

Should Financial Derivatives Courses Be Included in Accounting Program Curricula?

Dr. Patrick R. Murphy

Saint Leo University
United States

Dr. Passard C. Dean

Saint Leo University
33701 State Road 52
Saint Leo, FL 33574
United States

Mr. Sean Gibbons

Aero Simulation, Inc.
United States

Ms. Tayhana Taylor

Saint Leo University
United States

Abstract

Financial derivatives continue to grow as a tool by corporations to generate profits and manage risk. This paper outlines the most popular instruments used by these companies and notes the complexity that has been found in researching them. It is evident that financial derivatives come with a great amount of risk and reward and need accountants educated in the accounting for them. The paper sought to determine whether colleges and universities are preparing accounting graduates to account for financial derivatives. Academic institutions unfortunately appear to be lacking in their coverage of this relevant topic in their accounting program curricula. An analysis of the top 100 schools revealed that only a small percent of these schools includes financial derivatives in their required accounting program course work. On the contrary the results reveal that a significant percentage of these same schools include the coverage of financial derivatives in their finance course work.

Keywords: Accounting, Financial Derivatives, Forwards, Futures, Options, Swaps

INTRODUCTION

Each year colleges and universities graduate numerous accounting majors. The AICPA reported that there were fifty-four thousand undergraduate and twenty-three thousand graduate degrees awarded during the 2015-16 academic year. Many of these graduates go on to work for CPA firms. However, most take employment opportunities with corporations, many of which are publicly traded. A significant number of these corporations use financial derivatives and need accountants trained to account for these derivative transactions. While accounting programs do a good job preparing students for careers in CPA firms, this is not always the case for the students who will work in corporations and may be required to account for derivative transactions. This is an important issue because as stated by Campbell et al. (2019), "Over the last few decades, the use of financial derivatives has increased exponentially, and consequently the accounting for these derivative instruments has evolved greatly." As a result of this growth, much attention has been focused on the use of financial derivatives by various groups including researchers, financial statement users, and regulators (Campbell et al., 2019). Unfortunately, those in academe, more specifically, those responsible for updating accounting programs have not paid much or any attention to this growth. Dean et al. (2009) reported that of the top 100 business schools at the time, only one school taught an accounting course in financial derivatives and only twenty-five schools mentioned derivatives in a course.

What are financial derivatives?

So, what is a financial derivative? A financial derivative contract is one that involves the buying and selling between two or more parties. The value of a derivative is based on the fluctuations in the price of the underlying asset or assets. The underlying asset or assets can be bonds, commodities, currencies, indexes, interest rates, and stocks, or other derivatives. "Consequently, derivatives provide a way for firms to hedge their exposures to undesirable risks as they allow firms to enter into contracts whose value moves in the opposite direction of firms' existing financial risks" (Campbell et al., 2019). There are various types of derivative instruments. The most

common ones that many know of are forwards, futures, options, and swaps. These along with other type derivative instruments are primarily used for hedging and speculative purposes.

Common derivatives and uses

The most known derivative contracts are forwards, futures, options, and swaps. These financial derivative contracts are used to achieve various objectives. Many companies use derivatives to hedge their exposure to fluctuations in foreign currency exchange rates.

Other companies use derivative contracts to hedge their exposure to interest rate fluctuations. To hedge these exposures companies may use cross currency swaps, foreign currency forward and option contracts, and interest rate swaps. Companies also use derivatives to manage commodity risk, equity risk, credit risk, enhance investment returns, and facilitate portfolio diversification.

A *forward contract* is a customized contract between two parties to buy and sell a particular asset at a future date and at a predetermined price. The buyer and seller are known to each other. While forward contracts can be used for both hedging or speculation, the nature of such contracts lends themselves to hedging transactions. A forward contract is a type of derivatives. A forward contract obligates both the buyer to buy and the seller to sell the underlying asset in the contract. Unlike futures contracts, forward contracts are not regulated, though in certain respects, they are similar.

