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Hedging Recognized Foreign Currency Denominated Receivables or Payables

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Abstract

Foreign currency forward and option contracts mitigate the exposure of recognized foreign currency-denominated receivables and payables. *FASB Accounting Standards Codification 815* supports four designations for such contracts: 1) no hedge; 2) fair value hedge; 3) cash flow hedge with hedge effectiveness based on changes in spot rates; and, 4) cash flow hedge with hedge effectiveness based on changes in the contracts' total values. Accounting Standards Update No. 2017-12: *Targeted Improvements to Accounting for Hedging Activities* (FASB 2017) modified the reporting for the gains and losses on foreign currency forward and option contracts designated as hedges. Over 66 percent of firms disclosing foreign currency hedges designated foreign currency forward and option contracts as cash flow hedges. This contrasts with the 14 percent coverage of cash flow hedges in advanced accounting textbooks. We provide three examples to supplement current textbook coverage illustrating the accounting for recognized foreign currency receivables and payables and corresponding foreign currency forward and option contracts. We demonstrate the similarities and differences between the four allowable designations and highlight the changes in the reporting of gains and losses in Accounting Standards Update No. 2017-12.

1. Introduction

In order to mitigate foreign exchange rate risk exposure, entities engaging in exchange transactions generating receivables or payables not denominated in their functional currency frequently enter into foreign currency forward or option contracts. In April of 2017, the Foreign Exchange Committee reported an average *daily* notional amount of foreign currency forward and option contracts exchange volume for North American currency markets of $226.8 billion (New York Federal Reserve Bank 2017). Table 1 reports a summary of the Foreign Exchange Committee survey.

Utilizing foreign currency forward contracts with settlement dates and notional amounts matching those of foreign currency-denominated receivables or payables effectively converts unknown future exchange rate risks into known gains or losses equal to the discounts or premiums on the forward contracts at the dates of inception of the contracts. Similarly, utilizing foreign currency option contracts with strike prices equal to contract date spot rates, and settlement dates and notional amounts matching those of the foreign currency-denominated receivables or payables effectively limits exposures to future exchange rate risk losses to the initial costs of the options at the inception dates of the contracts.

FASB Accounting Standards Codification (ASC) 815 supports four alternative designations for foreign currency forward or option contracts with respect to corresponding foreign currency-denominated receivables or payables. The first is to not designate foreign currency forward or option contracts as hedges. The second is to designate contracts as fair value hedges. The third is to designate contracts as cash flow hedges and assessing hedge effectiveness based on changes in contract values arising from changes in spot rates. The fourth is to designate contracts as cash flow hedges and assessing hedge effectiveness based on changes in contract total fair values.

The overall gain or loss from inception date to maturity date of a foreign currency forward contract with matching notional amount and maturity date to its underlying foreign currency receivable or payable is the initial discount or premium on the forward contract. The net effect on each period's earnings over the contract term depends on the designation of the contract with respect to the underlying receivable or payable.

The net effect on each period's earnings for a forward contract not designated as a hedge, designated as a fair value hedge, or designated as a cash flow hedge using changes in spot rates to assess hedge effectiveness is the difference between the change in the receivable or payable based on spot rates and the change in the value of the forward contract during the period. Under Accounting Standards Update (ASU) No. 2017-12: *Targeted Improvements to Accounting for Hedging Activities* (FASB 2017), effective for fiscal years beginning after December 15, 2018, the reporting of the effects in earnings would be on the same line item of the income statement for the two hedge designations, and in separate line items for the no hedge designation.

The net effect on each period's earnings for a forward contract designated as a cash flow hedge using changes in the forward rate to assess hedge effectiveness is each period's amortization of the initial discount or premium on the forward contract. This designation is consistent with the principal purpose of hedge accounting: to mitigate the effects on earnings of different measurement criteria for the forward contract and the underlying foreign currency receivable or payable.

Similarly, the overall exposure to future exchange rate risk loss from an underlying foreign currency receivable or payable and a corresponding foreign currency option contract with matching notional amount, maturity date, and strike price equal to the spot rate, is limited to the initial cost of the option contract. The net effect on each period's earnings over the contract term depends on the designation of the contract with respect to the underlying receivable or payable.

The net effect on each period's earnings for option contracts not designated as hedges, designated as fair value hedges, or designated as cash flow hedges using changes in spot rates (intrinsic values) to assess hedge effectiveness is the difference between the change in the values of the receivable or payable based on spot rates and the change in the total values of the option contract during the period. Under ASU 2017-12, the reporting of the effect in earnings would be on the same line of the income statement for the two hedge designations, and in separate line items for the no hedge designation.

The net effect on each period's earnings from an option contract designated as a cash flow hedge using changes in the contract's total value to assess hedge effectiveness is the amortization of the cost of the option contract. This designation is consistent with the principal purpose of hedge accounting: to mitigate the effects on earnings of different measurement criteria.

For hedges of foreign currency-denominated receivables and payables, ASC 815 effectively provides the means to more closely align reporting risk and financial risk. Hwang et al. (2001) argued that the FASB's intent for derivative accounting is to allow for a more effective means of risk management since financial reporting reflects the underlying financial risk.

