

Value Relevance of Foreign Currency Fluctuation: Accounting or Economic Effect

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Abstract

The purpose of this study is to examine empirically the impact of translation adjustments on stock returns. The sampling period covers a ten-year span from 2000 to 2009. Based on the earnings response coefficient model, our results show that translation adjustments are positively associated with stock returns, and thus suggesting that the accounting effect of translation adjustments dominates the economic effect. However, the result of the conditional association analysis shows that this relationship becomes statistically insignificant for firms with zero reported transaction gain/loss. Furthermore, when we examine the results by industry, we observe that stock returns are positively affected by an increase in translation adjustments only for the agriculture, manufacturing and finance industry. The year by year analysis shows that the impact of translation adjustments on stock returns is non-stationary. A strong economic effect is observed only in the Years 2000 and 2001 whereas a strong accounting effect is found in the Years 2008 and 2009.

I. Introduction

With the increase in the integration of the world's financial markets, firms must increasingly view themselves as competing in a global economy. The landscape of the global market can be altered by the ever changing value of currencies which in turn can have a significant impact on the operations of a firm. In the US, firms are required to report the impact of currency movements on their financial statements, and the measurement of such impacts is stringently guided by SFAS No. 52 which has superseded SFAS No. 8 and is codified under ASC 830 Foreign Currency Matters. Although the accounting effect of currency movements on a firm's book (or reported) value is clearly defined, the economic impact of currency movements on a firm's value remains undetermined because the reported value does not take into consideration the impact of the currency movements on the future operations of the firm. In this study, we will investigate the relevance of the accounting treatments of currency fluctuations on the valuation of a firm. The results of this study will provide valuable policy implications to Financial Accounting Standards Board (FASB), which designs and enforces the accounting principles, and will also provide important empirical evidence to the participants in the financial markets who utilize the information provided in financial statements for investment decisions.

Early studies, such as Louis (2003), empirically investigate the value relevance of translation adjustments. Louis (2003) results show that a translation gain is associated with a stock price loss for US manufacturing firms during the period between 1985 and 2001. This observation implies that the economic effect dominates the accounting effect of translation adjustments for the manufacturing firms. In addition, Louis (2003) finds that the accounting effect is more relevant in only certain years, such as 1985, 1986, 1994, and 1995, and thus suggesting that the value relevance of the translation adjustment may be non-stationary. Adopting Louis' (2003) earnings response coefficient model (ERC), we re-examine empirically the effect of currency movement on a firm's value. Three conditional association analyses depending on whether transaction gain/loss is reported, the industrial classifications, and the time

period are carried out to tackle the following three issues. First, is there a self-selection bias on the issue of accounting treatment of translation exposure? Second, does the relation between translation adjustment and firm value vary across different industries? Third, is the association between firm value and translation adjustment time-specific?

Our contributions can be considered threefold. Firstly, the empirical results are updated using a more recent sampling period between 2000 and 2009. Secondly, non-manufacturing firms are included in our sample which makes the results applicable to more industries. Third, given the fact that previous empirical studies such as Louis (2003) involve a pooling sample covering multiple years of cross-sectional regressions, and as such, the error terms may be cross-sectionally and serially correlated. In this study, we employ the two-way cluster-robust standard errors suggested in Gow, Ormazabla and Taylor (2010) to reduce the cross-sectional and time-series dependence in the regression analysis.

This study begins with a literature review in Section II, and follows by a discussion of the methodology and a description of the data in Section III. The empirical results are presented in Section IV, with the concluding remarks in Section V.

II. Literature Review

The foreign currency fluctuations may have significant impacts on a firm's value when consolidating the financial statements of its subsidiaries. Under ASC 830 Foreign Currency Matters, firms may adopt either the current rate method or the temporal method to translate their foreign subsidiaries' financial statements depending on the functional currencies of their subsidiaries. The difference is that under the temporal method, the translation gain/loss is included in the foreign transaction gain/loss account (E^{FX}) which appears in the income statement. On the other hand, under the current rate method, the translation gain/loss is included in the accumulative translation adjustment (CTA) account which is reported on the firm's consolidated balance sheet as part of its comprehensive income.

There is no question regarding the accounting effect of currency gain/loss on a firm's reported value. For example, under the current rate method, an appreciation (depreciation) of the local currency will result in an increase (decrease) in the cumulative foreign translation adjustment account, and hence an increase (decrease) in the firm's reported equity value. Under the temporal method, an appreciation (depreciation) of the local currency will result in a foreign exchange translation gain which in turn will result in an increase in the firm's net income. However, the reported accounting impact of currency fluctuation does not take into consideration the impact of currency fluctuation on the future operations of a firm, and hence the value of the firm. It is, therefore, unclear if there is any relationship between the reported accounting impact from currency fluctuation and the market value of a firm.

