# Evolution of financial reporting of life insurers

## The predominance of unregulated embedded value disclosure

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### Abstract

**Purpose** – This paper aims to examine the capital market effects and predominance of unregulated embedded value (EV) financial reporting in the life insurance industry in foreign domestic markets, and US markets for foreign firms that cross-list in the USA.

**Design/methodology/approach** – Recent empirical archival data are analyzed and evaluated to determine the incremental and relative value relevance of an unregulated valuation metric that is disclosed by life insurers.

**Findings** – The findings support the proposition that EV is valuable supplemental information in foreign domestic markets, and in US markets for foreign life insurers that cross-list in the USA. Given that International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) are engaged in projects to improve accounting standard for insurance companies, and have faced criticism with the existing drafts on this issue, the two institutions ought to consider the valuation relevance of EV disclosures. Moreover, this analysis strongly suggests that financial analysts in the USA should consider EV in valuing life insurers' stocks.

**Practical implications** – The findings discussed in this paper are of special interest to financial reporting policy makers, financial analysts, firm compensation committees and managers, and academics.

**Originality/value** – This paper contributes to the extant literature by providing recent evidence that suggests that EV, an unregulated fair value market-driven metric, is more value-relevant than traditional earnings metrics such as earnings and book value. It is the only study that we are cognizant of that critically examines the recent empirical literature on this evolving issue.

**Keywords** Value relevance, Embedded value, Insurance accounting, Unregulated disclosure

**Paper type** Research paper

Over the years, financial reporting in the international insurance industry has varied widely across jurisdictions and has moved slowly toward standardization. The International Accounting Standards Board (IASB) issued IFRS 4, Insurance Contracts, in 2004 as an interim step while undertaking a project to develop a comprehensive standard. IFRS 4 allowed insurers to continue existing accounting practices in most instances and did little to alleviate the concerns for financial reporting for life insurance. The Financial Accounting Standards Board (FASB) and the IASB worked jointly on guidance for insurance contracts from 2008 through FASB's decision to take a different approach in 2013. Additionally, insurance accounting in many jurisdictions was constrained by a country's statutory accounting regulations. Investors and financial analysts have expressed concerns that this reporting framework is not producing the

type of performance measures that reflect the economics of this industry (CFO Forum, 2004; 2005; IASB, 2014). Specifically, they stated that traditional enerally accepted accounting principles (GAAP) mismatches accounting results with economic performance due to delayed recognition of revenues and expenses and the misalignment of the valuation bases for assets (fair values) and liabilities (estimated exit value). Moreover, insurance statutory accounting emphasizes solvency and conservatism over relevance in recognizing periodic revenues and expenses, thus resulting in the undervaluation of a life insurer's equity (Horton, 2007).

In response to analysts' concerns, approximately 100 life insurance companies supplement their financial statements with unregulated metrics known as embedded value (EV) to better capture a firm's performance. EV is an estimate of the present value of future net cash flows from in-force life insurance business. The disclosure of EV began with firms in the United Kingdom (UK) disclosing "achieved earnings" results in the 1980s and spread to large European life insurers. Today, the disclosure practice includes insurers in Canada, Japan, China, Australia and South Africa. Currently, no United States (USA) domestic insurer discloses EV, although the US operations of international insurers calculate the measure, and some life insurers' managers have used EV internally for performance evaluation and as a basis to value acquisitions.

While EV disclosure has grown significantly, it has been criticized for the lack of standardization. The CFO Forum, comprising finance officers from 20 large European insurers, was formed in 2002 with an objective of standardizing EV disclosure. Over the past decade, the CFO Forum has issued guidelines that have greatly improved the comparability of the disclosure. The 20 CFO Forum member firms represent approximately 95 per cent of the life insurance premium in Europe and are required to follow the guidelines. However, the CFO Forum member firms still represent only approximately 20 per cent of the firms issuing the disclosure worldwide, and although many non-member firms choose to follow the CFO Forum's guidelines, compliance is discretionary.

There has been limited, but growing, study of EV. In spite of the lack of uniformity and regulation, the empirical studies have documented a strong positive association between changes in life insurers' security prices and changes in EV.

The insurance industry, particularly the life insurance sector, faces evolving reporting and disclosures. In addition to the adoption of EV disclosure practice globally and the forthcoming IFRS guidance for insurance contracts, the European life insurance industry is subject to new capital requirements under Solvency II, which is effective in 2016. Discussed in this paper is the evolution of financial reporting in the life insurance industry, internationally and within the USA with discussion on the capital market effects of EV as a supplemental disclosure.

### Evolution of insurance accounting
As mentioned, the IASB initially addressed insurance contracts in a two-phase approach. The first phase, IFRS 4, was adopted in May 2004 as a temporary measure for insurers adopting IFRS in 2005. IFRS 4 allowed many of the existing recognition and reporting practices to continue without major alterations. Therefore, there are multiple approaches and a lack of uniformity among life insurers.

In 2006, the CFO Forum, which represents a significant voice in the international industry, published "Elaborated Principles for an IFRS Phase II Insurance Accounting Model" (CFO Forum, 2006). In this model, the CFO Forum called for profits to be recognized

in line with the release from risk, with the timing of recognition dependent on the risk profile of the insurance contract. They also suggest that the liability for the insurance contract should be based on managements' best estimate of the present value of all future cash flows with allowance for the inherent risk and uncertainty, using a discount rate that represents the risk-free rate specific to the liabilities represented (CFO Forum, 2007).