To signal to the market their intention of reducing risk, we would expect to find more firms designating foreign currency forward and option contracts of underlying foreign currency receivables and payables as cash flow hedges with effectiveness based on changes in total fair values than on any other hedge designation. Consistent with our expectations, a review of Securities and Exchange Commission (SEC) 10-K filings for firms disclosing foreign currency hedges found that 66% designated foreign currency forward and option contracts as cash flow hedges, 19% designated the contracts as fair value hedges, and 15% noted the use of both designations.
Coverage of hedges of recognized foreign currency receivables or payables in a sample of seven current advanced accounting textbooks contrasts with our findings. Four of the textbooks do not have examples of hedging with forward or option contracts. Only two textbooks have examples of fair value hedges and cash flow hedges with hedge effectiveness based on changes in forward rates, and only one textbook has an example of a cash flow hedge with hedge effectiveness based on changes in the option value.

We provide examples of the accounting for foreign currency-denominated receivables and payables and the related foreign currency forward or option contracts. These multi-period examples include all hedge designations allowable under ASC 815, and provide instructors a supplement to the current textbook coverage of hedges. The changes to the reporting in earnings of gains and losses of foreign currency forward or option contracts designated as hedges in ASU 2017-12 are highlighted by brackets [ ].

Accounting for foreign currency-denominated receivables and payables and the related foreign currency forward or option contracts

Foreign currency-denominated receivables and payables are initially recognized at the prevailing spot rates, and are subsequently adjusted to fair value using current spot rates, with any ensuing gains or losses reported in earnings. Foreign currency forward or option contracts are initially measured at fair value (ASC 815-10-30-1) and are subsequently adjusted to fair value (ASC 815-10-35-1). The fair value of a foreign currency forward contract is normally zero at the inception date of the contract. Subsequent fair values are derived by discounting to the settlement date the difference between the contract rate at inception and the current forward rate (ASC 820-10-35-52 through ASC 820-10-35-54A). The fair value of a foreign currency option contract is the market price for an exchange-traded option, and an estimate using option pricing models, such as Garman and Kohlhagen (1983), for a non-exchange traded option. The accounting for the changes in the fair value of a foreign currency forward or option contract is dependent on the designation of the hedging contract with respect to the underlying receivable or payable. Entities may elect to designate a foreign currency forward or option contract as a fair value or cash flow hedge of a foreign currency-denominated receivable or payable (ASC 815-20-25-28 through ASC815-20-25-29 and ASC 815-20-25-37), or elect not to designate the contract as a hedge.

Changes in the fair value of a foreign currency forward or option contract not designated as a hedge are recognized currently in earnings (ASC 815-10-35-2). Changes in the fair value of a foreign currency forward or option contract designated as a fair value hedge of a foreign currency-denominated receivable or payable are recognized currently in earnings [in the same line of the income statement as the gains or losses on the underlying foreign currency-denominated receivable or payable] (ASC 815-20-45-1A and ASC 815-25-35-1). Under ASU 2017-12, the financial statement reporting difference between a foreign currency forward or option contract not designated as a hedge, and the same foreign currency forward or option contract designated as a fair value hedge, is the line of the income statement where the changes in the contract’s fair value are recognized.

For a foreign currency forward or option contract designated as a cash flow hedge of a foreign currency-denominated receivable or payable, reporting the changes in the contract’s fair value depends on the change in the fair value of the contract the entity includes in the assessment of the contract’s hedge effectiveness (ASC 815-20-25-82). The entire change in the fair value of the contract included in the assessment of hedge effectiveness is reported in other comprehensive income (ASC 815-20-45-1B and ASC 815-30-35-3). The component of the change in the fair value of the contract excluded from the assessment of hedge effectiveness is recognized in earnings [and reported in the same line of the income statement as the gain or loss on the hedged foreign currency denominated receivable or payable] (ASC 815-20-25-83, ASC 815-20-45-1C and ASC 815-30-35-3a).

If hedge effectiveness of a foreign currency forward contract is assessed based on changes in the contract's fair value attributable to changes in spot rates, changes in the contract's fair value related to changes in spot rates is reported in other comprehensive income. Changes in the contract's fair value related to changes in the difference between forward and spot rates is excluded from the assessment of hedge effectiveness and recognized in earnings [in the same line of the income statement as the gain or loss on the hedged foreign currency-denominated receivable or payable] (ASC 815-20-25-82d and ASC 815-20-45-1C). An amount that will offset the related gain or loss recognized on the hedged receivable or payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the gain or loss on the hedged foreign currency-denominated receivable or payable].

If hedge effectiveness of a foreign currency option is assessed based on changes in the option's intrinsic values, the change in the intrinsic values is initially recognized in other comprehensive income (ASC 815-30-35-3). The change in the time value of the option is excluded from the assessment of hedge effectiveness (ASC 815-20-25-82a) and is recognized in earnings [in the same line of the income statement as the gain or loss recognized on the foreign currency receivable or payable] (ASC 815-30-35-3a). An amount that will offset the related gain or loss recognized on the hedged receivable or payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the gain or loss on the hedged foreign currency-denominated receivable or payable] (ASC 815-30-35-3e).

If hedge effectiveness of a foreign currency forward or option contract is assessed based on the entire change in the contract's total fair value, the entire change is reported in other comprehensive income (ASC 815-30-35-3). An amount that will offset the related gain or loss recognized on the hedged receivable or payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the gain or loss on the hedged foreign currency-denominated receivable or payable]. In addition, the forward contract's initial discount or premium, or the option contract's cost, is amortized on a rational basis over the life of the contract and reclassified each period from other comprehensive income to earnings [and reported in the same line of the income statement as the gain or loss on the hedged foreign currency-denominated receivable or payable] (ASC 815-20-45-1B and ASC 815-30-35-3d).