A *futures contract*, commonly referred to as *futures*, is a standardized legal agreement to buy or sell something at a specified time in the future and for a predetermined price. The asset transacted for is generally a commodity or a financial instrument. The parties to the futures contract are unknown to each other. The specified time in the future is known as the *delivery date*. The predetermined price is known as the *forward price*. Futures contracts are regulated by the *Commodity Futures Trading Commission*. For example, a producer of gas plans to sell gas in 90 days. The company can choose to sell the gas using futures contracts. This way the company can lock in the price at which it will sell the gas and then deliver the gas when the futures contract expires.

An *option contract* is a financial derivative that gives the buyer of the contract the right, but not the obligation, to buy or sell the underlying asset at an agreed upon date and price. The two common types of options are *call* and *put* options. Call options give the buyer the right to buy the underlying asset at the specified date and agreed upon price. While the put option gives the buyer to the option the right to sell the underlying asset at a specified date and agreed upon price.

A *swap* is an exchange of one financial instrument for another between parties. The exchange is executed at a predetermined time. This time is specified in the contract. Swaps are generally used to limit the exposure to interest rate fluctuations. In addition to interest rate swaps, there are return swaps, credit default swaps, commodity swaps, currency swaps, and zero-coupon swaps. A typical interest rate swap involves one party exchanging a fixed interest rate for a variable interest rate.

In addition to the commonly used financial derivatives contracts mentioned, there are other derivative instruments such as replicated synthetic asset transactions (RSATs), straddles, strangles, and other less known instruments.

LITERATURE REVIEW

Accounting for derivatives is complex. This is so for various reasons including whether hedging or speculation is the primary objective. Campbell et al. (2019) stated “the decision to enter into a derivative to hedge may be driven by an existing or potential risk exposure that may or may not be currently recognized in the firm’s accounting system, and the ability of the derivative to hedge the identified risk exposure may be imperfect or difficult to measure.” Campbell et al. (2019) also stated, “As evidence of the challenge of effectively communicating information about derivatives to users of financial statements, the FASB has issued several standards over the last few decades that have substantially changed the accounting and disclosure requirements for derivatives.” These include FASB 52, 80, 105, 107, 119, 126, 133, 137, 138, 149, and 161. The FASB also issued ASC 815 and ASU 2017-12.

Researchers have shown various ways how corporations have made use of derivatives to improve their value. Bahoo et al. (2018) used *Partial Least Square, Structural Equation Modeling (PLS-SEM)* to confirm statistically and theoretically that hedging through derivatives has positive effects on corporates financial performance and add premium. They stated, “we confirm that overall causal relationship between the derivatives usage and financial performance of American corporates exist during period of 2009 to 2014, specifically.”

Smith and Kohlbeck (2008) used the case study approach to show the differences in the accounting for derivatives and hedging activities for cash flow and fair value hedging.

Gilje & Taillard (2017) stated that the companies in the Global 500 hedge risk through the use of financial derivatives.

It was stated by Bessenbinder (1991) that hedging by corporations is a key component of risk management strategies. This they did with the intention of increasing the firm's value while simultaneously reducing risk.

CPA Practice Advisors (2019) highlights the concerns CPAs have about the usage of derivatives. As the use of financial instruments grows, so does their complexity. According to a survey conducted by the American Institute of Public Accountants (AICPA), "Financial instruments are a growing presence on company balance sheets, and business executives say more market awareness is needed to prevent another financial crisis." However, it has always been challenging for these complex financial instruments to be valued.

That difficulty is said to be one of the main causes of the financial crisis that led to the 2008 recession. Ash Noah, CPA, CGMA, and managing director of CGMA learning, education, and development for the Association of International Certified Professional Accountants mentioned that "With financial instruments growing in complexity and taking up an increasing share of balance sheets, it is imperative that executives and finance teams understand these potentially risky investments." The AICPA found a solution to this by creating a Financial Instruments Performance Framework to enhance the consistency and transparency of fair value measurements for these intricate instruments. The framework sets out documentation requirements and offers guidance on the scope of work supporting an auditable fair value estimate for financial instruments. It is expected that this standard framework would help in alleviating the difficulties faced when handling convoluted financial instruments like derivatives.

