

ACCOUNTING FOR CONVERTIBLE BONDS: CURRENT PRACTICES AND PROPOSED CHANGES

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ABSTRACT

Convertible bonds are financial instruments used by corporations to raise funds. Investors buy them for both their return and potential equity feature. To make the bonds more attractive to investors and to lower the bond interest rate, the corporations give investors the opportunity to receive equity shares at a time of their choosing during the life of the bonds. According to the generally accepted accounting standards issued by the Financial Accounting Standards Board, convertible bonds in the U.S. are accounted for as bonds, ignoring the equity option imbedded in these instruments. In the rest of the world, convertible bonds are accounted for according to the international financial reporting standards of the International Accounting Standards Board. Under international financial reporting standards, convertible bonds are bifurcated into liability and equity components. Should the U.S. standards change? Will such a change result in financial statements that are more transparent and representationally faithful? This paper aims to answer these questions and propose recognition, measurement, and reporting procedures that will implement the answers.

JEL: M41, M48

KEYWORDS: Convertible Bonds, GAAP, IFRS, IASB, FASB

INTRODUCTION

Accounting for convertible bonds (CBs) have been an obstacle in the path to convergence between the generally accepted accounting principles (GAAP) issued by the Financial Accounting Standards Board (FASB) and the international financial reporting standards (IFRS) issued by the International Accounting Standards Board (IASB). CBs generally sell at face value. In this scenario, GAAP records the debt at face value and avoids measurement of the conversion feature. However, IFRS measures the debt as the discounted present value of future cash flows using an interest rate (normally higher) of similar debt instruments without the conversion option, and the difference between the debt and cash received is recorded as a bond discount and equity component associated with the conversion option. In other words, under IFRS, CBs are bifurcated into debt and equity components, and under GAAP, CBs are all debt. As a result, GAAP reports higher debt and lower equity compared to IFRS in the initial years, and higher profits (lower interest expense) over time. The study aims to show why recognizing both the liability and equity characteristics of CBs is a more faithful representation of the true economics of CBs. Given that there are close to \$200 billion of CBs outstanding in the US, the proposed accounting procedures will give the users of financial statements a more complete insight into the financial condition of the entities that issued those bonds. First, the interest and financing expenses reported under the proposal will reflect the periodic economic sacrifice sustained by the entities. Next, the amount of liabilities and equities reported will be more representationally faithful. Finally, the liabilities and expenses reported under the proposal will, over time, approximate the true cost of issuing CBs.

Fair presentation of a company's financial position is the aim of both the FASB and IASB. Unfortunately, when the nature of a transaction cannot readily be determined the reporting method to be applied is unclear (Rue, Stevens, & Volkan, 1996). That is why financial statement preparers, auditors, users, and the Security and Exchange Commission (SEC) are requesting consistent and understandable reports that timely measure and recognize economic benefits and sacrifices. They want to know if the fair value measurement as implemented by the IASB is appropriate, or if it will have a negative effect on the numbers. They want principle-based standards rather than rule-based standards. These new proposed standards would call for objectives that provide consistent and understandable information (Trott, 2009). During the past two decades, very few researchers addressed the well documented problems in accounting for CBs. Thus, revisiting the accounting practices used for CBs may result in renewed interest by standard setters, more transparent accounting standards, and better reporting for debt instruments. Thus, it is warranted to review the disagreements concerning accounting for CBs and their presentation in the financial statements. In addition, the accounting procedures proposed in this paper may solve the accounting and reporting disparities that exists between U.S. and international standards.

The remainder of the paper first reviews the pertinent literature. The proposal to change accounting for CBs, along with its economic impact and theoretical justification is presented next. Following this presentation, methodological issues and the results of the analysis of the economic impact of the proposal are discussed. The study concludes with a discussion of the impact of the proposal on global accounting harmonization and suggestions for future research.

LITERATURE REVIEW AND BACKGROUND

Literature Review

Disagreements over the basic accounting recognition and measurement theories underlie the need to reexamine the accounting for CBs and revise the measurement, recording, and reporting CBs (Trott, 2009). The CBs were first introduced in the mid-19th century. CBs are used by companies (issuers) that need an inexpensive way to finance growth, to take advantage of tax benefits, to minimize the impact of financing on financial ratios, and to help mitigate cash flow problems. They also give many benefits to investors who may hold the bonds and receive returns until the bonds are called or demand conversion into entity's stock at a price lower than the current market price. Although CBs are issued as a debt, they can be converted into equity by the holders when they convert the investment into stocks of the issuing company. This characteristic makes the bond act more like a hybrid financial instrument because one part is interpreted as liability and the other is interpreted as an equity option which constitutes a contingent obligation to issue stock. (Stevens, Volkan, and Baker, 1996). CBs are generally issued with a coupon rate lower than those bonds with similar risk characteristics but no conversion option.