If a fair value or cash flow hedge is determined not to be effective in subsequent periods, hedge accounting is terminated and gains and losses on the derivative instrument is recognized in earnings. If hedge effectiveness in prior periods was assessed based on the change in the contract's total fair value, the changes previously reported in other comprehensive income would be reclassified into earnings.

Examples of accounting for foreign currency-denominated receivables and payables and the related foreign currency forward or option contracts

The following examples illustrate the accounting for foreign currency-denominated receivables and payables and the related foreign currency forward and option contracts. The examples demonstrate the accounting similarities and differences for foreign currency forward and option contracts not designated as hedges, designated as fair value hedges, and designated as cash flow hedges. Additionally, the differences in the accounting for cash flow hedges under alternative elections of assessing hedge effectiveness are demonstrated. The examples use a six percent annual discount rate, and amortize forward contract discounts and premiums, and option costs using the straight-line method (ASC 815-30-35-9b).

Accounting for a receivable from the sale of inventory denominated in a foreign currency and a matching foreign currency forward contract

On December 1, 2015, a U.S. company sells inventory to a German company for €1,000,000, with remittance due on June 30, 2016. On the same day, the U.S. company enters into a forward contract to sell €1,000,000 on June 30, 2016. Because the maturities, currencies and monetary amounts match, the company determines that the change in the value of the forward contract will be highly effective in offsetting the related change in the Euro-denominated receivable. The company has the choice of not designating the forward contract as a hedge, designating the forward contract as a fair value hedge, or designating the forward contract a cash flow hedge of the Euro receivable. If the U.S. company elects to designate the forward contract as a cash flow hedge, it must also select between assessing hedge effectiveness based on changes in the fair value of the forward contract attributed to changes in spot rates or forward rates. Table 2 provides a summary of spot rates, forward rates, valuations, gains and losses, and premium amortizations over the contract period. Journal entries for no hedge designation and fair value hedge designation, cash flow hedge designation with effectiveness based on changes in spot rates, and cash flow hedge designation with effectiveness based on changes in forward rates, along with the respective balance sheet, earnings, and other comprehensive income statement presentations are provided in Table 3.

December 1, 2015: The company recognizes the sale and related receivable using the spot rate of 1.063280 on December 1, 2015. No entry is required at this date for the company entering into the Euro forward contract because it is an executory contract.

December 31, 2015: The Euro receivable is adjusted to fair value based on the current spot rate, and the corresponding transaction gain of $20,348 is recognized in earnings. The $20,954 fair value of the Euro forward contract, based on the change in forward rates during the month discounted to June 30, 2016, at six percent, is recorded as a liability, since the amount to be received under the Euro forward contract is less than the amount that would have been received using the current forward rate.

The $20,954 loss on the Euro forward contract is recognized in earnings for a forward contract not designated as a hedge, and also in earnings [in the same line of the income statement as the transaction gain on the receivable] for a forward contract designated as a fair value hedge. The net effect on earnings is a loss of $606, the difference between the $20,348 transaction gain on the receivable and the $20,954 loss on the forward contract.

For a forward contract designated as a cash flow hedge with effectiveness based on changes in spot rates, the $20,348 portion of the loss based on changes in spot rates is reported in other comprehensive income, and the remaining portion of the loss $606 ($20,954 - $20,348) is recognized in earnings [in the same line of the income statement as the transaction gain on the receivable]. An amount offsetting the $20,348 gain on the receivable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the receivable]. The net effect on earnings is a loss of $606, identical to the net effect on earnings of the no hedge and fair value hedge designations.

For a forward contract designated as a cash flow hedge with hedge effectiveness based on changes in forward rates, the entire $20,954 loss is reported in other comprehensive income. An amount offsetting the $20,348 gain on the receivable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the receivable]. In addition, one month's amortization of the initial premium on the forward contract ($1,026) is also reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the receivable]. The net effect on earnings is a $1,026 gain, representing the amortization of the original forward contract premium.

March 31, 2016: The Euro receivable is adjusted to fair value based on the current spot rate, and the corresponding $54,263 transaction gain is recognized in earnings. The forward contract is adjusted to its fair value, and the resulting $48,721 loss is recognized in earnings for a forward contract not designated as a hedge, and also in earnings [in the same line of the income statement as the transaction gain on the receivable] for a forward contract designated as a fair value hedge. The net effect on earnings is a gain of $5,542, the difference between the $54,263 transaction gain on the receivable and the $48,721 loss on the forward contract.

For a forward contract designated as a cash flow hedge with effectiveness based on changes in spot rates, the $54,263 portion of the loss based on changes in the spot rates is reported in other comprehensive income, and a $5,542 gain ($48,721 - $54,263) is recognized in earnings [in the same line of the income statement as the transaction gain on the receivable]. An amount offsetting the $54,263 gain on the receivable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the receivable]. The net effect on earnings is a gain of $5,542, identical to the net effect on earnings of the no hedge and fair value hedge designations.

For a forward contract designated as a cash flow hedge with hedge effectiveness based on changes in forward rates, the entire $48,721 loss is reported in other comprehensive income. An amount offsetting the $54,263 gain on the receivable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the receivable]. In addition, three months' amortization of the initial premium on the forward contract ($3,078) is also reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the receivable]. The net effect on earnings is a $3,078 gain, representing the quarterly amortization of the original forward contract premium.

June 30, 2016: The Euro receivable is adjusted to fair value based on the current spot rate, and the corresponding $27,344 transaction loss is recognized in earnings. The $29,591 gain on the forward contract is recognized in earnings for a forward contract not designated as a hedge, and also in earnings [in the same line of the income statement as the transaction loss on the receivable] for a forward contract designated as a fair value hedge. The net effect on earnings is a gain of $2,247, the difference between the $27,344 transaction loss on the receivable and the $29,591 gain on the forward contract.