Schaefer (2011) reported that at this time equity markets took a backseat trading in the listed and over-the-counter (OTC) derivatives markets. It is important to note that although using OTC derivatives entail high levels of complexity and can have major consequences if poorly managed, "OTC and listed derivatives have proven to be very profitable and popular among top banks and trading firms." According to the U.S. Office of the Comptroller of the Currency (OCC), during the third quarter of 2010 "banks added \$11.3 trillion in derivatives to their books." To add to this, "The World Federation of Exchanges (WFE) reported that the global listed derivatives market had a 26% growth rate in 2010." The article further emphasized that "trading in derivatives contracts on regulated exchanges worldwide surged to its highest level since 2004 with 22.4 billion derivative contracts traded on exchanges worldwide (11.3 billion futures and 11.1 billion options) compared to 17.8 billion in 2009." Overall, "This enduring and growing demand for derivatives is reverberating among the legacy equity exchanges at a time when consolidation is sweeping the industry and the landscape is marked by derivatives exchanges that have market capitalizations and industry influence that matches or beats the power of the equities markets."

Danning (2013) reminded us that in 2008, Lehman Brothers Holdings Inc collapsed due to an unprecedented loss which led the company to file for bankruptcy. Lehman's bankruptcy filing is said to be the largest in the U.S. economy history thus far. Analysts have asserted that Lehman's bankruptcy played a significant role in the 2008 recession. The root cause was not only a result of reckless lending and excessive risk-taking but due to a lack of transparency throughout the company. "After Lehman's collapse, no one could understand any particular bank's risks from derivative trading and so no bank wanted to lend to or trade with any other bank. Because all the big banks had been involved to an unknown degree in risky derivative trading, no one could tell whether any particular financial institution might suddenly implode." Essentially, as time went by, more efforts have been put into understanding financial instruments to avoid another financial crisis. At the time this article was written, analysts believed that the derivatives market was steadily growing. "The total notional value, or face value, of the global derivatives market when the housing bubble popped in 2007 stood at around \$500 trillion. The Over-The-Counter derivatives market alone had grown to a notional value of at least \$648 trillion as of the end of 2011[...] the market is likely worth closer to \$707 trillion and perhaps more." Derivatives are important because they aid in assessing risk, especially for big banks like Wells Fargo.

Schieffer (2009) essentially highlights the percentage of companies globally that use derivatives and what they use them for. The article reflects the findings from a survey conducted by the International Swaps and Derivatives Association, Inc. (ISDA) in 2009--500 of the world's largest companies were included in the survey. The survey showed that 94 percent of companies use derivative instruments to manage and hedge their business and financial risks. "The survey demonstrates that derivatives continue to be an integral risk management tool among the world's leading companies." It is important to note that prior to the 2009 survey, a similar survey was conducted in 2003. However, the results from the new survey show that the usage of derivatives had increased significantly since then. Aside from using derivatives as a direct risk management tool, in some cases, multi-national corporations began to use derivatives to manage foreign exchange and interest rate risk.

Corporate Finance Institute (CFI) stated that derivatives "are complex financial instruments that are used for various purposes, including hedging and getting access to additional assets or markets." Although the use of derivatives was not always popular, they create a notable impact on modern finance because they offer various advantages to the financial markets. Some of these advantages are the use of derivatives to establish the price of the underlying assets, creating market efficiency because "by using derivative contracts, one can replicate the payoff of the assets." Additionally, using derivatives enables "organizations get access to otherwise unavailable assets or markets. By employing interest rate swaps, a company may obtain a more favorable interest rate relative to interest

rates available from direct borrowing.” It is important to understand that although derivatives may have many benefits, the financial instrument tends to be highly volatile.