Generally, investors buy the CBs when the underlying stock price is lower than the face value of the CB. If the stock price rises above the stated call value of the CB, the conversion will benefit the investor as they will convert their claims into equity when the conversion value exceeds the effective call value (Lyandres & Zhdanov, 2013). Alternatively, the investors may not always benefit because issuers may call the bond before the price exceeds the conversion value. Finally, there are many reasons why neither the issuer will call the CBs nor the investors demand conversion when the stock value underlying the CB exceeds the call value. In fact, most CBs are not called when that equilibrium point predicted by finance theory is reached (Stevens, Volkan, and Baker, 1996). Several research projects that attempted to clarify and improve upon the IFRS method of bifurcating the debt and equity portions of CBs. A study by Grimwood and Hodges (2002) proposed a method that would calculate the equity portion of the transaction by utilizing the Black Scholes model of valuing financial instruments, primarily stocks. The method aimed to estimate the fair value of the conversion option based on a range of potential values and the likelihood that the company's stock will match the values within that range. The study provided insight into the three factors that primarily

drive the value of CBs; stock price, interest rate, and credit risk. The latter of these can be easily overlooked, but considering that the majority of CBs, historically, are issued by smaller companies, or startups, credit risk becomes an important factor in determining the value of a CB.

The volatility of stock belonging to a small or start-up company's stock is much greater than an established stock. Because of these factors, simply calculating the difference between the debt portion and the principal value to derive the residual value attributable to the conversion option is not a faithful representation of the economic sacrifice. Sarkar (2003) showed that this problem may be solved by periodic re-measurement of the conversion option. With the conversion option valued based on a percentage of probable landing points within a range, the total expense (i.e. interest plus the economic sacrifice of exchanging stock at a lower value) recognized on a periodic basis would be less susceptible to the large swings that are likely to occur when revaluing the conversion option based on the volatile share price of a stock belonging to a small or start-up company. Theoretically, the lowest point on the range of probable values upon exercising the conversion option would be no less than the value of the bond at maturity. However, this is where the credit factor, mentioned above, comes into play. If a firm is concerned about the possibility of default, the bond could be called early, in order to ensure that some value is recouped.

While the FASB is concerned that requiring the separation of the debt and equity portions of a CB would be difficult for some smaller companies (Garneff & Reichert, 2002), requiring the recognition of the impact a CB has on the equity of an issuer would enhance the comparability of financial statements across the globe, satisfying one of the most basic and original qualities of accounting. Furthermore, another study provides convincing evidence that such recognition would enhance analyses of U.S. companies by providing a more transparent and faithful representation of a company's financial statements (Clark, 1993). The study showed that current GAAP misrepresents the debt to equity ratios of companies engaged in CB transactions. Finally, the Financial Accounting Standards Committee of the American Association (AAA FASC) has weighed in by a pair of studies that recommend the recognition of the equity impact of CBs and the measurement of the true cost of financing (AAA FASC, 2001 and 2010).

Because of the ongoing concern for the accounting and presentation of CBs, both the FASB and the IASB are analyzing criticisms and requests emanating from stakeholders. Each Board has held several meetings and issued discussion papers to determine if the codifications need to be updated. They both are showing intent to simplify the requirements for reporting CBs and other financial instruments. For example, the FASB issued a discussion paper to receive public comments on the proposed methods to account for financial instruments that contain equity characteristics. This project was intended to distinguish between the equity and liability versus assets, and three different approaches were suggested. From the three options, the FASB concluded that the basic ownership approach will be most useful to investors because it simplified the requirements issuers and auditors had in order to present the information. This approach required the CBs to be measured at fair value with changes reported in income. Thus, changes in the issuer's share prices would ultimately impact net income. The Board wanted to know if this approach would work well for companies (FASB, 2007). Many suggestions have been made in the aftermath of meetings held by the Board, which included discussions of improving the financial presentation of CBs. For instance, the FASB held many meetings to address the improvements necessary to ensure the usefulness of reporting financial instruments. The project intended to create common standards that will make the information more comprehensive to users. Decisions of this ongoing project have been updated many times. However, the Board has not been able to arrive to solid conclusions. In one of the most recent meetings on October 2017, the Board visited the working definitions of assets and liabilities. In December 2017, it also discussed the continuing issue of distinguishing liabilities from equity, which has been an ongoing agenda item since 1986. The Board's technical agenda continues to include projects to address recognition, measurement, presentation and disclosure of CBs in the financial statements. Though a final decision has not been made, the Board is making the effort to find a resolution to this matter (FASB, 2017).

Although the IASB had already established a method to account for CBs (IASB, 2003), it was also seeking feedback in a discussion paper entitled *Financial Instruments with Characteristics of Equity* (IASB, 2018). The paper started by clarifying that the IASB was not involved in the project paper published by the FASB on November 2017. The IASB stated that it wanted to provide its own views on the subject and discuss the research projects it initiated to resolve any remaining issues in this area.

