(z<0)0 + Prob(z>0)R_f^{-1}E(z|z>0),$$

which is always positive. Thus, the lower-of-cost-or-market rule is conservative.

Unfortunately, the type of conservatism in Example 4 cannot be representing in the linear information dynamics used by Feltham and Ohlson. A lower-of-cost-or-market rule makes abrupt changes in the recognized earnings depending on realized values; the linear information dynamics do not allow such conditioning. Consequently, the results in the Feltham and Ohlson paper, which characterizes conservatism in terms of properties of the information dynamic, will not apply universally to all types of conservatism.

So far I have illustrated conservatism as failing to recognize information when it is known and as applying an asymmetric recognition rule.

The final example characterizes conservatism as expensing assets too quickly. This example will also illustrate a surprising result from the Feltham and Ohlson paper—conservative accounting can be identified by the value of a single parameter in the abnormal earnings process.

Before presenting the next example, however, it is necessary to introduce the different classes of assets and income streams given in Feltham and Ohlson. Divide the book value into financial assets and operating assets: $y_t = fa_t + oa_t$. Divide earnings into interest and operating income: $x_t = i_t + ox_t$. Interest is earned on the financial assets only: $i_t = (R_f - 1)fa_{t-1}$ and cash flow c_t transfers from operating to financial assets, in the sense that each asset class has its own clean surplus relation: $fa_t = fa_{t-1} + i_t + c_t - d_t$ and $oa_t = oa_{t-1} + ox_t - c_t$. Finally, define abnormal operating income as $ox_t^a \equiv ox_t - (R_f - 1)oa_t$ and the stochastic process for abnormal operating income as

$$ox^a_{t+1} = \omega_{11}ox^a_t + \omega_{12}oa_t + v_t + \varepsilon_{1t+1} \tag{5}$$

where ω_{11} and ω_{12} are both positive and ω_{11} is less than one (for completeness, oa_{t+1} and v_{t+1} also have autoregressive processes, but these are not needed for my example).

Feltham and Ohlson offer a remarkable result at this point: if $\omega_{12} > 0$ then the accounting is conservative; if $\omega_{12} = 0$ then it is unbiased. To begin to understand this, suppose that v_t=0 for all t and ω_{11}=0 so that, ignoring the operating assets, abnormal operating income is a white noise process. If ω_{12} is positive it says that abnormal operating income is still partially predictable and increasing in the size of the operating asset base. If this is the case then the accounting system must be understating the amount of operating assets. Only when $\omega_{12} = 0$ is the amount of operating assets properly measured; in this case, the amount of operating assets has no influence on the prediction of next period's abnormal operating income. The next example illustrates this.

Example 5

Suppose the firm acquires an operating asset for 100 that returns $(R_f - 1)100$ in perpetuity. All cash generated by the operating asset is transferred to the financial asset and immediately paid out in dividends. Nonaccounting information and random shocks are both zero for all t.

Suppose that a conservative accounting rule required 90 of this asset to be expensed immediately upon acquisition. This would yield the stochastic series given in Table 5.

The realizations of the stochastic processes given in Table 5 are consistent with $\omega_{11} = 0$ and $\omega_{12} = 9(R_f - 1)$ in (5), or simply

$$ox_{t+1} = [(R_f - 1) + 9(R_f - 1)]oa_t.$$

TABLE 5
Realized values for Example 5

t	fa_t	c_t	oa_t	i_t	ox_t	d_t
0	0	0	10	0	-90	-100
1	0	$(R_f - 1)100$	10	0	$(R_f - 1)100$	$(R_f - 1)100$
2	0	$(R_f - 1)100$	10	0	$(R_f - 1)100$	$(R_f - 1)100$
3	0	$(R_f - 1)100$	10	0	$(R_f - 1)100$	$(R_f - 1)100$
⋮						

Because operating assets are understated by a factor of 10, the coefficient on oa_t in the earnings process is $10(R_f - 1)$. If the accounting were unbiased, the operating assets would not have been depreciated at all and would have retained a book value of 100 in perpetuity. In this case the coefficient on oa_t would be $(R_f - 1)$ and $\omega_{12} = 0$.

Another way to see the conservative nature of depreciating the operating assets too quickly is to examine how the operating income stream changes when a dollar of operating assets is liquidated. Suppose that increased from $(R_f - 1)100$ to $(R_f - 1)100 + 1$. To generate this extra dollar of cash flow, one dollar of operating assets needs to be liquidated. The result, however, is a loss of $10(R_f - 1)$ in operating income: $\partial E(ox_{t+1})/\partial c_t = -10(R_f - 1)$. Thus, a key result from Feltham and Ohlson is that, if the accounting is unbiased, a within-the-firm MM proposition should hold:
$\partial E(ox_{t+1})/\partial c_t = -(R_f - 1)$.
Removing a dollar from properly measured operating assets should only remove the interest stream on that dollar.

The result that $\omega_{12} = 0$ when the accounting is unbiased is dramatic, but applies only in situations where the accounting methods generating unbiased or conservative accounting can be represented with the linear information dynamic. Suppose, for instance, that an operating asset has a 10-year useful life but the accounting system depreciates the asset over 5 years. Clearly this is conservative—the asset value will be understated during those 5 years—but it is not possible to capture this type of operating income series with the linear information dynamic given in Feltham and Ohlson. The abrupt changes in the stochastic relations implied by this type of conservatism simply cannot be represented in their model. Once the information dynamic is enhanced to allow for the different types of conservatism that can arise, I doubt unbiased accounting can be identified with the value of a single parameter. The study of conservative accounting in a setting that allows for many different types of recognition rules is an interesting area for future research.

How should we judge the model?

The final question to be answered is the one most frequently raised by skeptical theorists, "how should we judge the model?" Indeed, the papers show that the clean surplus assumption and the linear information dynamic have some nice MM properties and illustrate how conservative accounting might manifest itself in valuation; but why are the MM properties themselves desirable and is anything wrong with conservative accounting? In fact, neither conservative nor unbiased accounting is Pareto-superior to the other, and there is no Pareto ranking of economies with or without the MM properties. This follows because there is no demand for information in the economy considered here. Homogeneous investors value the firm under a no-arbitrage equilibrium condition; there are no differing intertemporal preferences for consumption, no differing risk preferences and no differing beliefs. Hence, there is no demand for financial assets and consequently no demand for information about them. Nonetheless, I find this last set of complaints very weak. The sole aim of model building is not to make optimality statements. Ohlson and Feltham present us with a very crisp yet descriptive representation of the accounting and valuation process. Rather than using the models to pursue the theoretically best accounting system, researchers should consider how the discipline imposed by these models can add rigor to their empirical tests. Further, if the test of a model is ultimately in its empirical validity, then these models have already undergone some examinations, as discussed by Bernard (1995).

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