For a forward contract designated as a cash flow hedge with effectiveness based on changes in spot rates, the $27,344 portion of the gain based on changes in the spot rates is reported in other comprehensive income, and the remaining gain of $2,247 ($29,951 - $27,344) is recognized in earnings [in the same line of the income statement as the transaction loss on the receivable]. An amount offsetting the $27,344 loss on the receivable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the receivable]. The net effect on earnings is a gain of $2,247, identical to the net effect on earnings of the no hedge and fair value hedge designations.

For a forward contract designated as a cash flow hedge with hedge effectiveness based on changes in forward rates, the entire $29,951 gain is reported in other comprehensive income. An amount offsetting the $27,344 loss on the receivable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the receivable]. In addition, three months' amortization of the initial premium on the forward contract for the quarter ($3,079]) is also reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the receivable]. The net effect on earnings is a $3,079 gain, representing the quarterly amortization of the original forward contract premium.

The Euro receivable and forward contract are settled, resulting in a net cash inflow of $1,070,463. All four methods of accounting for the Euro receivable and the forward contract result in an overall gain of $7,183, equal to the amount of the initial premium on the forward contract.

Accounting for a payable from the purchase of inventory denominated in a foreign currency and a matching foreign currency call option contract that remains in-the-money

On December 1, 2015, a U.S. company purchases inventory from a German company for €1,000,000, with remittance due on June 30, 2016. On the same day, the U.S. company enters into a call option to purchase €1,000,000 on June 30, 2016 at a strike price of 1.063280. Because the maturities and monetary amounts match, the company determines that the change in the value of the call option will be highly effective in offsetting any exchange loss in the Euro-denominated payable. The company has the choice of not designating the call option as a hedge, designating the call option as a fair value hedge, or designating the call option a cash flow hedge of the Euro payable. If the U.S. company elects to designate the call option as a cash flow hedge it must also select between assessing hedge effectiveness based on changes in the fair values of the call option attributed to changes in intrinsic values (spot rates) or total option values. Table 4 provides a summary of spot rates, call option values, valuations, gains and losses, and amortizations of the call option cost over the contract period. Journal entries for no hedge designation and fair value hedge designation, cash flow hedge designation with effectiveness based on changes in intrinsic values, and cash flow hedge designation with effectiveness based on changes in total option values, along with the respective balance sheet, earnings, and other comprehensive income statement presentations are provided in Table 5.

December 1, 2015: The company recognizes the purchase of inventory and the related payable using the spot rate on December 1, 2015, and the Euro call option at its cost.

December 31, 2015: The Euro payable is adjusted to fair value based on the current spot rate, and the corresponding $20,348 transaction loss is recognized in earnings. The call option is adjusted to its fair value, resulting in a $7,819 gain.

The gain on the call option is recognized in earnings for an option not designated as a hedge, and also in earnings [in the same line of the income statement as the transaction loss on the payable] for an option contract designated as a fair value hedge. The net effect on earnings is a loss of $12,529, the difference between the $20,348 transaction loss on the payable and the $7,819 gain on the option contract.

For a call option designated as a cash flow hedge with effectiveness based on changes in intrinsic values, the $20,348 portion of the gain due to changes in intrinsic values is reported in other comprehensive income, and a loss of $12,529 ($7,819 - $20,348]) is recognized in earnings [in the same line of the income statement as the transaction loss on the payable]. An amount offsetting the $20,348 loss on the payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the payable]. The net effect on earnings is a loss of $12,529, identical to the net effect on earnings of the no hedge and fair value hedge designations.

For a call option designated as a cash flow hedge with hedge effectiveness based on changes in total option values, the entire $7,819 gain is reported in other comprehensive income. An amount offsetting the $20,348 loss on the payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the payable]. In addition, the one-month amortization of the cost of the call option ($5,815) is also reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the payable]. The net effect on earnings is a $5,815 loss, representing the one-month amortization of the cost of the call option.

March 31, 2016: The Euro payable is adjusted to fair value based on the current spot rate, and the corresponding $54,263 transaction loss is recognized in earnings. The $33,633 gain on the call option is recognized in earnings for an option contract not designated as a hedge, and also in earnings [in the same line of the income statement as the transaction loss on the payable] for an option contract designated as a fair value hedge. The net effect on earnings is a loss of $20,630, the difference between the $54,263 transaction loss on the payable and the $33,633 gain on the call option.

For a call option designated as a cash flow hedge with effectiveness based on changes in intrinsic values, the $54,263 portion of the gain based on changes in intrinsic values is reported in other comprehensive income, and a loss of $20,630 ($33,633 - $54,263) is recognized in earnings [and reported in the same line of the income statement as the transaction loss on the payable]. An amount offsetting the $54,263 loss on the payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the payable]. The net effect on earnings is a loss of $20,630, identical to the net effect on earnings of the no hedge and fair value hedge designations.

For a call option designated as a cash flow hedge with hedge effectiveness based on changes in total option value, the entire $33,633 gain is reported in other comprehensive income. An amount offsetting the $54,263 loss on the payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the payable]. In addition, three months' amortization of the call option cost

($17,445) is also reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction loss on the payable]. The net effect on earnings is a $17,445 loss, representing the quarterly amortization of the original cost of the call option.