During 2007, both IASB and FASB presented initial views on accounting for insurance contracts to the public. IASB issued a discussion paper entitled "Preliminary Views on Insurance Contracts", while FASB issued an invitation to comment on the FASB proposal, and included the IASB discussion paper. The comments received were generally unfavorable including a comment letter from the CFO Forum that stated that the proposed standard was a good starting point, but missed many of the points raised in their 2006 model, and would produce financial statements that did not reflect the economic realities of the contracts (CFO Forum, 2007).

In the USA, SFAS 60 became effective over 30 years ago, and there are concerns with existing US GAAP for insurance contracts including multiple product-specific models, the lack of consideration for the time value of money for some liabilities and consistency of revenue recognition with new requirements. Another criticism is the mismatch of accounting for invested assets at fair value and accounting for liabilities, which are estimates of future policy benefits using present value of expected investment yields, mortality, expenses, etc. at the inception of the contract.

In 2008, FASB began working jointly with IASB on the insurance contracts project and both issued drafts of guidance in 2010. After further deliberations between the two boards, and additional public comment, FASB decided in 2013 to focus improvements on long-duration contracts (primarily life insurance), while improving disclosure for short-duration contracts (property and casualty insurance). While the current exposure drafts from IASB and FASB are similar in most instances of recognition and disclosure, however, the two boards reached different conclusions on several key areas. The project's revised objective in 2014 was largely due to feedback from US investors and preparers who supported targeted improvements to existing US GAAP in the event that substantial convergence with the IASB's proposed insurance model became unlikely.

Under the IASB approach, there is a current, market-consistent measurement of insurance contracts. Measurement of insurance contracts has two main components – contractual service margin profit and fulfillment cash flows. The contractual service margin represents the expected contract to be recognized when service is provided. The fulfillment cash flows represent a current, updated estimate of the amounts the company expects to collect from premiums and payout in claims, benefits and expenses, adjusted for risk and the time value of money. Two additional concepts affecting recognition are discounting, which converts future cash flows into current amounts, and risk adjustment, which is an assessment of the uncertainty about the amount of future cash flows (IASB, 2015).

Under the IASB proposal, the changes in estimates relating to future service will change future rather than current profit and be reflected in other comprehensive income (OCI). The interest expense shown in the income statement is cost-based, while the difference in current value is reflected in OCI.

The IASB sought feedback from users, meeting with 159 investors/analysts (IASB, 2014), with the majority of the users from Canada (41) and the USA (39). Some of the issues with current standards raised by the analysts/investors were lack of comparability between insurance and other entities and difficulty in understanding how an insurance company makes money. While some agree that the proposed revenue and expense presentation allow for comparability between insurance companies and other industries and could appeal to

non-insurance specialists, many analysts believe that comparability is not necessary because it reflects different characteristics of the insurance business.

However, the analysts from the USA and Australia believed that the current accounting was acceptable as did the analysts that predominantly follow property and casualty companies. These groups were unsure that the changes under the new IFRS standard were an improvement.

Similar to criticisms of existing standards, many analysts expressed concerns that the proposed model may not represent the long-term insurance business model. Many also expressed concern that an accounting mismatch would arise when related assets are not measured and presented the same way as the insurance liabilities or when an entity hedges risk through asset–liability management. Further concerns were an increased need for disclosure due to the extensive use of subjective assumptions and estimates and the need for transparency when the contractual service margin is unlocked. Further concerns are with the accounting mismatches resulting from the use of OCI for part of the investment activity, with some suggesting that the use of OCI should be an option, not mandated. Additionally, they believe that updated assumptions should be reflected in the financial statements and recognizing all of the changes in assumptions immediately in profit or loss would provide quicker and more transparent information about those changes (IASB, 2014).

The analysts support the current market-consistent approach under the new guidance, as financial information should present more timely information about forthcoming risks and would be more independent from management assessment. There also was widespread support for disclosures and separate information about investment and underwriting activity with more intuitive information about profit and loss, with less volatility and less incentive to manipulate results because profits appear gradually over time (IASB, 2014).

Since February 2014, the FASB's focus on accounting for insurance contracts has been to explore potential targeted improvements to existing US GAAP. The project is divided into two components, short- and long-duration insurance contracts. For short-duration contracts (principally property/casualty and health insurance contracts), the FASB is limiting its proposals to enhancing disclosures. The disclosures proposed by FASB include annual disaggregated incurred and paid claims development tables that need not exceed 10 years, the incurred but not reported claim liabilities included within the incurred claim development table, claim count and interim and year-end roll forwards of claim liabilities.

For long-duration contracts (principally life and annuity contracts), the FASB is focusing on enhancements to both accounting and disclosures. These include the potential updating of assumptions used in calculating various insurance liabilities, simplifications to deferred acquisition cost amortization models and reconsideration of the measurement model for minimum death benefits and income benefits.

FASB deliberations on short-duration insurance contract disclosures were substantially completed in August 2014. The FASB disclosures are expected to be effective for year end 2015 financial statements and for interim financial reporting beginning in 2016. For long-duration insurance contracts, FASB deliberations are in the early stages. To the extent the FASB proposes targeted improvements to existing accounting guidance for long-duration contracts, a formal public comment process would seem likely, but has not yet been discussed (FASB, 2015).

Key representatives of the US life insurance industry, including companies, industry associations, actuaries and public accounting firms, have expressed concerns with the exposure draft. These concerns include, among others, added volatility, cost to implement and the inability of the proposed rules to reflect the true economics of the business (FASB, 2013).

