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# Is transaction price more value relevant compared to accounting information? An investigation of a time-series approach

Keshin Tswei\*

Department of Managerial Economics, Nanhua University, Taiwan

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### ABSTRACT

The current literature on the value relevance of accounting information primarily proxies for stock values using transaction prices, a practice that some believe may mislead value relevance research conclusions. Without assuming that prices are equivalent to intrinsic values, this paper assesses the information content found in equity prices in addition to that in book values and reported earnings. We obtain two cointegration relations from the residual income valuation model and estimate trivariate error-correction models with aggregate stock market data from Taiwan. The long-run causality and common factor analyses reveal that prices have lesser fundamental information content than book values, indicating that the quarterly prices may contain sizable noise trading elements. The short-run analysis conversely suggests that prices exert a stronger causal influence compared to book values. Such a short-run misjudgment of the information role of price versus book value appears consistent with the literature indicating that investors are overconfident about their private information but underplay the value relevance of public information.

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## 1. Introduction

The residual income valuation (RIV) model (Edwards and Bell, 1961; Peasnell, 1982) underscores the use of accounting information, namely earnings and book value, in stock valuation.<sup>1</sup> Research findings on

\* Tel.: +886 5272 1001x56549; fax: +886 5242 7194.

E-mail address: [kstswai@mail.nhu.edu.tw](mailto:kstswai@mail.nhu.edu.tw).

<sup>1</sup> The RIV model equates stock price to book value plus the present value of expected future residual incomes. As residual income is defined by the difference between earnings and a charge to the use of book equity, the theory essentially emphasizes only the valuation role of earnings and book value.

the relative or incremental value relevance of earnings versus book value are mixed.<sup>2</sup> Despite divergent findings, value relevance studies primarily share the empirical setup of regressing transaction prices on accounting variables. However, using price as the dependent variable implicitly acknowledges a state of market efficiency where transaction prices can quickly process public information to discover intrinsic stock values. Lee (2001) and Aboody et al. (2002) voice concerns about the practice of equating prices to values without tangible proof. They advocate that doing so might bias value relevance conclusions. This concern is legitimate, considering that a body of empirical evidence showed substantial transitory deviations in prices from intrinsic values due to irrational trading behaviors.<sup>3</sup>

This article is, in one aspect, similar to previous value relevance studies in that it explores the intrinsic value content of two extensively examined variables: earnings and book value. However, this research study differs from previous studies in four primary ways. First, we assess the value relevance of market price to explore whether price is necessarily more value relevant than earnings and book value, as is generally perceived in most value relevance research. Without presuming that prices are highly value relevant, or more so than accounting variables, our standpoint sides with that of Lee (2001) and Aboody et al. (2002), who advocate that prices may not be adequate value proxies without confirmation from pretesting.

Second, the past value relevance studies primarily employ cross-sectional or pooled cross-section time-series (e.g., Naceur and Goaed, 2004) firm samples. Relatively few studies utilize longitudinal data of individual entities by applying time series methodologies. In contrast, we adopt the time series methodology of cointegration and error correction associated with nonstationary data (Engle and Granger, 1987). Estimations using the vector error-correction model (VECM) then provide the long-run adjustment parameters useful to ascertain the variables' fundamental information content. Although this time series framework has its place in many price discovery studies for the capital market, it has yet to be applied to any value relevance research regarding valuation variables.

Third, unlike Qi et al. (2000), who model a single RIV-based cointegration in their trivariate models, we hypothesize and confirm two equilibrium relations for the RIV model. Two cointegrations imply a single permanent factor relevant to stock valuation, consistent with many valuation models that specify a single value driver, such as earnings, dividends, or residual income. In contrast, a single cointegration indicates two unobserved fundamental factors within a trivariate framework, a system that appears less plausible from an econometric or conceptual point of view.

Fourth, our cointegration relations describe the long-run equilibriums among price, book value, and earnings, even though the original RIV model implies the equilibriums among price, book value, and residual income. A potential benefit of using earnings instead of residual income is to eliminate the need to determine a required rate of return necessary to calculate residual income, a task that often may prove imprecise or subjective. Sparing the potentially biased proxy for the required return and, accordingly, residual income, research studies may still produce reasonable empirical RIV applications.

Two tools built on the long-run behavior revealed by a VECM are used to judge the information content of the variables. The first tool is the long-run causality mechanism (Granger, 1986), which specifies that the slower the adjustment speed of a cointegrated variable in reverting toward the long-run equilibrium, the greater its long-run information contribution, or its fundamental information content (see applications in Garbade and Silber, 1983; Phylaktis and Manalis, 2005).

The second tool for judging value relevance is the common factor weight (CFW) method of Gonzalo and Granger (1995), which provides specific numbers to quantify the respective information content in variables. The CFW measure has attracted many applications to financial-market price discovery studies, but has not been used in any value relevance study to date.

In addition, we use the short-run dynamic parameters from a VECM to explore the temporal lead-lag relations among the variables. Any difference arising in the implied value relevant ranking between the

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<sup>2</sup> Among others, Collins et al. (1997) and Graham and King (2000) suggest that the value information content of book value is higher than that of earnings while El Shamy and Kaye (2005) and Brimble and Hodgson (2007) show that book value is less informative compared to earnings.

<sup>3</sup> For example, the overconfidence hypothesis of Daniel et al. (1998) proposes that noise trading caused by investor overconfidence may push market prices away from the fundamental concept. Earlier studies by Fama (1970), Summers (1986), and Amihud and Mendelson (1987) have similar viewpoints contradictory to market efficiencies.

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