Accounting Effect

If investors emphasize on the accounting impact of translation gain/loss on a firm's book value, a documented translation gain increases a firm's book value, thus its market value. That is, one would expect a positive association between translation gains and firm values. Adopting

the event study methodology, several researchers have examined the market reaction to the implementation of accounting translation requirements such as SFAS No. 8 and SFAS No. 52. For example, Ziebart and Kim (1987) report positive market reactions to the adoption of SFAS No. 52. Similar results are also documented in Latridis and Joseph (2005) when SSAP 20 was implemented in the UK. More recently, when Gao and Senteney (2009) re-examine the issue of market reaction to the introduction of SFAS No. 8 and SFAS No. 52, they find that US multinationals which use US dollar as functional currency are negatively affected by both SFAS No. 8 and SFAS No. 52 whereas those using local currency as functional currency are only negatively impact during the SFAS No. 8 period. Their results suggest that translation method is value relevant, and the current rate method is considered by the stock market to be a better or more appropriate translation method.

One group of empirical studies provides evidence showing that accounting effect is more value relevant. For example, Soo and Soo (1994) investigate the effect of the translation process on the valuation of firms with non-zero translation adjustments. They find that the market utilizes the foreign exchange gain and loss information reported in income when valuing stock under both SFAS 8 and SFAS 52 standards. In addition, a positive relationship between translation adjustments and stock returns is reported, however the coefficient for translation adjustments is significantly smaller than those of other earnings. Adopting the association analysis methodology, Collins and Salatka (1993) conclude that SFAS No. 52 significantly enhances the value relevance of earnings. They report that the explanatory power of earnings increases for firms adopting the current rate method. Similar to the results in Collins and Salatka (1993), Bartov (1997) reports that a significant association between translation adjustments and stock returns is found only for the firms which use the local currency as the functional currency, and restate the currency gain/loss using the current rate method. That is, the currency adjustment impact is only value relevant for firms that report non-zero translation adjustments (non-zero CTA). Regressing excess stock returns on accounting exposure proxies such as translation effect on earnings and translation effect on equity, Martin, Madura, and Akhigbe (1998) conclude that accounting exposure has a positive impact on firm value. More recently, Al-Shboul and Alison (2008) provide similar evidence when analyzing data from Australian multinational firms for the period from 2000 to 2004.

In contrast, Dhaliwal, Subramanyam, and Trezevant (1999) claim that currency translation adjustments are not value relevant because the evidence they found do not support the hypothesis that stock returns are more strongly associated with comprehensive income.

The theoretical arguments or empirical evidence provided by the above-mentioned articles support the hypothesis that reported currency gain/loss has a non-negative association with firms' values. In other words, the presence of an accounting effect of foreign currency fluctuation is supported if a positive relationship between stock returns and translation gains is observed.

Economic Effect

However, an appreciation of the local currency can either decrease or increase the firm's competitiveness in the global market, and as such, the economic impact of the currency fluctuation on firm values can be ambiguous. In the case of an integrated foreign operation

affiliate (IFO), the IFO tends to produce in a foreign country and sells its products back to its parent company in the US. In other words, its costs are largely denominated in the local currency whereas its revenues are in US dollars. From an economic standpoint, an appreciation of the local currency will lead to an increase in costs as measured in US dollars, and thus reduces its US dollar profit margin. Consistent with the spirit of ASC 830, a firm with an IFO should choose US dollar as its functional currency, and re-measure the translation adjustment using the temporal method. The resulting translation gain/loss will be reported as transaction gain/loss on its income statement. In other words, an appreciation of the local currency will result in a translation gain which will be reported as transaction gain on the consolidated income statement of the multinational firm. However, the value of the firm will decline because of the decline in its profitability due to the appreciation of the local currency.

On the other hand, for a self-sustained foreign operation (SSFO), its net exposure is much smaller than that of an IFO due to the fact that a SSFO has most of its costs and revenues denominated in the local currency. Yet, as suggested by Louis (2003), because of the inability of moving labor freely across borders, the input costs tend to be stickier than output revenues. A SSFO would experience a negative impact from a stronger local currency. Comparing to an IFO, the negative impact on a SSFO, in general, should be smaller. In the consolidation of its accounts, its parent company would choose the local currency as its functional currency, re-state the translation adjustment using the current rate method, and report the gain/loss as translation loss/gain on the balance sheet.