## Regulatory Reporting and Solvency II

In the USA, life insurers are regulated by the states, and regulatory efforts are coordinated through the National Association of Insurance Commissioners (NAIC). The NAIC has standardized financial reporting, termed statutory reporting and standardized capital requirements, called risk-based capital. Because statutory reporting focuses on solvency, there exist differences between US GAAP and statutory reporting in recognition of assets and liabilities. For instance, under US GAAP, acquisition expenses may be deferred and recognized over the life of the insurance contract, but are expensed under statutory reporting. Additionally, some illiquid assets such as furniture and fixtures and prepaid assets are not recognized under statutory reporting. Debt investments are reported at amortized costs, instead of fair value, with reserves for potential market fluctuations established for certain investments. Liabilities for future policy benefits are determined using required tables, while the entity uses its best estimate under US GAAP.

In Europe, the efforts in solvency and reporting standardization began in 1973, with limited success. The European Union (EU), has established a set of comprehensive guidelines, termed "Solvency II", to harmonize valuation, risk-based capital requirements and disclosure requirements across the EU.

Solvency II becomes effective on January 1, 2016. In addition to specifying the capital requirements, Solvency II, which follows similar methodologies to EV, provides guidance on the methods and assumptions to value assets and liabilities, the actuarial methodologies for determining the best estimates of reserves, and the methodologies for determining the appropriate risk-free interest rate used in the best estimate, the methodology to determine the risk-margin to arrive at market-consistent liabilities. The differences between Solvency II and IFRS are somewhat similar to those that exist between US GAAP and statutory reporting including the deferral of acquisition costs, which is allowed under IFRS, while Solvency II requires immediate expensing.

Because there are similarities between the methodology and assumptions used to determine the balance sheet under Solvency II and EV reporting, the CFO Forum has amended both the market-consistent embedded value (MCEV) and European Embedded Value (EEV) Principles and Guidance to permit, but not require, the use of projection methods and assumptions consistent with Solvency II. The CFO Forum has also amended the MCEV and EEV disclosure requirements to enable users to understand the methodology and assumptions, key judgments and sensitivities of results to changes in key assumptions (CFO Forum, 2016).

### Supplemental voluntary disclosure
*Embedded value reporting*

EV reporting is gaining acceptance with increasing standardization. As alluded to earlier, EV is an estimate of the present value of future net cash flows from existing life insurance business. EV reporting generally reflects several components such as the present value of future shareholders' cash flows from existing business (referred to as in-force, plus required capital, less the cost of holding the capital, plus free surplus allocated to the business). EV reporting recognizes the value of new business and any unexpected change in in-force business in the year it occurs. As such, EV is considered to be a leading indicator of changes in accounting earnings. Both US GAAP and IFRS defer most of the impact of economic changes and spread it over time, thus smoothing the impact on earnings. Even with the new proposed standards, accounting results are focused on the current view of assets and liabilities, with the profit currently being generated. Conversely, EV includes future earnings and shareholder value being currently created.

Initially termed the "achieved profits" basis of accounting, the measures were first disclosed in the 1980s by UK life insurers, and banks with life insurance operations, who wanted a better approach to discuss the performance of the insurance operations than was available in their normal accounting disclosures (Arabeyre and Hardwick, 2001; Klumpes, 2005). The measure became popular with European stock analysts, and, as a result, other life insurance companies across Europe began adopting the disclosure. Over the past decade, there has been widespread adoption globally with large Australian, Canadian, South African, Chinese and Japanese life insurers adopting EV reporting. Today, EV information is voluntarily disclosed by approximately 100 life insurers.

Development of the EV measure was driven, in a large part, by concern within the international life insurance industry that there is a mismatch of accounting results with economic performance because of delayed recognition of revenues and expenses, and the mismatch of the valuation bases for assets (fair values) and liabilities (estimated future benefits). Transactions that affect the long-term value of a life insurer are recognized immediately in EV, but may be deferred under accounting conventions. For example, if an annuity policy surrenders (cancels) within the surrender charge period, the life insurer may recognize a gain in the current period in their accounting results, while the loss of future revenue is reflected over time. A loss in EV is recognized immediately because of the loss of future net cash flows.

Supporters of EV contend that it provides a better basis for the valuation of life insurers than traditional accounting measures, which were often used for regulatory purposes and emphasized conservatism and solvency (Arabeyre and Hardwick, 2001; Klumpes, 2005). Because IASB has not adopted a comprehensive insurance standard, the concerns have not been alleviated with IFRS.

A number of surveys of European security analysts reveal dissatisfaction with financial reporting in the insurance industry and a preference for EV over earnings and other traditional accounting measures for valuation purposes (CFO Forum, 2005; PwC, 2010). Specifically, analysts cite a gap between expectations and current practices concerning both IFRS and US GAAP. Not surprisingly, many insurance companies outside of the USA adopted the practice of providing EV disclosure to supplement their financial reporting.

### Calculation of EV and movement toward standardization

As a voluntary disclosure, initial EV reporting has been characterized by significant variations in form and content among disclosing firms. As a result, the CFO Forum, comprising financial executives from the leading European life insurers, was formed in 2002 with the purpose of standardizing EV reporting. In May 2004, the CFO Forum recommended a common set of guidelines and standards for the calculation and reporting of EV, referred to as EEV standards, which were adopted by member firms by the end of 2005. EEV standards were a major step forward in standardizing calculations, assumptions and disclosure. EEV required use of internally consistent assumptions, although allowing for different approaches for the discount rate using weighted average cost of capital or an approach using the risk profile of each product. Additionally, EEV allowed for management discretion in calculation of the discount rate and other firm-based assumptions and presentation of EV information. While firm economic assumptions needed to be consistent within the firm, the assumptions were neither market-consistent nor consistent from company to company.