June 30, 2016: The Euro payable is adjusted to fair value based on the current spot rate, and the corresponding transaction $27,344 gain is recognized in earnings. The $34,890 loss on the call option is recognized in earnings for a call option not designated as a hedge, and also in earnings [in the same line of the income statement as the transaction gain on the payable] for an option contract designated as a fair value hedge. The net effect on earnings is a loss of $7,546, the difference between the $27,344 transaction gain on the payable and the $34,890 loss on the call option.

For a call option designated as a cash flow hedge with effectiveness based on changes in intrinsic values, the $27,344 portion of the gain based on changes in the intrinsic values is reported in other comprehensive income, and the remaining loss of $7,546 ($34,890 - $27,344) is recognized in earnings [in the same line of the income statement as the transaction gain on the payable]. An amount offsetting the foreign exchange transaction gain on the payable [$27,344] is reclassified from other comprehensive income to earnings [in the same line of the income statement as the transaction gain on the payable]. The net effect on earnings is a loss of $7,546, identical to the net effect on earnings of the no hedge and fair value hedge designations.

For a call option designated as a cash flow hedge with hedge effectiveness based on changes in total option values, the entire $34,890 loss is reported in other comprehensive income. An amount offsetting the $27,344 gain on the payable is reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the gain on the payable]. In addition, three months' amortization of the call option cost ($17,445) is also reclassified from other comprehensive income to earnings [and reported in the same line of the income statement as the transaction gain on the payable]. The net effect on earnings is a $17,445 loss, representing the quarterly amortization of the original cost of the call option.

The Euro payable and call option are settled, resulting in a net cash outflow of $1,063,280. All four methods of accounting for the Euro payable and the call option result in limiting the overall loss to $40,705, equal to the cost of the Euro call option contract.

Accounting for a receivable from the sale of inventory denominated in a foreign currency and a matching foreign currency call option contract that goes out-of-the money

On December 1, 2015, a U.S. company sells inventory to a German company for €1,000,000, with remittance due on June 30, 2016. On the same day, the U.S. company enters into a put option to sell €1,000,000 on June 30, 2016 at a strike price of 1.063280. Because the maturities and monetary amounts match, the company determines that the change in the value of the put option will be highly effective in offsetting any exchange loss in the Euro-denominated receivable. The company has the choice of not designating the put option as a hedge, designating the put option as a fair value hedge, or designating the put option a cash flow hedge of the Euro receivable. If the U.S. company elects to designate the put option as a cash flow hedge, it must also select between assessing hedge effectiveness based on changes in the fair values of the put option attributed to changes in intrinsic values or total option values. Table 6 provides a summary of spot rates, put option values, gains and losses, and amortizations of the put option cost over the contract period. Journal entries for no hedge designation and fair value hedge designation, cash flow hedge designation with effectiveness based on changes in intrinsic values, and cash flow hedge designation with effectiveness based on changes in total option value, along with the respective balance sheet, earnings, and other comprehensive income statement presentations are provided in Table 7.

December 1, 2015: The company recognizes the sale of inventory and the related receivable using the spot rate on December 1, 2015, and the Euro put option at its cost of $36,889.

December 31, 2015: The Euro receivable is adjusted to fair value based on the current spot rate, and the corresponding $20,348 transaction gain is recognized in earnings. The Euro put option is adjusted to its fair value, resulting in a $6,356 loss.

The out-of-the money put option no longer qualifies for hedge accounting, and the loss is recognized in earnings. The net effect on earnings is a gain of $13,992, the difference between the $20,348 transaction gain on the receivable and the $6,356 loss on the option contract.

March 31, 2016: The Euro receivable is adjusted to fair value based on the current spot rate, and the corresponding $54,263 transaction gain is recognized in earnings. The out-of-the money put option does not qualify for hedge accounting, and the $8,733 loss on the option is recognized in earnings. The net effect on earnings is a gain of $45,530, the difference between the $54,263 transaction gain on the receivable and the $8,733 loss on the put option.

June 30, 2016: The Euro receivable is adjusted to fair value based on the current spot rate, and the corresponding $27,344 transaction loss is recognized in earnings. The $21,800 loss on the out-of-the money put option is recognized in earnings. The net effect on earnings is a loss of $49,144, the sum of the $27,344 transaction loss on the receivable and the $21,800 loss on the put option.

The Euro receivable is settled and the out of the money put option is not exercised, resulting in a cash inflow of $1,110,547. The overall $47,267 gain on the Euro receivable is reduced by the $36,889 cost of the Euro call option contract.

Current reporting of foreign currency forward contract hedges

For hedges of foreign currency-denominated receivables and payables, ASC 815 effectively provides the means to more closely align reporting risk and financial risk. Francis and Schipper (1999) stressed the importance of financial reporting reflecting actual financial standing. Hwang et al. (2001) argued that the FASB's intent was to link the accounting for derivatives with their use as hedging instruments and to allow for more effective means of risk management since financial reporting reflects the underlying financial risk. Ketz (2003) argued that when financial reporting corresponds to the related financial risk, both management and investors benefit.