In the paper, the IASB explained how the IAS 32 principles should be applied and addressed the contingent settlement provisions, and contradictions to the basic ownership approach that exist in the U.S. GAAP, as well as the concept of embedded derivatives. The IASB discussed whether CBs could be analyzed as an equity host and an embedded derivative asset if the issuer held the option to settle the claim. With this, the IASB members would like to know if separating the embedded derivatives could be a potential solution. According to the FASB Accounting Standards Codification (ASC) 815-15, embedded derivative instruments must be separated from the host contract and accounted for separately as a derivative instrument by both parties only if (1) Risks and characteristics are not clearly related to the host contract, (2) the hybrid instrument is not required to be measured at fair value under GAAP, and (3) a separate instrument with the same terms would be accounted for as derivative instrument (Flood, 2017).

In search of improving existing requirements of the IAS 32, the IASB published an update following the meeting held in January 2018. In the meeting, the members deliberated on the results of the responses to the discussion paper. Many stakeholders submitted several outstanding issues relevant to this standard. The IFRS' predominant issue was about when an entity has the option to limit the amount of a claim to that entity's available economic resources (i.e., using the CB's call option when the underlying stock value exceeds the face value), but also has the option to settle at an amount that is affected by other variables independent of the entity's economic resources (i.e., not issuing a call as the stock price rises and investors continue to hold and not convert the CB). The IASB maintained the position that the instrument could be analyzed as an equity host and an embedded derivative asset if the issuer held the option to settle the claim. All 14 members of the IASB decided to raise the issue in the discussion paper to obtain additional feedback on this predominant issue. It is clear that both the FASB and the IASB continue to search for ways to help companies make better judgments on the classification of financial instruments, and to issue standards that improve the presentation of CBs. However, a solution is yet to be determined. The paper proposes changes to the current standards in order to make reporting for CBs more transparent and representationally faithful.

Current Status of Accounting for CBs

Having characteristics of both debt and equity has proven to be the root of many differences in opinions over recent years regarding how CBs should be treated and accounted for (PwC, 2017). Due to the inherently complex nature of CBs, it is not surprising that there are differences in opinions between the FASB and the IASB. These institutions have had differing perspectives on the matter over their beliefs regarding how professionals should treat these financial instruments when preparing financial statements. In general, standard setters diverge from each other with respect to the dual nature of CBs and on the issue of separating the debt and equity characteristics. Currently, the FASB is of the belief that, until a convertible bond is officially exercised and exchanged for shares of ownership, the financial instrument is solely debt (FASB, 2008). Previously, GAAP had allowed, and provided guidance for, the bifurcation of these debt and equity components, but decided to follow the single instrument route with the issuance of the Accounting Principles Board's (APB) Opinion No. 10. Opinion No. 10 argued that it was too difficult and not feasible to accurately value the embedded derivative before the option is exercised.

When the conversion option attached to the bond is exercised, there are two accepted methods of accounting under GAAP. Under the book value method, any change in the fair value of the stock is not considered after issuance of the bond, and therefore no gain or loss is recognized upon conversion. The second method, referred to as the market value method, allows for recognition of a gain or loss upon conversion by assigning

the fair value of the stock to the transaction. However, the market value method is seldom, if ever, used (Stevens, Volkan, & Baker, 1996, p. 131). For one, if the fair value of the stock is lower than the value of the bond at maturity, no reasonable professional would exercise the option, except for concerns of default. Secondly, no reasonable professional will willingly record a loss for his/her company when the option is exercised, so he or she would choose to use the book value method virtually every time.

Meanwhile, IFRS provides guidance for the bifurcation of the debt and equity qualities of CBs. Under International Accounting Standard (IAS) 32, IASB defines equity as any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities (IASB, 2003). Given this definition, it is not difficult to see why the IASB believes that the debt and equity components of CBs should be bifurcated. The fair value of the financial instrument is provided by the amount of cash exchanged for the CB. Further, the fair value of the liability in the contract can be readily determined by utilizing a present value calculation of the future cash flows. After these future cash flows are discounted using an appropriate interest rate (normally higher) of similar debt instruments without the conversion option, the resulting discounted value is subtracted from selling price of the bond to determine the bond discount and equity component on day of issue. The exclusion of the equity characteristics of the CBs from the accounting process used in the U.S. overlooks the true financing cost associated with the transaction. A professional would not invest in a bond that promises low interest payments to maturity than would normally be available on the open market if the conversion option is not included in the transaction. Therefore, it is an unavoidable truth that the conversion option holds real economic value, and current GAAP does not accurately depict the potential obligation and sacrifice that the issuing company has.