In 2008, the CFO Forum published MCEV guidelines to further improve consistency in the methodologies and disclosure of its member firms (CFO Forum, 2008). MCEV uses market-consistent assumptions, while EEV requires internally consistent assumptions. The main differences between MCEV and EEV are the market consistency of expected returns

and discount rate, as investment return assumptions and discount rate are equal. EEV results are based on best estimates with a risk-adjusted discount rate. MCEV uses a risk-free discount rate and market-consistent investment assumptions, and an explicit risk cost for non-hedged risk was added. There also were improved disclosure requirements including increased transparency on methodology and assumptions and more consistency in analysis of EV results (Wilkens, 2008).

The MCEV standards became mandatory for the 20 CFO Forum members, although these firms represent a minority of the total companies reporting the measures across the globe. In 2009, the MCEV standards were modified to include a liquidity premium. In 2011, the CFO Forum relaxed the mandate to only recognize MCEV as the only acceptable methodology, allowing use of EEV. Although EV disclosure remained discretionary, many non-member firms began adopting the EEV standards in 2005 and 2006, and adopting MCEV standards in 2008. Currently, the majority of those disclosing EV follow MCEV or EEV standards.

### Criticisms of EV
Initial reporting of EV, often termed traditional embedded value (TEV), was criticized for having significant management discretion in assumptions and estimates, including financial market assumptions and estimated cash flows. This discretion made comparability across life insurers difficult.

The publication of EEV principles improved comparability for the firms that followed EEV by requiring use of stochastic modeling under different financial market scenarios and explicit modeling of management and policyholder behavior. Additionally, guidance was provided for setting market assumptions. However, management discretion in setting valuation assumptions remained. Additionally, the valuation of assets backing life insurance and the guarantees and options embedded in the liabilities could be inconsistent with the financial markets. Critics also pointed to the use of the single risk-adjusted discount rate instead of multiple rates reflecting the different risks within the business (Wilson, 2015).

The MCEV principles were developed to further improve consistency and address the valuation of options and guarantees by extending EEV principles to include a market-consistent approach to remove the differences in economic assumptions between firms. While a market-consistent approach improved consistency, it also added greater volatility as shown by the volatility of the financial markets in 2008 and 2009. Karoui *et al.* (2015) criticize MCEV, suggesting that although the models used by insurers follow risk-neutral properties, they can produce different time-values of insurance products, as evidenced by the deviations that are reported as model changes in the annual EV disclosure.

Although some firms apply similar concepts to non-life insurance, and there has been some research in applying a MCEV approach to other insurance, EV only covers life insurance operations (Eling *et al.*, 2011). Thus, unlike IFRS, EV will not fully measure all of the business of a multi-line insurance company. Moreover, all of the EV approaches use varying degrees of management assumptions, lack compliance with standards and are not compared with non-life insurance entities. Finally, the measure is difficult for the common investor to understand.

US analysts remain skeptical about the EV measure, citing lack of consistency and influence of management assumptions as related to EV disclosure and continue to embrace traditional accounting-based metrics (PwC, 2007, 2010). In the USA, interest in EV has largely remained concentrated within the actuarial profession and in the assessment of management performance in some large life insurers, with no life insurers within the USA disclosing this measure (American Academy of Actuaries, 2009).

**Differences between EV and IFRS**
EV reporting recognizes the value of new business and any unexpected change in in-force business in the year it occurs. As such, EV is considered to be a leading indicator of changes in accounting earnings. Both US GAAP and IFRS defer most of the impact of economic changes and spread it over time, thus smoothing the impact on earnings. Even with the new proposed standards, accounting results are focused on the current view of assets and liabilities, with the profit currently being generated. Conversely, EV includes future earnings and shareholder value being currently created.

EV is the value of in-force business and net asset value. The major differences between EV and IFRS equity is that EV includes the value of in-force business inclusive of expected renewals, while the net asset value under EV would exclude intangible assets such as goodwill. Moreover, EV includes the value of expected renewals, which would not be reflected under accounting standards until future periods. The net asset value under IFRS includes the value of intangible assets such as goodwill and deferred acquisition costs.

The proposed model for measuring insurance contracts liabilities is based on a building-block approach adding the contractual service margin and the future cash flows to fulfill the contract, discounted and inclusive of risk adjustment. The approach under the proposed IFRS 4 Phase II has many similarities to MCEV and Solvency II. All require best estimate approach to value liabilities, use market-consistent discount rates and use similar concepts to adjust for uncertainty in cash flows. However, there are significant differences including the use of the contract service margin to spread profits over the life of the contract under IFRS 4 Phase II, but profits would be recognized immediately in EV or Solvency II.

The valuation of liabilities under EV is based on settlement/fulfillment value for liabilities using best estimates. The discounting basis under MCEV is based on market-consistent swap rates, while IFRS uses market rates consistent with the cash flows expected from the insurance liability. Under MCEV, tax asset/liabilities are discounted, while under IFRS, there is no discounting. The approach to discounting is less prescriptive than under MCEV guidelines or Solvency II. Appendix 1 presents an example of a reconciliation of EV and IFRS equity.

**The usefulness of EV metrics for investors**
Because current stock prices should represent the present value of expected future cash flows to investors, the measure that provides the best basis for the estimate of those cash flows should be the superior metric for valuation purposes. If EV is a superior basis to value a life insurer's stock, then the increase or decrease in the EV for the firm should have a higher correlation with movements in the life insurer's stock prices than would changes in traditional accounting measures. Furthermore, the market reaction should be greater for first-time disclosure. Thus, it is important to empirically examine whether EV has higher and/or incremental valuation effect than traditional accounting measures.