To underscore to the market their intention of utilizing forwards and options to reduce risk, we would expect to find more firms designating foreign currency forward and option contracts of underlying foreign currency receivables and payables as cash flow hedges with effectiveness based on changes in total fair values than on any other hedge designation. We reviewed Securities and Exchange Commission (SEC) 10-K filings from May 1, 2008 to March 31, 2010, and identified 346 firms disclosing foreign currency hedges. Supporting our expectations, 63.6% (220 firms) designated foreign currency forward and option contracts as cash flow hedges, 20.5% (71 firms) designated the contracts as fair value hedges, and 15.9% (55 firms) noted the use of both designations. From August 1, 2016 to September 30, 2017, we identified 62 firms disclosing foreign currency hedges. In this period, 82.3% (51 firms) designated foreign currency forward and option contracts as cash flow hedges, 9.7% (6 firms) designated the contracts as fair value hedges, and 8.0% (5 firms) noted the use of both designations. In our total sample of 408 firms, 66.4% designated the contracts as cash flow hedges, 18.9% designated the contracts as fair value hedges, and 14.7% noted the use of both designations. The sample includes 165 four-digit primary SIC Code industries. The three largest industries are semi-conductors and related devices (3674) with 22 firms, 72.7% reporting cash flow hedges; pharmaceutical preparations (2834) with 13 firms, 76.9% reporting cash flow hedges; and prepackaged software (7372) with 11 firms, 72.7% reported cash flow hedges.

Coverage of hedges of recognized foreign currency receivables or payables in a sample of seven current advanced accounting textbooks varied widely. Four textbooks have no examples of hedging recognized foreign currency receivables or payables with foreign currency forward contracts. Three textbooks have examples of fair value hedges and cash flow hedges with hedge effectiveness based on changes in forward rates, although one of the examples of the cash flow hedge does not adhere to the guidelines in ASC 815. Examples of cash flow hedges with effectiveness based on changes in spot rates are not in any of the seven textbooks. Five textbooks have no examples of hedging recognized foreign currency receivables or payables with foreign currency option contracts. Two textbooks have examples of fair value hedges and one textbook has an example of a cash flow hedge with hedge effectiveness based on changes in the option value. Examples of cash flow hedges with effectiveness based on changes in intrinsic value are not shown any of the seven textbooks. Table 8 presents a summary of the coverages in the seven advanced accounting textbooks.

Summary

We provide examples of the accounting for foreign currency forward and option contracts acquired to mitigate the foreign currency exposure of underlying foreign currency-denominated receivables and payables. The examples highlight the similarities and differences between the accounting for the four allowable designations of foreign currency forward and option contracts, and demonstrate how designating the contracts as cash flow hedges and assessing effectiveness based on changes in the contracts' total values reduces both financial risk and reporting risk. The examples incorporate the changes in reporting the gains and losses of forward and option contracts designated as hedges under ASU 2017-12. A search of SEC 10-K filings supports our expectation that a larger percentage of firms designate foreign currency forward and option contracts as cash flow. We further note that current advanced accounting texts focus more exclusively on the accounting for fair value hedges, not in keeping with actual practice.

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Table 1
Foreign Exchange Volume
April, 2017

Millions of U.S. Dollars		
Instrument	**Average Daily Volume**	**Total Monthly Volume**
Spot Transactions	375,372	7,507,428
Forward Transactions	189,252	3,785,036
Over the Counter Options	37,506	5,747,933
Foreign Exchange Swaps Transactions	287,397	750,110
Total	889,527	17,790,507

Federal Reserve Bank of New York, Foreign Exchange Committee
https://www.newyorkfed.org/fxc/volumesurvey/data.html

Table 2
Account Receivable from Sale of Inventory for €1,000,000 on 12/1/2015 and Forward Contract to Sell €1,000,000 on 06/30/2016

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Date	USD/€ Spot Rate	€/USD Forward Rate	Forward Rate Difference[1]	Receivable In USD[2]	Foreign Exchange (Gain) Loss[3]	Forward Contract Fair Value Dr (Cr)[4]	Forward Contract (Gain) Loss[5]	Spot Rate Effectiveness excluded component (Gain) Loss[6]	Straight-Line Amortization of Premium[7]
12/01/15	1.063280	1.070463	-0-	$ 1,063,280	-0-	-0-	-0-	-0-	-0-
12/31/15	1.083628	1.092054	0.021591	$ 1,083,628	($ 20,348)	($ 20,954)	$ 20,954	$ 606	$1,026
03/31/16	1.137891	1.141188	0.070725	$ 1,137,891	($ 54,263)	($ 69,675)	$ 48,721	($ 5,542)	$3,078
06/30/16	1.110547	1.110547	0.040084	$ 1,110,547	$ 27,344	($ 40,084)	($ 29,591)	($ 2,247)	$3,079

1 Current forward rate minus 12/01/15 forward rate

2 €1,000,000 times current spot rate.

3 Current receivable in USD minus previous receivable in USD.

4 Forward rate difference times €1,000,000 discounted to 06/30/16 at 6% annual rate.

5 Current forward contract fair value minus previous forward contract fair value.

6 Foreign exchange gain (loss) plus forward contract gain (loss)

7 Monthly rate equals €1,000,000 times (12/01/15 forward rate minus 12/01/15 spot rate) divided by 7 months

Table 3
Journal Entries and Financial Statement Presentation for Account Receivable from Sale of Inventory for €1,000,000 and Forward Contract to Deliver €1,000,000 on 06/30/2016

USD: Debit (Credit)