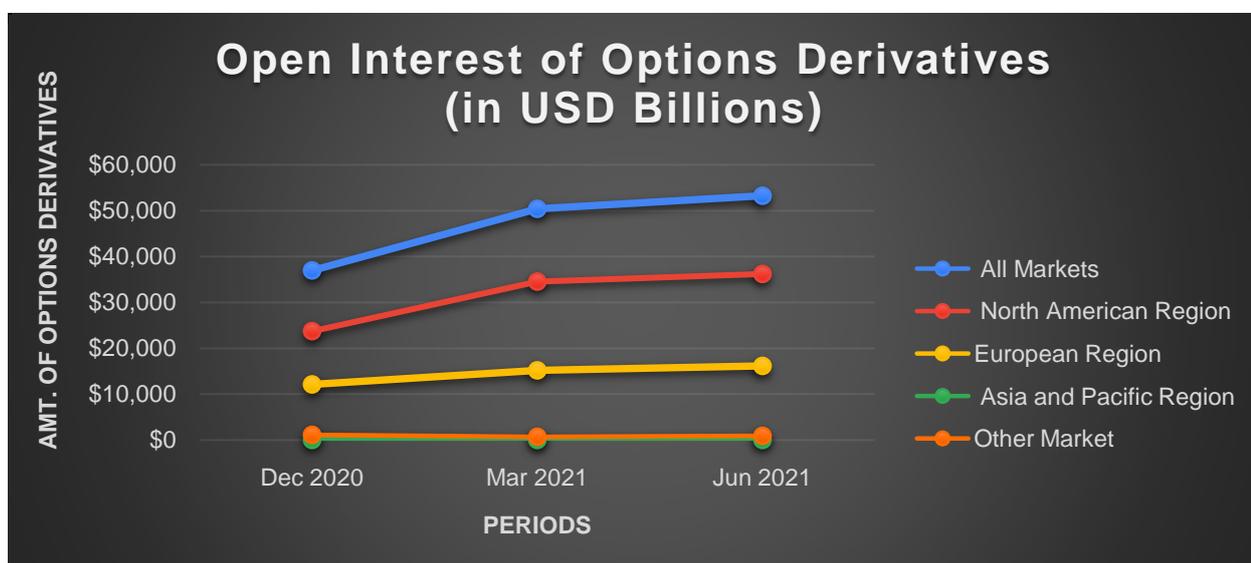
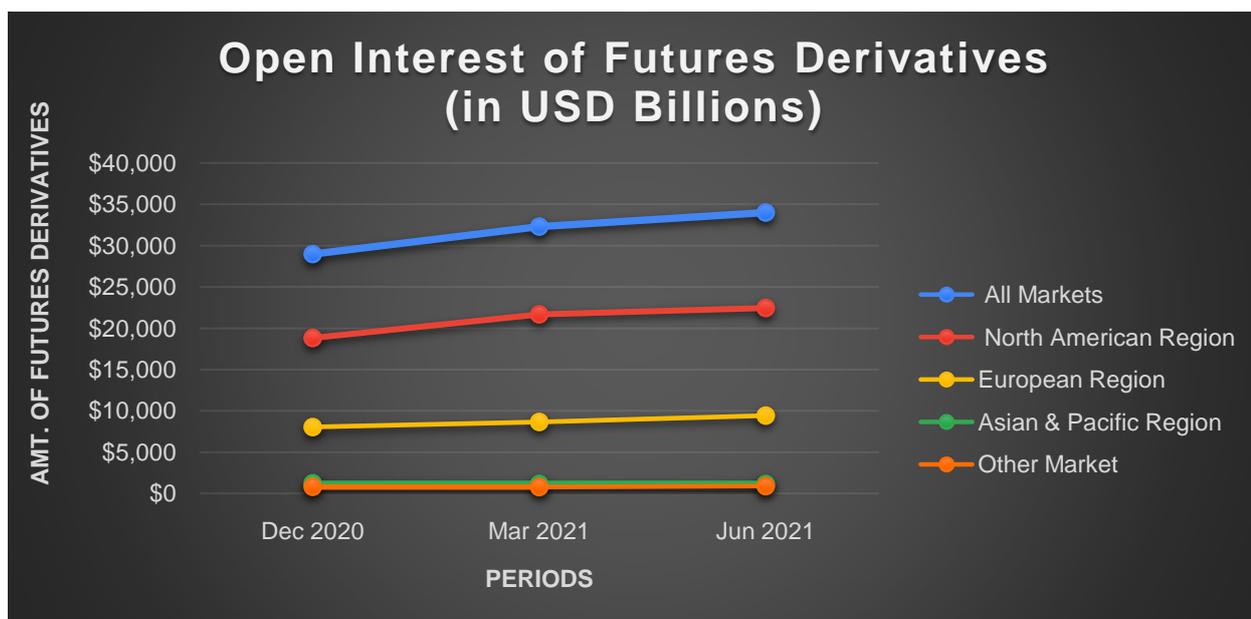
Weinberger et Al. (1995) provides information on the use of derivatives in financial organizations. For this article, a few experts were interviewed about the valuable use of derivatives. Weinberger, who is a managing director of Swiss Bank Corporation, mentioned that “In today’s complex world, financial risk management is not just a theoretical nicety; it is a practical necessity.” He further said, “derivative instruments can help companies manage their risks with maximum efficiency. And used properly, derivative instruments don’t create surprises.