Early studies of the relevance of EV to stock prices were limited in scope. Horton (2007) documents incremental value relevance of EV information for a sample of ten UK life insurers and banks with life insurance operations. For a sample of Taiwanese life insurers, Wu and Hsu (2011) find value relevance for EV. Prefontaine *et al.* (2009) find value relevance of EV information for a sample of three Canadian life insurers. However, Prefontaine *et al.* (2011) did not find support for the value relevance for the sample of Canadian life insurers during the period of market turmoil from 2007 to 2010.

Almezweq and Liu (2012) confirmed value relevance for EV of UK life insurers. In a subsequent study, Almezweq and Liu (2013) investigated the informational content and value relevance of EEV in the European life insurance industry, finding relevance for EV, but

no incremental content for EV earnings. Forte *et al.* (2011) studied 28 European life insurers for the period from 2005 to 2010, confirming value relevance of EV. In a working paper with a sample of European insurers, Gerstner *et al.* (2015) find significant information content in both EV and IFRS, but conclude that EV has only limited incremental content.

Serafeim (2011) analyzes the institutional setting and the need and development of EV disclosure. Using an expanded sample and a longer time frame, Serafeim (2011) also documents value relevance of EV along with reduced information asymmetry in foreign security markets. Similarly, Klumpes *et al.* (2014), Hail (2011) and Horing and Grundl (2011) find reduced information asymmetry as the result of EV disclosure.

Zimmerman *et al.* (2015), use a multifactor model and find that EV disclosures are superior to financial accounting for estimating risk premiums. Additionally, Zimmerman *et al.* (2015) find that EV disclosures add information to estimate growth opportunities.

In a recent empirical study of life insurers across the globe, the authors find that EV disclosure had information content and reduced information asymmetry in the marketplace. Further, the authors show that EV disclosure provides incremental information content in valuing stock prices beyond the traditional GAAP measures of earnings and book value (El-Gazzar *et al.*, 2013). In addition, the inclusion of EV as an independent variable significantly increases the explanatory power of the model under different settings. These results suggest that mandatory disclosure of EV by US life insurers may enhance investors' assessment of security prices. The results also indicate that life insurance accounting standard-setting bodies should consider the reporting of EV as a complementary revelation of the underlying economics of life insurers' operations (El-Gazzar *et al.*, 2013). The major findings of this study are summarized here in Tables I–IV and discussed below.

The association of EV with stock prices was tested by regressing the changes in stock prices per share against the changes in EV per share, as well as earnings per share and book value per share. The study consisted of a sample of 53 international life insurance companies publishing EV information during the periods from 2000 to 2008, with 329 firm-year observations. The results in Tables I–IV show that EV had the greatest explanatory value of the factors ($R^2$), and provided incremental explanatory value of over 20 percentage points when added to earnings per share and book value per share. Because the period covered in this study included pre- and post-IFRS adoption, it was tested and concluded that the IFRS adoption did not materially impact the EV findings.

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Association of traditional accounting measures and EV with stock prices, non-US Stock Markets: sample of 53 companies and 329 observations for the period 2000-2008

| Explanatory model | Adjusted $R^2$ |
|---|---|
| Model $\Delta SP_T = a_0 + a_1(\Delta EPS_T) + a_2(\Delta BV_T) + e$ | 0.327 |
| Model: $\Delta SP_T = a_0 + a_1(\Delta EPS_T) + a_2(\Delta BV_T) + a_3(\Delta EV_T) + e$ | 0.534 |
| Increase in explanatory value | 0.207 |
| Individual $R^2$ − EV(0.167) > BV(0.042) > EPS(0.025) | |

**Notes:** Definition of variables: $\Delta SP_{jt}$ = Percentage change in actual stock prices during the reporting period; the reporting period starts on fiscal year-end and lasts to the end of the trading day following the filing date with the SEC, and is measured as: $\Delta SP_{jt} = (SP_{jt} - SP_{jt-1})/SP_{jt-1} \Delta P_{jt}$. The annual change in stock prices is adjusted for splits or other capital transactions; $\Delta EPS_{djt}$= Annual percentage change in earnings per share, $(EPS_{djt} - EPS_{djt-1})/EPS_{djt-1}$. EPS is measured as earnings before discontinued operations and extraordinary items; $\Delta BV_{djt}$ = Annual percentage change in book value per share, $(BV_{djt} - BV_{djt-1})/BV_{djt-1}$; $\Delta EV_{jt}$ = Annual percentage change in EV per share and is calculated as $(EV_{jt} - EV_{jt-1})/EV_{jt-1}$

**Table I.**
Stock price association with EV and traditional accounting measures

In the aforementioned study, the stock market reaction, in both price and volume, to first-time disclosures of EV was investigated. The results, as shown in Tables I-IV, reveal significant market price revaluation and volume changes to the first time and ongoing release of EV information. Additionally, it was found that the financial markets continued to react to EV information when released at later periods. The authors further explored the potential benefits to the companies by reducing the asymmetry of information, as measured by the bid–ask spread, in the capital market through disclosing EV. The results in Tables I-IV show an approximately 19 per cent reduction in the bid–ask spread for life insurers after disclosing EV information. Additionally, included in Table AI, is a further analysis of the empirical results of this study.