Computation of a fully diluted earnings-per-share amount is the only instance under GAAP where the existence of the bond's conversion option is recognized. Given the differences in tax regulations between the U.S. and its international counterparts, U.S. companies are incentivized to leave CBs outstanding, instead of calling the bond once the market value of the related stock option has appreciated above the value of the bond at maturity. This is due to the availability of the interest deduction under U.S. tax laws, but not to dividends. Because of this difference, it can be challenging to accurately compare a company based in the U.S. with an international company. While GAAP overlooks the true financing cost of CBs, IFRS also has many flaws. The separation of debt and equity under IFRS is only applicable if the conversion option is constructed to be fixed-for-fixed, meaning a previously established number of stock shares are to be provided as consideration in lieu of the bond's principal value when the conversion option is exercised. If the exchange is not considered to be fixed-for-fixed, the CB is separated into debt and an embedded derivative liability (IASB, 2004). While IFRS provides guidance for the bifurcation of the debt and equity components, this separation is a challenge, especially for smaller companies that often do not have the proper resources to accurately measure the value of options in the unreliable markets that typically accompany CBs issued by small companies (Garneff & Reichert, 2002). Given the background of the contentious theoretical and practical concepts underlying the accounting for CBs and the divergence in opinion between the U.S. and international accounting standards, it is warranted to identify the pros and cons of each argument and propose a solution that fairly and faithfully represents the true nature of these dual-natured financial instruments.

A Proposal for Change – Economic Sacrifice

Considering the various research projects and the accounting standards in effect, this study develops a new accounting process for CBs that would provide a more accurate and faithful representation of the classification of CBs. The proposal would make financial statements easier to understand and compare across borders, while remaining simple, cost effective, and practical. While the use of the Black Scholes Model to calculate the value of these conversion options inspires confidence that it would provide a more accurate representation of the option's value, this process would not be practical, or cost effective, for many smaller companies to incorporate into their processes. However, the procedures proposed in this study are

much simpler than the procedures used by companies that use the Black Scholes Model or the existing IFRS methodologies. Thus, companies that do not currently have the necessary resources to use these processes will benefit if the procedures proposed in this study are adopted.

This study proposes to follow the claim on equity/earnings method during the life on the bond. In this method, interest expense is the product of the CBs face value and stated interest rate. Additionally, to portray the economic sacrifice sustained by the issuing firm more appropriately, a debit to financing expense, and a corresponding credit to the conversion liability (obligation to issue shares) would be periodically recognized. This amount (referred to as the claims to earnings) is computed as follows: $\text{net income} * [\text{total convertible bonds} / (\text{total convertible bonds} + \text{total stockholders' equity})]$ (Stevens, Volkan, & Baker, 1996, p. 136). At any given date, the balance in this liability account represents the economic sacrifice sustained by the issuer of the CBs. Under this method, once the conversion option is exercised, the related balances in bonds payable and the conversion option liability would be eliminated and the sum of these two would be credited to contributed capital. Compared to the current accounting standards, the proposed method will result in a smaller retained earnings balance and a larger paid in capital balance.

Table 1 illustrates the accounting for CBs under current GAAP, proposed GAAP, and current IFRS. For brevity, assume a three-year bond is sold at face value with a 4% stated rate, and 6% discount rate is applicable. The conversion feature is exercised at the end of three years after net income steadily rises at \$80, \$90 and \$100, and common stock related equity is reported at \$800, \$900 and \$1,000 each consecutive year. As illustrated, GAAP reports higher debt and lower equity compared to IFRS in the initial years, and higher profits (lower interest expense) over time. In contrast, the proposed method recognizes the impact of the conversion feature over time, with lower profits associated with the conversion than either method. This proposal avoids the issues related to the volatility of the stock values related to smaller companies that issue CBs, and more closely follows U.S. GAAP's guidance for accounting for changes in stock values. It also simplifies reporting for U.S. companies, as this method would make it unnecessary to report diluted EPS for each CB. The proposal already includes the economic sacrifice/financing expense related to the conversion options in the computation of net income. With that activity no longer necessary, it is much more difficult to argue that the cost of implementation outweighs the benefits of comparability across all companies.

Impact of the Proposal

Currently, CBs are classified as a liability in the financial statements under GAAP. Since they are treated solely as a liability at issuance as well as during the periods in which they are outstanding, accounting for the equity component of CBs is ignored until conversion. This presents a problem because such instruments include an option that may be settled before transferring assets (Botosan, Koonce, Ryan, Stone, & Wahlen, 2005, p. 170). By delaying recognition of CBs' equity component, the GAAP method of accounting potentially understates/overstates both the liability and equity on the balance sheet and net income. The proposed accounting addresses the duality of CBs by including in the periodic financing cost both the usual calculation of interest expense as well as the claim on earnings that CB holders would have on an "if converted" basis. The competing alternative to account for CBs would include the probability of conversion in the computations of the debt and equity components at each statement date. The likelihood of a CB being converted changes over time, and ideally, the accounting would incorporate these changes in income by using fair values of the instruments in the issuers' financial statements (Botosan et al., 2005, p. 178).