In summary, an appreciation of local currency will most likely hurt the future outlook of the parent company for both IFOs and SSFOs. However, an appreciation of the local currency will be reported in the income statement as a transaction gain in the case of an IFO, and it will be reported as a translation gain on the balance sheet for a SSFO. If the economic effect of currency fluctuation is the dominant effect, we would expect to observe a negative relationship between stock returns and the reported translation gains. However, all other things equal, this negative impact should be stronger for firms (with IFO) adopting the temporal method (zero CTA + non-zero transaction gain/loss) than those (with SSFO) using the current rate method (non-zero CTA + zero transaction gain/loss).

As a result, the two hypotheses are stated as follows:

- H1: Accounting effect is dominant if stock returns are positively related to translation gains.
- H2: Economic effect is dominant if stock returns are negatively related to translation gains.

Louis (2003) investigates the value relevance of translation adjustments for US manufacturing firms for the period between 1985 and 2001. His empirical results show that a positive translation adjustment is associated with a loss in stock value. This implies that the economic effect dominates the accounting effect of translation adjustments. In addition, Louis (2003) finds no evidence supporting a different degree of association between the firms that exclusively use current rate method (non-zero CTA + zero transaction gain/loss) and those using mixed translation methods (non-zero CFA + non-zero transaction gain/loss). As reported in Table 7 of Louis (2003), the accounting effect is more relevant in year 1985, 1986, 1994, and 1995. This suggests that the value relevance of the translation adjustment could be time-specific.

In this study, we intend to examine empirically the effect of currency movement on a firm's value. We also conduct conditional association analysis on firm values depending on their industrial classifications, their reported transaction gain/loss and the time period.

III. Data and Methodology

A. Data

This study covers the sampling period from 2000 to 2009. We extract from the Compustat database only those firms with translation adjustment information. The annual return data were derived using the annual share prices and dividends information from Compustat. In addition, the cumulative translation adjustment (CTA), the lag cumulative translation adjustment, the transaction gain or loss, net income, and the foreign income tax information are also obtained from Compustat. This yields 9,638 observations with complete record.

In contrast to Louis' study (2003), which focuses exclusively on manufacturing firms, we include both manufacturing and non-manufacturing firms in our sample. This allows us to conduct comparison analysis between manufacturing and non-manufacturing firms. As shown in Table I, our sample has a strong concentration (5,618 firms or about 58%) in the manufacturing industry (SIC 20-39). The second largest industry in our sample is the services industry (1,856 firms, or 19%, SIC 70-89), which is followed by a distant third, the mining industry (674 firms, or 7%, SIC 10-14). The remaining 1,490 firms are scattered across seven different industries.

B. Methodology

Similar to the research model used by Louis (2003), the earnings response coefficient (ERC) model (Ohlson, 1995) is used to study the value relevance of reported translation adjustment and transaction gain/loss. The regression equations are as follows:

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^R + \delta_2 * TA_{i,t} + e_{i,t} \quad (1)$$

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^A + \delta_2 * TA_{i,t} + \delta_3 * FTAX_{i,t} + \delta_4 * E_{i,t}^{FX} + e_{i,t} \quad (2)$$

Where:

$R_{i,t}$ = the 3-month lagged stock return of firm i for fiscal year t (the return over the 12 months extending from 9 months prior to the fiscal year-end to 3 months after the fiscal year-end);

$E_{i,t}^R$ = the reported earnings for firm i in year t , deflated by market value at $t-1$;

TA = the translation adjustment (Δ in CTA) for firm i in year t , deflated by market value at $t-1$;

$E_{i,t}^{FX}$ = the transaction gain/loss for firm i in year t , deflated by market value at $t-1$;

$E_{i,t}^A$ = the adjusted earnings = the reported earnings – transaction gain/loss for firm i in year t , deflated by market value at $t-1$;

$FTAX$ = the foreign income tax for firm i in year t , deflated by market value at $t-1$;

e_{it} = the error term; and

t = 2000-2009.

To reduce the effects of outliers, the top and bottom 1 percent of all the variables are trimmed. In addition, the two-way cluster-robust standard errors suggested by Gow, Ormazabla and Taylor (2010) are employed to reduce the cross-sectional and time-series dependence in the regression analysis.