Because no life insurance companies based in the USA are currently disclosing EV information, the sample in the aforementioned study excluded testing the US securities markets. In a follow-up study, the authors used a sample of non-US life insurers that were cross-listed on US stock exchanges and filed Form 20-F with the SEC to see if the US securities markets valued the information (El-Gazzar *et al.*, 2015). This sample of firms was used to test association between changes in stock prices and changes in traditional

| Incremental market reaction to EV announcement relative to the non-announcement period | | | |
|---|---|---|---|
| | | Market reaction | |
| Announcement of EV | AR of EV announcement | AR non-announcement | Incremental AR |
| First-time announcement of EV disclosure with earnings announcement | 0.027 | 0.016 | 0.011 (69%) |
| Ongoing announcement of EV with earnings announcements | 0.0268 | 0.0175 | 0.0093 (53%) |

**Table II.**
Incremental market abnormal returns (AR) of EV disclosures

| | | Volume reaction | |
|---|---|---|---|
| Announcement | Volume: EV announcement | Volume: non-announcement | Incremental volume |
| First time announcement of EV disclosure with earnings announcement | 0.0075 | 0.0039 | 0.0036 (92%) |
| Ongoing announcement of EV with earnings announcements | 0.0067 | 0.0041 | 0.0026 (63%) |

**Table III.**
Incremental volume reaction to EV announcement

| Bid-ask spread | |
|---|---|
| Pre-announcement bid–ask spread | 0.00698 |
| Post-announcement bid–ask spread | 0.00563 |
| Change | 0.00135 |
| Percentage change | 19.3% |

**Table IV.**
Benefit of announcing EV to investors in reducing information asymmetry, measured by change in bid–ask spread

**Source:** El-Gazzar *et al.* (2013); this table contains summary statistics from the empirical results of the aforementioned reference

accounting measures, as reported under a firm's domestic GAAP and EV. Additionally, to validate the incremental valuation impact of EV in US markets, foreign-listed insurers' financials should be based on US GAAP. Hence, 20-F reconciliation information, which converts foreign earnings and book value to their equivalent US GAAP values, was used. Because the SEC had allowed cross-listed firms using IFRS to file without reconciliations starting in 2007, the analysis was listed to the period from 2000 to 2006 when foreign firms provided the reconciliations to US GAAP. Thus, tests were performed to evaluate the incremental value relevance of EV in US capital markets beyond the reconciled traditional US GAAP accounting measures of earnings and book value.

Similar to the earlier study, the association of EV with stock prices was tested by regressing of the changes in stock prices against the changes in EV per share, as well as earnings per share and book value per share. The results showed that EV had the greatest explanatory value ($R^2$) of the factors. As depicted in Table V, the incremental explanatory value was over 16 percentage points when added to earnings per share and book value. The findings suggest that the US capital markets find significant information value in the disclosure of EV. Additionally, included in Tables AII and AIII is a further analysis of the empirical results of these studies.

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Association of traditional accounting measures and EV with stock prices, non-US Stock Markets: sample of 10 companies and 76 observations for the period 2000-2010

|  | Adjusted $R^2$ |
| --- | --- |
| *Panel A: US Stock price association with EV and traditional accounting measures* | |
| Model $\Delta US\ SP_t = a_0 + a_1(\Delta EPS_t) + a_2(\Delta BV_t) + e_{jt}$ | 0.327 |
| Model: $\Delta US\ SP_t = a_0 + a_1(\Delta EPS_t) + a_2(\Delta BV_t) + a_3(\Delta EVP_t) + a_4(\Delta EV_t) + e_t$ | 0.494 |
| Increase in explanatory value | 0.167 |

Association of traditional accounting measures and EV with stock prices, non-US Stock Markets: sample of 10 companies and 45 observations for the period 2000-2008

|  | Adjusted $R^2$ |
| --- | --- |
| *Panel B: US Stock price association with EV and traditional accounting measures, US GAAP* | |
| Model $\Delta US\ SP_{jt} = a_0 + a_1(\Delta EPS20F_{jt}) + a_2(\Delta BV20F_{jt}) + a_3(\Delta RAPS_{jt}) + e_{jt}$ | 0.349 |
| Model: | 0.610 |
| $\Delta US\ SP_T = a_0 + a_1(\Delta EVP_t) + a_2(\Delta EV_t) + a_3(\Delta EPS20F_t) + a_4(\Delta BV20F_t) + a_5 (\Delta RAPS_t) + e_t$ | |
| Increase in explanatory value | 0.261 |

**Notes:** Definition of variables: $\Delta US\ SP_t$ = Percentage change in actual stock prices during the reporting period for firms cross-listed on NYSE; the reporting period starts on fiscal year-end and lasts to the end of the trading day following the filing date with the SEC, and is measured as: $\Delta US\ SP_{jt}$ = (US $SP_{jt}$ − US $SP_{jt-1}$)/US $SP_{jt-1} \Delta P_{jt}$; the annual change in stock prices is adjusted for splits or other capital transactions; $\Delta EPS_t$ = Annual percentage change in earnings per share, (EPS$_t$ − EP$_{t-1}$)/EPS$_{t-1}$. EPS is measured as earnings before discontinued operations and extraordinary items; $\Delta BV_t$ = Annual percentage change in book value per share, (BV$_t$ − BV$_{t-1}$)/BV$_{t-1}$; $\Delta EV_t$ = Annual percentage change in EV per share and is calculated as (EV$_t$ − EV$_{t-1}$)/EV$_{t-1} \Delta EVPt$ = Annual percentage change in EV profits per share and is calculated as (EVPt−EVP$_{t-1}$)/EVP$_{t-1}$; $\Delta EPS20Ft$ = Annual percentage change in earnings per share, (EPS20Ft- EPS20F$_{t-1}$)/EPS20F$_{t-1}$. EPS is measured as earnings before discontinued operations and extraordinary items after adding adjustments from Form 20; $\Delta BV20Ft$ = Annual percentage change in book value per share as reported in Form20-F (BV20Fjt-BV20F$_{t-1}$)/BV20F$_{t-1}$