Table 1: Illustration of Current GAAP, Proposed GAAP and Current IFRS Accounting for a Three-Year Convertible Bond

Date	Description/Accounts	Assets =		Liabilities +			Equity	
		Cash	=	Bonds Payable	Bond Discount	Conv Liability	+ Contributed Capital	RE
GAAP:								
1/1/12	Issuance	\$100.00	=	\$100.00				
12/31/12	Interest Expense (a)	(\$4.00)	=					(\$4.00)
12/31/13	Interest Expense (a)	(\$4.00)	=					(\$4.00)
12/31/14	Interest Expense (a)	(\$4.00)	=					(\$4.00)
12/31/14	Conversion		=	(\$100.00)			\$100.00	
12/31/14	Closed-Out Ending Balances	\$88.00	=				\$100.00	(\$12.00)
Proposed GAAP:								
1/1/12	Issuance	\$100.00	=	\$100.00				
12/31/12	Interest Expense (a) Financing Expense (b)	(\$4.00)	=			\$8.89		(\$12.89)
12/31/13	Interest Expense (a) Financing Expense (c)	(\$4.00)	=			\$9.00		(\$13.00)
12/31/14	Interest Expense (a) Financing Expense (d)	(\$4.00)	=			\$9.09		(\$13.09)
12/31/14	Conversion		=	(\$100.00)		(\$26.98)	\$126.98	
12/31/14	Closed-out Ending Balances	\$88.00	=				\$126.98	(\$38.98)
IFRS Treatment:								
1/1/12	Issuance (e)	\$100.00	=	\$100.00	(\$5.35)		\$5.35	
12/31/12	Interest Expense (f) Interest Payment (g)	(\$4.00)	=		\$1.68			(\$5.68)
12/31/13	Interest Expense (h) Payment (g)	(\$4.00)	=		\$1.78			(\$5.78)
12/31/14	Interest Expense (i) Interest Payment (g)	(\$4.00)	=		\$1.89			(\$5.89)
12/31/14	Conversion		=	(\$100.00)	\$0.00		\$100.00	
12/31/14	Closed-out Ending Balances	\$88.00	=				\$105.35	(\$17.35)

Assume a three-year bond is sold at face value with a 4% stated rate, and 6% discount rate. The conversion feature is exercised at the end of three years after net income steadily rises at \$80, \$90 and \$100, and common stock related equity is reported at \$800, \$900 and \$1,000 each consecutive year. As illustrated, GAAP reports higher debt and lower equity compared to IFRS in the initial years, and higher profits (lower interest expense) over time. In contrast, the proposed method recognizes the impact of the conversion feature over time, with lower profits associated with the conversion than either method.

Interest Expense: $(\$100 \text{ par} \times 4\%) = \4.00

Financing Expense: $(\$80 \text{ NI} \times [\$100 \text{ Debt} / (\$100 \text{ Debt} + \$800 \text{ Common Equity})]) = \8.89

Financing Expense: $(\$90 \text{ NI} \times [\$100 \text{ Debt} / (\$100 \text{ Debt} + \$900 \text{ Common Equity})]) = \9.00

Financing Expense: $(\$100 \text{ NI} \times [\$100 \text{ Debt} / (\$100 \text{ Debt} + \$1,000 \text{ Common Equity})]) = \9.09

Bond Issue Price: Present Value of \$100 Bond Discounted at 6% = \$94.65

Interest Expense: $(\$94.65 \text{ Present Value of Bond} \times 6\%) = \5.68

Interest Payment: $(\$100 \text{ par} \times 4\%) = \4.00

Interest Expense: $(\$96.33 \text{ Present Value of Bond} \times 6\%) = \5.78

Interest Expense: $(\$98.11 \text{ Present Value of Bond} \times 6\%) = \5.89

Although both alternatives incorporate the separation of CBs' debt and equity components, they each impact the financial statements as well as investors' confidence in financial reporting. They both enable the income statement and balance sheet to provide better measures of interest expense and net income to residual claimants as well as liquidity, solvency, and the magnitude of residual claims (Botosan et al., 2005, p. 178). In this way, the financial statements reflect the CBs' likelihood of being converted and would more accurately show the value of the CBs. However, the alternative this study selected is less costly and much easier to implement for those firms that are more likely to issue CBs.