The coefficient δ_2 reflects the association between stock returns and translation adjustments (TA) for firms reporting translation adjustments. If the accounting effect of foreign currency fluctuations is dominant, a positive δ_2 is expected. This is because an appreciation of the local currency will result in positive translation gain under the current rate method, suggesting an increase in firm value (as stated in H1). However, Louis (2003) hypothesizes that if the economic effect of foreign currency fluctuations is stronger, an inverse relationship should exist between the translation adjustment and the change in a firm's value (as stated in H2). He suggests that an appreciation of the local currency will increase the production cost denominated in the local currency, especially for the Integrated Foreign Operation (IFO) unit, which in turn hurts the company. The variable $FTAX$ and $E_{i,t}^{FX}$ are included as control variables for foreign currency exposure. A significantly positive δ_3 indicates that the higher the foreign exchange exposure, the higher the return the investors expect. A significant δ_4 suggests that the impact of transaction gains/losses is also reflected in the stock returns.

Several conditional association analyses are then applied to Regression Models (1) and (2). First, a conditional association between the translation adjustment (TA) and firm value by accounting method is carried out by running the regression models on two sub-samples: firms with zero versus those with non-zero transaction gain/loss. According to ASC 830 Foreign Currency Matters, firms that operate self-sustained foreign (SSFO) units, and choose the foreign currencies as their functional currencies would report zero transaction gain/loss. In other words, firms with zero transaction gain/loss tend to be the ones that adopt only the current rate method for the consolidation of their accounts. As suggested by Louis (2003), even though these foreign units operate as SSFO, their values could be negatively impacted by an appreciation of local currencies due to the fact that input prices are stickier than output prices. A comparison of the empirical results between these two groups can shine a light on whether the choice of translation method affects firm valuation. Louis (2003) suggests that the economic effect is stronger for firms with IFO, that is, firms reporting both transaction gain/loss and translation adjustment.

Second, a conditional association analysis is conducted based on industrial classifications. Louis (2003) restricts his sample to manufacturing firms because he assumes the sticky price effect is more relevant to manufacturing firms, and expects to see more significant results in this sector. In this study, we include all other industries to see whether the relation

between TA and firm value varies across different industries. If Louis' (2003) hypothesis is supported, we would expect to see a stronger association for manufacturing firms as compared to non-manufacturing firms.

Third, yearly regression analyses are conducted to see whether the association between firm value and translation adjustment is stationary.

IV. Empirical Results

A. Firm Characteristics

Panels A and B of Table I report the distribution of sample firms by SIC code and year, respectively. As shown in Panel A, 58% of our sample firms are from the manufacturing industry. Due to data availability, the number of sample firms increases as time passes on.

Table I: Sample Distribution
Panel A: Distribution by SIC Code

Description	SIC Code	# of Obs.
Total Sample		9638
• Agriculture, forestry, fishing and hunting	01-09	31
• Mining	10-14	674
• Construction	15-17	45
• Manufacturing	20-39	5618
• Transportation, Communications, Electric, Gas & Sanitary Services	40-49	461
• Wholesale Trade	50-51	301
• Retail trade	52-59	164
• Finance, Insurance & Real Estate	60-67	386
• Services	70-89	1856
• Public administration	91-99	102

Panel B: Distribution by Year

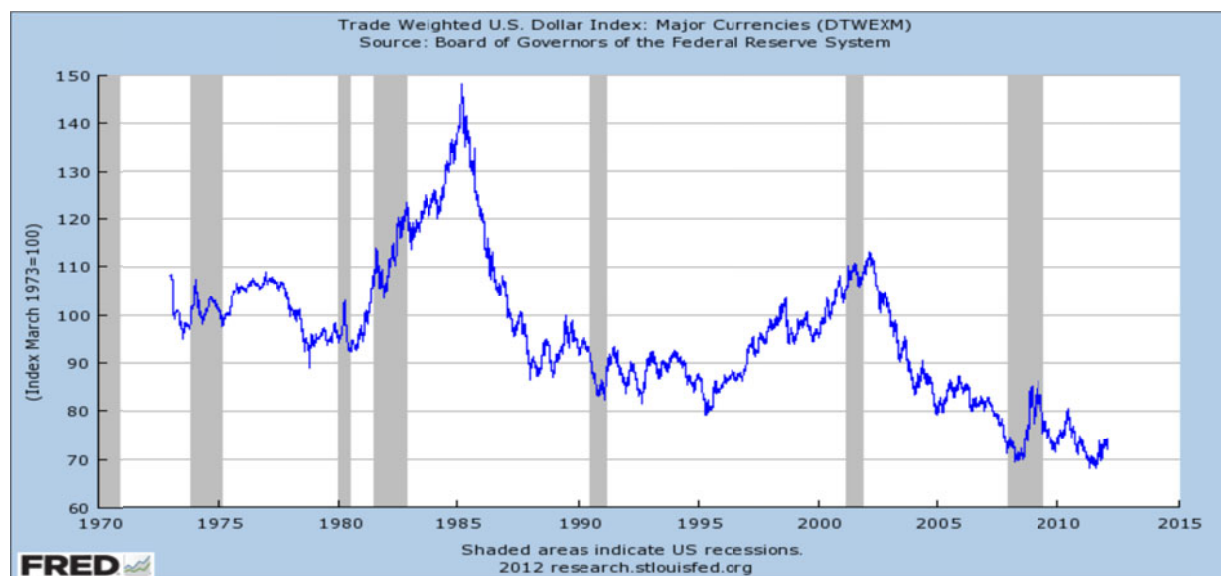
Description	# of Obs.
Total Sample	9638
• 2000	481
• 2001	559
• 2002	730
• 2003	752
• 2004	965
• 2005	1081
• 2006	1169
• 2007	1291
• 2008	1334
• 2009	1276