**Source:** El-Gazzar *et al.* (2015); this table contains summary statistics from the empirical results of the aforementioned reference

**Table V.**
US stock price association with EV and traditional accounting measures

## Summary and conclusion

The points discussed in this paper are of special interest to financial reporting policymakers, financial analysts, firm compensation committees and managers and academics. Survey results have found that EV disclosure by life insurers is used by analysts outside of the USA for valuation purposes and is also used by life insurance management for internal performance measurement. Recent empirical studies support the proposition that EV is valuable supplemental information in foreign domestic markets. Given that IASB and the FASB are engaged in projects to improve accounting standard for insurance companies, and have faced criticism with the existing drafts, the two institutions ought to consider the valuation relevance of EV disclosures. Encouraging EV information to supplement accounting information, particularly when the disclosure includes reconciliation to IFRS or US GAAP results and stockholders' equity, could address concerns with reported information by fairly representing the entity's economic performance. Additionally, requiring adherence to the MCEV guidelines set forth by the CFO Forum and requiring review and attestation to the results by an accredited actuarial firm would greatly enhance the value of the disclosure. Furthermore, this study does suggest that US analysts ought to consider EV disclosures in their price assessment and encourage US insurers to provide the information.

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**Appendix 1**

|  | 2015 | 2014 |
| --- | --- | --- |
| *IFRS shareholder equity (SHE)* | 68.5 | 65.2 |
| Net URCG not in SHE | 5.3 | 4.3 |
| Excluded TSS/TSDI | (9.5) | (9.1) |
| Excluded intangibles: |  |  |
| Goodwill | (15.6) | (14.8) |
| Deferred acquisition costs | (12.1) | (10.0) |
| Others | (3.9) | (3.8) |
| *IFRS Tangible net asset value* | 32.3 | 31.5 |
| Life and savings value in-force (VIF) | 28.0 | 25.3 |
| Elimination of UCG projected in VIF | (6.9) | (8.6) |
| Market to market debts and others | (2.1) | (1.0) |
| *Group EV* | 51.2 | 47.2 |

**Table AI.**
Example of
reconciliation of EV
and IFRS book value
(billion euros)

**Notes:** Definitions: URCG – unrealized capital gains; SHE – shareholders' equity; TSS – undated deeply subordinated notes; TSDI – undated subordinated notes; VIF – value of in-force covered business
**Source:** Taken from AXA group 2015 EV report

**Appendix 2**

Association of traditional accounting measures and EV with stock prices, non-US Stock Markets: Sample of 53 companies and 329 observations for the period 2000-2008, 232 life insurer observations

| Explanatory model | Adjusted $R^2$ |
|---|---|
| Model $\Delta SP_T = a_0 + a_1(\Delta EPS_{jt}) + a_2(\Delta BV_{jt}) + e$ | 0.327 |
| Model: $\Delta SP_T = a_0 + a_1(\Delta EPS_{jt}) + a_2(\Delta BV_{jt}) + a_3(\Delta EV_{jt}) + e$ | 0.534 |
| Increase in explanatory value | 0.207 |
| Individual $R^2$ - EV(0.167) > BV(0.042) > EPS(0.025) | |

| | Model $\Delta SP_T = a_0 + a_1(\Delta EPS_T) + a_2(\Delta BV_T) + e$ | Model: $\Delta SP_T = a_0 + a_1(\Delta EPS_T) + a_2(\Delta BV_T) + a_3(\Delta EV_T) + e$ |
|---|---|---|
| Intercept | $-0.029$ (0.093) | $-0.050$ (0.001) |
| $\Delta EPS_{jt}$ | 0.161 (0.007)* | 0.087 (0.001)* |
| $\Delta BV_{jt}$ | 0.518 (0.009)* | 0.191 (0.004)* |
| $\Delta EV_{jt}$ | n/a | 0.925 (0.000)* |
| Adjusted $R^2$ | 0.327 | 0.534 |
| $F$–Ratio for Model | 77.5 (0.000) | 112.3 (0.000) |

**Notes:** Coefficients with $p$ value shown in parentheses; *significant at 0.01; the Shapiro–Wilk test of normality shows a score of 0.952 for sample of life insurers, the closer the score is to 1.00, the more normal the data are in the tests; definition of variables: $\Delta SP_{jt}$ = Percentage change in actual stock prices during the reporting period, the reporting period starts on fiscal year end and lasts to the end of the trading day following the filing date with the SEC, and is measured as: $\Delta SP_{jt} = (SP_{jt} - SP_{jt-1})/SP_{jt-1}\Delta P_{jt}$; the annual change in stock prices is adjusted for splits or other capital transactions; $\Delta EPS_{djt}$ = Annual percentage change in earnings per share, $(EPS_{djt} - EPS_{djt-1})/EPS_{djt-1}$. EPS is measured as earnings before discontinued operations and extraordinary items; $\Delta BV_{djt}$ = Annual percentage change in book value per share, $(BV_{djt} - BV_{djt-1})/BV_{djt-1}$; $\Delta EV_{jt}$ = Annual percentage change in EV per share and is calculated as $(EV_{jt} - EV_{jt-1})/EV_{jt-1}$