They help minimize them”. Schiff Hardin LLP (2012) stated throughout the past decade, derivatives have been used as a mitigating financial tool. “The efficacy of derivatives as a means of managing economic and other forms of risk remains widely accepted.” Furthermore, “As end-users, public companies often use derivatives to manage various risks associated with running a large enterprise, including interest rate, foreign currency, and commodity risk.” Additionally, public companies usually utilize derivatives to “manage interest rate risk and foreign currency risk and to minimize accounting earnings volatility and the present value of their tax liabilities.”

Balls (2005) discussed the economics of derivatives, but he also tuned in on the importance of understanding derivatives and the benefits derived from using them as financial instruments. Derivatives are not new to the world of business--they have been traded for centuries, with early examples including tulip bulb options in Holland and rice futures in Japan during the 17th century. However, futures markets were typically small until the 1970s when developments in pricing methodology created spectacular growth. “According to NBER Research Associate Rene Stulz, we should not be afraid of derivatives, but rather should have a healthy respect for the benefits that they bring - at the same time being vigilant to the risk of large losses at the company level that may, in some instances, lead to systemic risks. Derivatives enable individuals and companies to hedge risks. “This means that they make it more likely that risks are borne by those best able to bear them.” Additionally, it also creates the possibility for individuals and companies to engage or approach more high-risk projects--with higher promised returns - and hence create more wealth by hedging those risks that can be hedged. In the United States, 64 percent of companies utilize derivatives. “Non-financial firms are most likely to do so to hedge interest rate and currency risks. This leads to a more productive economy - and to greater economic welfare.” On the downside, derivatives may make accounting statements less transparent and reliable. For example, “Freddie Mac, the government-sponsored housing finance company, got into trouble in 2003 because it used derivatives to hide billions of dollars of profits to achieve a smoother earnings path.” Essentially, working with derivatives can be complicated, but once understood, the benefits outweigh the cons.

The following graphs created from amounts retrieved from <https://www.bis.org/>. These graphs reveal that from December 2020 to June 2021 exchange-traded open interest futures in all markets increased from \$28,996 billion to \$34,003 billion. This represents a 17.3% increase in six months. More significantly, during the same period, exchange-traded open interest options in all markets increased from \$36,955 billion to \$53,266 billion. This represents a huge increase of 44.1%.