					No Hedge/ Fair Value Hedge[1]	Cash Flow Hedge Effectiveness: Spot Rate		Cash Flow Hedge Effectiveness: Forward Rate	
Date		**Cash**	**Accounts Receivable: Euros**	**Forward Contract**	**Earnings**	**Earnings**	**Other Comp. Income**	**Earnings**	**Other Comp. Income**
12/01/15	(i)		1,063,280		(1,063,280)	(1,063,280)		(1,063,280)	
12/31/15	(a)		20,348		(20,348)	(20,348)		(20,348)	
	(b)			(20,954)	20,954	606	20,348		20,954
	(c)					20,348	(20,348)	20,348	(20,348)
	(d)							(1,026)	1,026
					606	606	-0-	(1,026)	1,632
Balance			1,083,628	(20,954)			-0-		1,632
03/31/16	(a)		54,263		(54,263)	(54,263)		(54,263)	
	(b)			(48,721)	48,721	(5,542)	54,263		48,721
	(c)					54,263	(54,263)	54,263	(54,263)
	(d)							(3,078)	3,078
					(5,542)	(5,542)	-0-	(3,078)	(2,464)
Balance			1,137,891	(69,675)			-0-		(832)
06/30/16	(a)		(27,344)		27,344	27,344		27,344	
	(b)			29,591	(29,591)	(2,247)	(27,344)		(29,591)
	(c)					(27,344)	27,344	(27,344)	27,344
	(d)							(3,079)	3,079
	(e)	1,070,463	(1,110,547)	40,084					
					(2,247)	(2,247)	-0-	(3,079)	832
Balance		1,070,463	-0-	-0-			-0-		-0-

(i) Recognition of sale of inventory and corresponding receivable for €1,000,000 (Sale amount of $1,063,280 not included in Earnings total).
(a) Adjustment of receivable to current spot rate and recognition of gain or loss in earnings.

(b) Adjustment of forward contract to fair value and recognition of gain or loss to: 1) earnings for no hedge or fair value hedge designation, 2) comprehensive income for cash flow hedge with effectiveness based on changes in forward rate, and 3) earnings and other comprehensive income for cash flow hedge with effectiveness based on changes in spot rates.
(c) Reclassification from other comprehensive income to earnings to offset gain or loss recognized on receivable.
(d) Straight-line amortization of premium on forward contract of $1,028 per month (rounded to $3,079 on 06/30/16).
(e) Settlement of Euro receivable and forward contract.
[1] Items reported separately for no hedge designation, and reported net for fair value hedge designation.

Table 4
Account Payable from Purchase of Inventory for €1,000,000 on 12/1/2015 and Purchased Call Option for €1,000,000 on 06/30/2016 with 1.06328 strike price

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Date	USD/€ Spot Rate	Payable In USD[1]	Foreign Exchange (Gain) Loss[2]	Call Option Fair Value Dr (Cr)[3]	Change in Call Option Fair Value Dr (Cr)	Call Option Intrinsic Value[4]	Call Option Time Value[5]	Change in Call Option Time Value	Amortization of Call Option Cost[6]
12/01/15	1.063280	$ 1,063,280	-0-	$ 40,705	-0-	-0-	$ 40,705	-0-	
12/31/15	1.083628	$ 1,083,628	$ 20,348	$ 48,524	$ 7,819	$ 20,348	$ 28,176	($ 12,529)	$ 5,815
03/31/16	1.137891	$ 1,137,891	$ 54,263	$ 82,157	$ 33,633	$ 74,611	$ 7,546	($ 20,630)	$17,445
06/30/16	1.110547	$ 1,110,547	($ 27,344)	$ 47,267	($ 34,890)	$ 47,267	-0-	($ 7,546)	$17,445

1 €1,000,000 times current spot rate.
2 Current payable in USD minus previous payable in USD.
3 Bloomberg.
4 Current payable in USD minus payable in USD on 12/01/15.
5 Current call option fair value minus current call option intrinsic value.
6 Call option cost divided by seven months times months in period.

Table 5
Journal Entries and Financial Statement Presentation for Purchase of Inventory for €1,000,000 and Purchased Call Option for €1,000,000 on 06/30/2016 with 1.06328 strike price

USD: Debit (Credit)

						No Hedge/ Fair Value Hedge[1]	Cash Flow Hedge Effectiveness: Intrinsic Value		Cash Flow Hedge Effectiveness: Option Value	
Date		**Cash**	**Accounts Payable: Euros**	**Call Option**	**Inventory**	**Earnings**	**Earnings**	**Other Comp. Income**	**Earnings**	**Other Comp. Income**
12/01/15	(i)	(40,705)	(1,063,280)	40,705	1,063,280					
12/31/15	(a)		(20,348)			20,348	20,348		20,348	
	(b)			7,819		(7,819)	12,529	(20,348)		(7,819)
	(c)						(20,348)	20,348	(20,348)	20,348
	(d)								5,815	(5,815)
						12,529	12,529	-0-	5,815	6,714
Balance		(40,705)	(1,083,628)	48,524	1,063,280			-0-		6,714
03/31/16	(a)		(54,263)			54,263	54,263		54,263	
	(b)			33,633		(33,633)	20,630	(54,263)		(33,633)
	(c)						(54,263)	54,263	(54,263)	54,263
	(d)								17,445	(17,445)
						20,630	20,630	-0-	17,445	3,185
Balance		(40,705)	(1,137,891)	82,157	1,063,280			-0-		9,899
06/30/16	(a)		27,344			(27,344)	(27,344)		(27,344)	
	(b)			(34,890)		34,890	7,546	27,344		34,890
	(c)						27,344	(27,344)	27,344	(27,344)
	(d)								17,445	(17,445)
	(e)	(1,063,280)	1,110,547	(47,267)						
						7,546	7,546	-0-	17,445	(9,899)
Balance		(1,103,985)	-0-	-0-	1,063,280			-0-		-0-

(i) Recognition of purchase of inventory and corresponding payable for €1,000,000, and purchase of call option for €1,000,000 on 6/30/2016 with 1.06328 strike price.