Including in the value of CBs the probability of being converted brings with it several limitations. It is important to account for CBs in a way that increases investor confidence in financial reporting. It is very likely that an accounting method that requires constant revaluation of liability and equity components will negatively affect investor confidence in financial reporting because there would not be a sense of consistency and it may be difficult to understand the reason behind changing debt and equity values. According to an analysis by Credit Suisse and Deloitte, relatively small market-cap companies of less than \$2 billion accounted for about 50 percent of the convertible bond issuances (Marcy, 2007). Probability driven computations, therefore, could greatly affect younger, growing companies who may issue CBs primarily to obtain funds to help expand the company with less stock dilution. These limitations combined with the finding that security-issuing companies cater to changes in investor demand when deciding on the security type to be issued, are the reasons that the accounting proposed in this study was recommended (de Jong, Duca, & Dutordoir, 2013, p. 72).

Theoretical Support for the Proposal

Under GAAP, separation of convertible debt into a liability and an equity component is precluded unless one of several conditions is satisfied, whereas under IFRS the conversion option must always be separated as an equity component (Deloitte Touche, 2017). IFRS states in IFRS 9, section 4.3.2., that CBs must be accounted for using the fair value measurement basis with changes in fair value accounted for in other comprehensive income (IASB, 2014). In addition, the IASB states in IAS 32 that CBs are both financial liabilities and equities and both aspects must be reported in financial statements. Sections 28-32 of IAS 32 deal with how to allocate the CBs into liability and equity (IASB, 2003). The FASB and IFRS have been working on a convergence project since they reached a memorandum of understanding with the Norwalk Agreement in 2002 (Afterman, 2015). Even though there has been some substantial convergence on some major projects (such as business combinations, fair value measurement, revenue recognition, and share-based payments to name a few) and both organizations state that they continue to collaborate and cooperate, it appears that convergence had come to an end (Afterman, 2015). Even the SEC, after making a historic ruling allowing foreign issuers trading on the U.S. markets to file IFRS-financial statements without reconciling them to GAAP, has now retracted its statements to force U.S. companies to adopt IFRS and is simply stating that it would like to see global standards in the future (Afterman, 2015).

Wang and Zhaung (2017) discuss in their study that using fair value methods, especially Level 2 and Level 3, create a high degree of unreliability in the measurement of a bond's value and lower the quality of the financial reporting, while increasing the corporation's cost of debt. Miller and Bohanson (2007) presents a concise description of the three levels of inputs in measuring fair values, identifies the processes that management must follow in estimating the fair values, and describes inputs to measurement models without specifying which models management should use. While the models currently in use allow measurement of bifurcation of CBs with a much greater degree of reliability (Trott, 2009) for large, established companies, the statements by Wang and Zhaung (2017) still hold true in case of start-up or small and medium size companies. Currently, there is a large number of CBs traded in the open market and the fair values of some CBs can be evaluated with a great deal of precision. However, for more than 50% of the CB that are issued by small and medium size companies the only relevant information come from Level 2 or Level 3 inputs and the unreliability which Wang and Zhaung (2017) are concerned with is a major concern. Thus, it is warranted to consider an accounting process that does not rely on fair valuations and treats the CBs as held-to-maturity instruments until they mature or are called by either party.

The crux of the matter is the level of support for adopting global accounting standards in the U.S. While the current environment is not conducive to adopting global standards, the Sarbanes-Oxley Act of 2002 calls for a move to adopt principle-based accounting standards (which IFRS is) to replace the rule-driven approach under GAAP (Seay, 2014). The SEC completed a study in which it recommended objective-focused standards instead of the rules-based standards currently in place (Seay, 2014). The fear is that rules-

based standards often enable company financial engineers to structure a transaction to achieve technical compliance with a standard while evading the standard's intent, thus contributing to a lack of comparability among financial statements (Seay, 2014). Another issue to look at is the wide-spread acceptance of IFRS among the nations of the world. In 2005, IFRS surpassed GAAP as the single most widely used accounting standard in the world (Seay, 2014). This widespread adoption of IFRS has placed GAAP users, especially small firms, at a competitive disadvantage regarding foreign investment (Seay, 2014). The case for IFRS adoption in the United States and in other countries is generally made on the basis of improvements in reporting quality and comparability across firms and countries. Financial reporting and disclosure quality are generally linked to economic outcomes, such as market liquidity, cost of capital, and corporate decision making (Seay, 2014).

DATA AND METHODOLOGY

The accounting procedures proposed in this study impact the financial statements by increasing the expense associated with CBs. Over the life of the CB, the retained earnings would be lower and the liabilities would be higher, increasing the debt-to-equity ratio. Stevens, Volkan, and Baker (1996, p. 136) explain that by recording two expense components the holding right to convert the CBs is recognized. It is important that accounting for CBs recognize both the claims on debt and equity because the distinction between liabilities and equity matters to stakeholders and affects how they use and assess the credibility of the information (Botosan et al., 2005, p. 170). In this way, the proposed approach would be more representationally faithful than the current GAAP and the alternative approach that is based on periodic revaluations of debt and equity components. The proposed accounting addresses the conversion option that current GAAP standards do not, but it does so in a way that is easier to implement than the probability approach.