Additionally, the graphs reveal that from December 2020 to June 2021 exchange-traded open interest futures in North America increased from \$18,839 billion to \$22,470 billion. This represents a significant increase of 19.3% in six months. More significantly, during the same period, exchange-traded open interest options in North America increased from \$23,955 billion to \$36,202 billion. This represents a whopping increase of 52.7%. Of special significance is that 66% of the exchange-traded open interest futures in June 2021 and 68% of exchange-traded open interest options in June 2021 are in North America.



The previous graphs also revealed that exchanged-traded open interest futures in the European market also experienced an increase of 17.1% and exchanged-traded open interest options saw a significant increase of 33.2%. The Asian and Pacific market experienced a 6.4% decrease in futures and significant decrease of 40% in options. The other markets saw an 8.9% increase in in futures and a 17.8% decrease in options. Take note that futures and options are only two of the four major derivatives that are in use throughout the world. As such, there are significantly more derivatives being traded than has been presented in the previous statements.

Dean et. Al (2009) sought to determine whether higher education institutions taught derivatives classes in Accounting and Finance programs across the Top 100 business schools in the United States. They found that only 25% of the top 100 schools covered derivatives in accounting courses, while 87% of the schools covered derivatives in finance courses. While it was expected of finance schools to cover derivatives, the increased use of derivatives by businesses does not align with the findings of this paper revealing the lack of derivatives education in accounting courses in colleges.

METHODOLOGY

To determine if colleges and universities should include financial derivatives in their accounting program curricula, the researchers analyzed a list of top 100 business schools. There are several different ranking companies that position schools using their own criteria. Of the various ranking institutions three were chosen to assist the researchers to compile a list of the top 100 colleges and universities for this study: Niche, big4accountingfirms, and College Factual. To determine whether or not these schools were preparing accounting students to account for derivative transactions, the researchers performed a detailed analysis of the accounting program curricula of each college or university. Additionally, the finance program curricula of each college or university were also analyzed.

The reason for surveying the finance programs is because finance professionals are generally responsible for transacting in financial derivatives while accounting professionals are responsible for the recording of these transactions. When analyzing both programs, each accounting and finance course was reviewed to determine two things. Firstly, was the primary objective of the course to teach financial derivative? Secondly, would students be exposed to financial derivatives in the course though it may not be the primary area of concentration? If either of these two questions were answered in the positive, the course was counted as exposing students to financial derivatives. Additionally, the researchers performed a survey of the literature to survey what others said about this relevant topic.

FINDINGS

The findings of the study of the top 100 business colleges and universities as determined by the researchers are extremely concerning. These findings revealed that while most finance programs in the selected colleges and universities are educating students in the area of derivatives, accounting programs are doing a poor job educating their majors in this important area. The results showed that 81% of the finance programs had at least one course on financial derivatives. Disappointingly, for accounting programs only 10% of the colleges and universities had a course that exposed students to financial derivatives. Four of the 10% had a major focus on derivatives while the other six percent had at least one topic dealing with financial derivatives. This is not a good sign as it appears that as the usage of financial derivatives are expanding, colleges and universities continue to miss the mark in preparing accounting majors to account for these type transactions.

CONCLUSION

This study was performed to answer two questions. Firstly, is there a need for accountants trained to account for derivative transactions? Secondly, are business schools preparing accounting majors to account for financial derivative transactions. Given that financial derivatives usage continues to be an important tool that is used by organizations for profit or risk management, it stands to reason that both accounting and finance programs would include courses in this area to prepare students. This study reveals that many finance programs have stepped up to the plate to do so. Unfortunately, accounting programs have not kept pace with the demands of organizations as the majority of accounting curricula does not expose students to this important topic. As such many accounting graduates have never been exposed to financial derivatives much more taken a course dedicated to the accounting for derivatives. The researchers recommend that colleges and universities update their accounting program curricula to include courses addressing the area of financial derivatives.