(a) Adjustment of payable to current spot rate and recognition of gain or loss in earnings.
(b) Adjustment of option contract to fair value and recognition of gain or loss to: 1) earnings for no hedge or fair value hedge designation, 2) earnings and other comprehensive income for cash flow hedge with effectiveness based on changes in intrinsic value, and 3) comprehensive income for cash flow hedge with effectiveness based on changes in option value.
(c) Reclassification from other comprehensive income to earnings to offset gain or loss recognized on payable.
(d) Straight-line amortization of cost of option contract.
(e) Settlement of Euro payable and option contract.
[1] Items reported separately for no hedge designation, and reported net for fair value hedge designation.

Table 6
Account Receivable from Sale of Inventory for €1,000,000 on 12/1/2015 and Purchased Put Option for €1,000,000 on 06/30/2016 with 1.06328 strike price

(a) Date	(b) USD/€ Spot Rate	(c) Receivable In USD[1]	(d) Foreign Exchange (Gain) Loss[2]	(e) Put Option Fair Value Dr (Cr)[3]	(f) Change in Put Option Fair Value Dr (Cr)	(g) Put Option Intrinsic Value[4]	(h) Put Option Time Value[5]	(i) Change in Put Option Time Value	(j) Amortization of Put Option Cost[6]
12/01/15	1.063280	$ 1,063,280	-0-	$ 36,889	-0-	-0-	$ 36,889	-0-	
12/31/15	1.083628	$ 1,083,628	($ 20,348)	$ 30,533	($ 6,356)	-0-	$ 30,533	($ 6,356)	$ 5,270
03/31/16	1.137891	$ 1,137,891	($ 54,263)	$ 21,800	($ 8,733)	-0-	$ 21,800	($ 8,733)	$15,810
06/30/16	1.110547	$ 1,110,547	$ 27,344	-0-	($ 21,800)	-0-	-0-	($ 21,800)	$15,809

1 €1,000,000 times current spot rate.
2 Current receivable in USD minus previous receivable in USD.
3 Bloomberg.
4 Current receivable in USD minus receivable in USD on 12/01/15.
5 Current put option fair value minus current put option intrinsic value.
6 Put option cost divided by seven months times months in period (rounded down at 06/30/16).

Table 7
Journal Entries and Financial Statement Presentation for Sale of Inventory for €1,000,000 and Purchased Put Option for €1,000,000 on 06/30/2016 with 1.06328 strike price

					USD: Debit (Credit)				
					No Hedge/ Fair Value Hedge	Cash Flow Hedge Effectiveness: Intrinsic Value		Cash Flow Hedge Effectiveness: Option Value	
Date		Cash	Accounts Receivable: Euros	Put Option	Earnings	Earnings	Other Comp. Income	Earnings	Other Comp. Income
12/01/15	(i)	(36,889)	1,063,280	36,889	(1,063,280)	(1,063,280)		(1,063,280)	
12/31/15	(a)		20,348		(20,348)	(20,348)		(20,348)	
	(b)			(6,356)	6,356	6,356		6,356	
					(13,992)	(13,992)	-0-	(13,992)	-0-
Balance		(36,889)	1,083,628	30,533			-0-		-0-
03/31/16	(a)		54,263		(54,263)	(54,263)		(54,263)	
	(b)			(8,733)	8,733	8,733		8,733	
					(45,530)	(45,530)	-0-	(45,530)	-0-
Balance		(36,889)	1,137,891	21,800			-0-		-0-
06/30/16	(a)		(27,344)		27,344	27,344		27,344	
	(b)			(21,800)	21,800	21,800		21,800	
	(c)	1,110,547	(1,110,547)						
					49,144	49,144	-0-	49,144	-0-
Balance		1,073,658	-0-	-0-			-0-		-0-

(i) Recognition of sale of inventory and corresponding receivable for €1,000,000, and purchase of put option for €1,000,000 on 6/30/2016 with 1.06328 strike price.
(a) Adjustment of payable to current spot rate and recognition of gain or loss in earnings.
(b) Adjustment of put option to fair value and recognition of loss in earnings.
(c) Settlement of Euro receivable and option.

Table 8
Examples of Foreign Currency Forward and Option Contracts as Hedges of Foreign Currency Receivables or Payables in Advanced Accounting Textbooks

Textbook	Forward Contracts			Option Contracts		
	Fair Value Hedge	Cash Flow Hedge		Fair Value Hedge	Cash Flow Hedge	
		Spot Rate	Forward Rate		Intrinsic Value	Option Value
Beams, Anthony, Bettinghaus and Smith (2018) *Advanced Accounting 13th Edition*	YES	NO	YES	NO	NO	NO
Christensen, Cottrell and Budd (2016) *Advanced Financial Accounting 11th Edition*	NO	NO	NO	NO	NO	NO
Fischer, Cheng and Taylor (2016) *Advanced Accounting 12th Edition*	YES	NO	YES[1]	YES	NO	NO
Halsey and Hopkin (2017 *Advanced Accounting 3rd Edition*	NO	NO	NO	NO	NO	NO
Hamlen , Huefner and Largay (2016) *Advanced Accounting 3rd Edition*	NO	NO	NO	NO	NO	NO
Hoyle, Schaefer and Dpupnik (2017) *Advanced Accounting 13th Edition*	YES	NO	YES	YES	NO	YES
Jeter and Chaney (2015) *Advanced Accounting 6th Edition*	NO	NO	NO	NO	NO	NO

[1] Example does not adhere to the guidelines in ASC 815