To examine descriptive statistics of the proposed claim to equity approach, data is gathered from the Compustat Annual database. The claims to earnings amounts are computed by multiplying net income with the ratio of convertible bonds to the sum of convertible bonds and total stockholders' equity. All firm year observations reporting values for convertible debt for the fiscal years 1998 – 2017 are selected. Observations with negative net income or owners' equity are removed from the sample. Further, outliers for total assets, total liabilities, and owners' equity at the 1st and 99th percentiles are removed. This results in a final sample of 7,845 observations. Finally, t-tests are conducted to observe if there are any statistically significant variances in the behavior of the ratio of claims to earnings to net income over the time-period studied. First, a t-test is conducted to observe statistically significant differences between the pre-financial crisis (1998-2007) and the post-financial crisis (2008-2017) periods. The t-tests are then repeated to observe any differences between the entire sample and each period separately.

RESULTS

Table 2 reports descriptive statistics for sample firms. The mean value of assets, liabilities, owners' equity, net income, convertible debt and claim to earnings are reported. Further, the results are divided by different time periods: for all years, by period (pre- and post-financial crisis), and by year. Results show that CTE as a percentage of net income appears to be economically significant throughout the sample period and consistently between 9%-12%, with an average of 10%. It is interesting to note that stock returns over the same time-period averaged 8% which closely follows the economic sacrifice indicated by the proposal.

Table 3 shows the results of the t-tests of statistically significant differences in the behavior of the ratio of claims to earnings to net income (CTE/NI) over the time period studied. First, the pre-financial crisis period CTE/NI ratio values were compared to the post-financial crisis ratio values. The test of differences indicates that there is a statistically significant difference in the CTE/NI ratio between these two periods. Next, the pre-financial crisis values were compared to the values of the entire sample. This comparison showed no statistically significant differences.

The results appear to be driven by the relatively lower net incomes and higher convertible bond amounts encountered during the post-financial crisis period. Low values of net income and high values of convertible bonds make the ratio of convertible bonds to the sum of convertible bonds and equity higher compared to the values encountered in the pre-financial crisis period. This, in turn, makes the CTE/NI ratio higher. Confirming this inference, the comparison of the post-financial crisis values to the values of the entire sample reveal a statistically significant difference.

Impact of the Proposals on Accounting Harmonization

Convertible bonds are treated entirely as debt under GAAP whereas IFRS reports this financial instrument as part debt and part equity. With stakeholders all over the globe, greater comparability helps improve investor confidence and understanding so they can make better, more informed decisions. The move to account for the debt and equity parts of CBs separately could be a step toward international accounting standards convergence (Marcy 2007).

Table 2: Descriptive Statistics for Observations (in \$ Millions) with N = 7,845

Periods	Assets (Mean)	Liabilities (Mean)	Owners' Equity (Mean)	Net Income (Mean)	Convertible Debt (Mean)	CTE (Mean)	CTE/NI
1998-2017	7,358	4,885	2,473	308	297	31	10%
1998-2007	7,317	4,952	2,365	311	292	31	10%
2008-2017	7,417	4,787	2,629	302	303	32	11%
1998	4,442	3,156	1,286	160	148	14	9%
1999	5,618	3,815	1,803	181	188	16	9%
2000	6,321	4,186	2,135	268	234	24	9%
2001	6,305	4,257	2,048	226	298	26	11%
2002	7,199	5,052	2,147	246	307	29	12%
2003	8,267	5,602	2,665	298	365	33	11%
2004	8,149	5,546	2,603	319	307	29	9%
2005	9,098	6,266	2,833	422	365	44	10%
2006	8,897	5,888	3,009	508	337	51	10%
2007	8,078	5,250	2,828	410	364	42	10%
2008	6,707	4,311	2,397	317	364	39	12%
2009	6,951	4,328	2,623	294	344	31	11%
2010	7,464	4,579	2,885	341	321	37	11%
2011	7,970	5,313	2,657	349	281	36	10%
2012	7,684	5,081	2,603	275	255	27	10%
2013	8,043	5,357	2,686	292	262	26	9%
2014	7,210	4,609	2,602	299	283	32	11%
2015	6,779	4,371	2,407	294	277	27	10%
2016	7,417	4,966	2,450	200	293	24	12%
2017	8,089	5,117	2,972	316	335	35	11%

*This table reports the mean values of Assets, Liabilities, Owners' Equity, Net Income, Convertible Debt, CTE (claim to earnings), and CTE/NI (the ratio of CTE to net income) over the time period studied. Where CTE is computed as follows: net income * [total convertible bonds / (total convertible bonds + total stockholders' equity)]. Results show that CTE as a percentage of net income appears to be economically significant throughout the sample period and consistently between 9%-12%, with an average of 10%. It is interesting to note that stock returns over the same time-period averaged 8% which closely follows the economic sacrifice indicated by the proposal.*