REFERENCES

- Balls, A. (2005). The Economics of Derivatives. Retrieved December 19, 2021, from <https://www.nber.org/digest/jan05/economics-derivatives>
- Bessembinder, H. (1991). Forward Contracts and Firm Value: Investment Incentive and Contracting Effects. *Journal of Financial and Quantitative Analysis*, 26(4), 446-467.
- Bahoo, S., Khan, S., and Kanju, M.A. (2018). Do Derivatives Increase American Corporate's Financial Performance? *City University Research Journal*, 49(2), 219-235.
- Big4accountingfirms. (2018, July 31). The 50 Best Accounting Schools in the USA - [NEW Updated Edition]. Retrieved April 3, 2019, from <http://big4accountingfirms.org/best-accounting-schools/>
- Bank for International Settlements (BIS). Exchange-traded derivatives statistics. Retrieved September 21, 2021, from <https://stats.bis.org/statx/srs/table/d2?f=pdf>
- Campbell, J.L., Mauler, L.M., and Pierce, S.R. (2019). A review of derivatives research in accounting and suggestions for future work. *Journal of Accounting Literature*, 42, 44-60.
- Corporate Finance Institute (CFI). Derivatives. Retrieved December 19, 2021, from <https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/derivatives/>
- College Factual. (2019, January 2). The Best Finance & Financial Management Schools. Retrieved April 3, 2019, from <https://www.collegefactual.com/majors/business-management-marketing-sales/finance-financial-management/rankings/top-ranked/>
- CPA Practice Advisors. (2019, July 2). Corporate CPAs Concerned About Derivatives. Retrieved December 19, 2021, from <https://www.cpapracticeadvisor.com/accounting-audit/news/21087020/corporate-cpas-concerned-about-derivatives>
- Danning, S. (2013). Big Banks and Derivatives: Why Another Financial Crisis is Inevitable. Retrieved December 19, 2021, from <https://www.forbes.com/sites/stevedenning/2013/01/08/five-years-after-the-financial-meltdown-the-water-is-still-full-of-big-sharks/?sh=60c89ae63a41>

- Dean, P., Braswell, D. and Cope, S. (2009). "Are Academic Institutions Meeting the Needs for Derivative Accountants?" – *International Journal of Accounting Information Science and Leadership*, 4, 59-62
- Gilje, E. P., & Taillard, J. P. (2017). Does Hedging Affect Firm Value? Evidence from a Natural Experiment. *The Review of Financial Studies*, 30(12), 4083-4132.
- Niche. (2018, July 19). Methodology - Best College for Accounting. Retrieved April 3, 2019, from <https://about.niche.com/methodology/best-colleges-for-accounting/>
- Schaefer, S. (2011). The Reign of Derivatives is at Hand. Retrieved December 19, 2021, from <https://www.forbes.com/sites/steveschaefer/2011/06/27/the-reign-of-derivatives-is-at-hand/?sh=7379f8c48af1>
- Schieffer, J. (2009). Over 94% of the World's Largest Companies Use Derivatives to Help Manage Their Risks, According to ISDA Survey. Retrieved December 19, 2021 from <https://derivsource.com/2009/04/23/over-94-of-the-worlds-largest-companies-use-derivatives-to-help-manage-their-risks-according-to-isdas-survey/>
- Schiff Hardin LLP (2012). Derivatives Use by Public Companies – A Primer and Review of Key Issues. Retrieved December 19, 2021, from <https://www.natlawreview.com/article/derivatives-use-public-companies-primer-and-review-key-issues>
- Smith, P.A., and Kohlbeck, M.J. (2008). Accounting for Derivatives and Hedging Activities: Comparison of Cash Flow versus Fair Value Hedge Accounting. *Issues in Accounting Education*. February 2008, 23(1), 103-117.
- Weinberger, D., Tufano, P., Francis, C., Sodhani, A., Yeres, D., Smith, J.T., Isaac, P.J., and Becker, B. (1995). Using Derivatives: What Senior Managers Must Know. Retrieved December 19, 2021, from <https://hbr.org/1995/01/using-derivatives-what-senior-managers-must-know>