**Table AII.**
Description of stock price association with EV and traditional accounting measures

Association of traditional accounting measures and EV with stock prices, non-US Stock Markets: Sample of 10 companies and 76 observations for the period 2000-2010

Adjusted $R^2$

*Panel A: Further description of US Stock price association with EV and traditional accounting measures*

| | Adjusted $R^2$ |
|---|---|
| Model $\Delta USSP_t = a_0 + a_1(\Delta EPS_t) + a_2(\Delta BV_t) + e_{jt}$ | 0.327 |
| Model: $\Delta USSP_t = a_0 + a_1(\Delta EPS_t) + a_2(\Delta BV_t) + a_3(\Delta EVP_t) + a_4(\Delta EV_t) + e_t$ | 0.494 |
| Increase in explanatory value | 0.167 |

| | Model $\Delta SP_T = a_0 + a_1(\Delta EPS_T) + a_2(\Delta BV_T) + e$ | Model: $\Delta SP_T = a_0 + a_1(\Delta EPS_T) + a_2(\Delta BV_T) + a_3(\Delta EVP_T) + a_3(\Delta EV_T) + e$ |
|---|---|---|
| Intercept | 0.019 (0.642) | (0.009) (0.831) |
| $\Delta EPS_T$ | 0.246 (0.020) | 0.068 (0.286) |
| $\Delta BV_T$ | 0.584 (0.010)* | 0.455 (0.010)* |
| $\Delta EVP_T$ | n/a | 0.068 (0.282) |
| $\Delta EV_T$ | n/a | 0.929 (0.000)* |
| Adjusted $R^2$ | 0.327 | 0.494 |
| *F*-ratio for model | 19.2 (0.000) | 24.2 (0.000) |

Association of traditional accounting measures and EV with stock prices, non-US Stock Markets: sample of 10 companies and 45 observations for the period 2000-2008

Adjusted $R^2$

*Panel B: US Stock price association with EV and traditional accounting measures, US GAAP*

| | Adjusted $R^2$ |
|---|---|
| Model $\Delta US SP_{jt} = a_0 + a_1(\Delta EPS20F_{jt}) + a_2(\Delta BV20F_{jt}) + a_3(\Delta RAPS_{jt}) + e_{jt}$ | 0.349 |
| Model $\Delta US SP_t = a_0 + a_1(\Delta EPS20F_t) + a_2(\Delta BV20F_t) + a_3(\Delta EVP_t) + a_4(\Delta EV_t) + a_5(\Delta RAPS_t) + e_t$ | 0.610 |
| Increase in explanatory value | 0.261 |

| | Model $\Delta SP_T = a_0 + a_1(\Delta EPS20F_T) + a_2(\Delta BV20F_T) + a_2(\Delta RAPS_T) + e$ | Model $\Delta SP_T = a_0 + a_1(\Delta EVP_T) + a_2(\Delta EV_T) + a_3(\Delta EPS20F_T) + a_4(\Delta BV20F_T) + a_4(\Delta RAPS_T)e$ |
|---|---|---|
| Intercept | 0.005 (0.022) | 0.083 (0.007) |
| $\Delta EPS20F_{jt}$ | 0.193 (0.013) | 0.063 (0.472) |
| $\Delta BV20F_{jt}$ | 0.929 (0.001) | 0.466 (0.010) |
| $\Delta EVP_{jt}$ | n/a | 0.063 (472) |
| $\Delta EV_{jt}$ | n/a | 0.919 (0.000)* |
| $\Delta RAPS_{jt}$ | 0.076 (308) | 0.133 (0.033) |
| Adjusted $R^2$ | 0.349 | 0.610 |
| *F*-Ratio for Model | 13.7 (0.000) | 38.6 (0.000) |

**Notes:** Coefficients with $p$ value shown in parentheses; * significant at 0.01; the Shapiro–Wilk test of normality shows scores of 0.976 for the model with traditional accounting measures and 0.97 for the model including EV measures; the closer to 1.0, the more normal the data in the tests; definition of variables: $\Delta US SP_t$ = Percentage change in actual stock prices during the reporting period for firms cross-listed on NYSE, the reporting period starts on fiscal year end and lasts to the end of the trading day following the filing date with the SEC, and is measured as: $\Delta US SP_{jt} = (US SP_{jt} - US SP_{jt-1})/US SP_{jt-1}\Delta P_{jt}$. The annual change in stock prices is adjusted for splits or other capital transactions; $\Delta EPS_t$ = Annual percentage change in earnings per share, $(EPS_t - EP_{t-1})/EPS_{t-1}$. EPS is measured as earnings before discontinued operations and extraordinary items; $\Delta BV_t$ = Annual percentage change in book value per share, $(BV_t - BV_{t-1})/BV_{t-1}$; $\Delta EV_t$ = Annual percentage change in EV per share and is calculated as $(EV_t - EV_{t-1})/EV_{t-1}$; $\Delta EVPt$ = Annual percentage change in EV profits per share and is calculated as $(EVPt - EVP_{t-1})/EVP_{t-1}$; $\Delta EPS20F_t$ = Annual percentage change in earnings per share, $(EPS20F_t - EPS20F_{t-1})/EPS20F_{t-1}$. EPS is measured as earnings before discontinued operations and extraordinary items after adding adjustments from Form 20; $\Delta BV20F_t$ = Annual percentage change in book value per share as reported in Form20-F $(BV20F_{jt} - BV20F_{t-1})/BV20F_{t-1}$; $\Delta RAPSt$ = Annual percentage change in reconciliations of earnings per share to US GAAP and is calculated as $(\Delta EPS_t - (\Delta EPS20F_t)$

**Table AIII.**