While the accounting procedures proposed in this study do not separate the debt and equity components of the CB at issuance, this proposal does account for additional expense and liability (economic sacrifice as a claim on earnings) over the life of the CB similar to the accounting treatment prescribed by the IFRS. Implementation of this proposal in the U.S. would require a shift toward harmonization with IFRS which, in large part, has not yet occurred. If the accounting proposed in this study were accepted by both the FASB and the IASB as a middle-of-the-road compromise, obvious cost saving advantages with the global convergence and harmonization would occur.

Table 3: Statistical Test of Differences of CTE/NI Ratios

		T-Value	P-Value	Significance
<i>Pre-Period vs. Post-Period</i>	1998-2007 (n=4,624) vs. 2008-2017 (n=3,221)	3.19	0.0014	***
<i>Pre-Period vs. All Years</i>	1998-2007 (n=4,624) vs. 1998-2017 (n=7,845)	1.57	0.1160	n/a
<i>Post-Period vs. All Years</i>	2008-2017 (n=3,221) vs. 1998-2017 (n=7,845)	2.10	0.0362	**

*This table reports the t-test analysis of statistically significant differences in the behavior of the ratio of claims to earnings to net income (CTE/NI) over the time period studied. *** and ** - Statistical significance at the 0.01 and 0.05 levels, respectively.*

CONCLUDING COMMENTS

The study aims to show why recognizing both the liability and equity characteristics of CBs is a more faithful representation of the true economics of CBs. The proposed accounting procedures give the users of financial statements a more complete insight into the financial condition of the entity. First, the interest and financing expenses reported under the proposal reflect the true periodic economic sacrifice sustained by the entity. Next, the amount of liabilities and equities reported are more representationally faithful. Finally, the liabilities and expenses reported under the proposal, over time, approximate the true cost of issuing CBs. After researching and evaluating the relevant literature, it is clear that recognizing the conversion value embedded in a CB would be beneficial. However, measuring this value to bifurcate the CB and revaluing both components at each financial statement date is both costly and unreliable, especially for small and medium size companies that issue more than half the CBs. Thus, this study proposes a simplified accounting method for CBs that improves comparability and reliability, and lowers implementation cost. In addition, the accounting method outlined in this proposal takes advantage of the theoretical precedents established by both the FASB and IASB in IAS 32 and 39, and IFRS 9 in a move towards convergence of accounting standards, while providing the added benefit of simplifying the measurements needed for implementation.

The Compustat Annual data base was used to gather information on the claims to earnings for companies that had CBs outstanding during the 1998-2017 period as a measure of the expense associated with CBs under the proposal. In order to normalize the data, the claim to earnings of each company was computed as a ratio to net income, before using t-tests to determine whether the ratios behaved differently before and after the financial crisis, 1998-2007 and 2008-2017, respectively. In addition, each period results were compared to the entire period of the study (1998-2017).

Using the proposed method of CB expense recognition, the results indicate that CBs cost companies between 9% to 12 % of their profits— representing a sizable portion of profits worthy of disclosure and full accounting recognition. T-tests reported statistically significant differences in the claim to earnings of CBs as a ratio to net income, both pre- and post- financial crisis, and when comparing the cost of CBs in the post-financial crisis time period to the entire time period. As previously discussed in Results section, lower net income and higher convertible bond amounts appear to drive these results. The corporate world is no longer isolated by nation or geographical location. It is difficult to find a corporation that is listed on a major stock exchange that does not have either a subsidiary in a nation different from its geographical headquarters or investors who are based in a location outside the corporate home location. Thus, an accounting process is needed which is standardized globally and accurately reflects the economic realities of CBs so that investors can truly have comparability. The accounting process proposed in this study where the CB holders’ claim to issuers’ income is expensed along with ordinary interest accomplishes this objective.

The main limitation of this study is that the proposed accounting procedures for CBs are controversial. The proposal allocates a portion of earnings to financing expense and records a conversion liability until the CB is exercised or matures. Further research is needed to fully measure the financial impact of this proposal on the financial ratios of companies over broad time periods. In addition, further study is needed to determine whether the claim to earnings as measured in this study is a good proxy for the intrinsic value of the conversion option (the difference between call value of the CB and the underlying stock value using market prices). Finally, standard setters, practitioners and academics should be surveyed to determine whether sufficient support exists for the compromise position outlined in this proposal. While the proposed accounting is easy to implement by all firms, in order for the proposal to work, all parties need to agree that the claim to earnings is a good proxy for the equity component of the CB and the economic sacrifice the issuer has when the CBs underlying stock value exceeds the call value.

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