Table II presents the descriptive statistics of the variables used in the regression analysis. The average stock return and reported earnings are 17.35% and -3.71%, respectively. The

average translation adjustment variable (TA) is 0.0027, with a minimum of -0.1035 and a maximum of 0.1528. A positive TA could be resulted from either a positive net exposure (net asset exposure) with a weaker US dollar or a negative net exposure (net liability exposure) with a stronger US dollar. As shown in Figure 1, the value of the US dollar declined consistently during our sampling period. Therefore, it implies that a firm with a positive TA in our sample tends to be the one with a positive net exposure. The average transaction gain/loss ($E_{i,t}^{FX}$) is -0.0001, ranging from -0.0498 to 0.0525. The magnitude of the transaction gain/loss is much smaller than that of translation adjustment.

Table II: Descriptive Statistics

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
R_t	9638	0.1735	0.7282	-0.8708	3.8506
E^R	9638	-0.0371	0.2328	-2.0985	0.4839
TA_t	9638	0.0027	0.0221	-0.1035	0.1528
E^A	9638	-0.0370	0.2326	-2.0985	0.4839
FTAX	9638	0.0076	0.0131	-0.0073	0.1097
E^{FX}	9638	-0.0001	0.0067	-0.0498	0.0525

Figure 1: Trade Weighted US Dollar Index

B. Regression Results

Table III reports the estimation results from equations (1) and (2) for the whole sample as well as the conditional association on two sub-samples, depending on the choice of the translation method. Although for the whole sample, the reported earnings, E^R , and transaction gain/loss, E^{FX} , are positively associated with stock returns, their coefficients are not statistically significant. However, contrary to the results reported by Louis (2003), a significantly positive

coefficient for TA is observed. This evidence suggests that during our sampling period, the accounting effect dominates the economic effect.

To investigate the influence of the choice of translation methods, we divide the sample into two sub-samples. There are 7,242 observations in the sub-sample for firms with non-zero transaction gain/loss. The remaining 2,396 firms constitute the sub-sample for firms with zero transaction gain/loss ($E_{i,t}^{FX} = 0$). As described before, firms with zero transaction gain/loss tend to be those operating with SSFO and adopting the current rate method. As conjectured in Louis (2003), these firms should also experience a decline in value due to an appreciation of the local currency through the sticky input price effect. However, the impact is expected to be weaker than those firms operating with IFOs. In other words, if economic effect is the dominant effect, we would expect to observe a less negative δ_2 coefficient for the zero transaction gain/loss sub-sample. Our conditional association results show that for the non-zero transaction gain/loss sub-sample, the δ_2 coefficient is still positively significant and that signifies a strong accounting effect. However, for the zero transaction gain/loss sub-sample, the coefficient, δ_2 , is smaller and becomes statistically insignificant. This seems to imply that the economic effect offsets the accounting effect for the zero transaction gain/loss sub-sample. Contrary to the hypothesis put forth by Louis (2003), our results seem to suggest that economic effect is stronger for firms with SSFO, that is, for firms adopting current rate method and reporting only translation adjustments. In summary, our empirical evidence suggests that both economic and accounting effect of translation adjustments may be at work at the same time. However, for the zero transaction gain/loss group, the presence of a stronger economic effect completely neutralizes the accounting effect, and as a result the TA has no significant impact on firm values. On the other hand, for the non-zero transaction gain/loss group, the statistically positive significant impact of TA on firm values indicates that the accounting effect dominates the economic effect.

Table III: ERC Model – Accounting Method

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^R + \delta_2 * TA_{i,t} + e_{i,t} \quad (1)$$

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^A + \delta_2 * TA_{i,t} + \delta_3 * FTAX_{i,t} + \delta_4 * E_{i,t}^{FX} + e_{i,t} \quad (2)$$

Industry	# Obs	Model 1		Model 2				
		E ^R	TA	R-adj	E ^A	TA	FTAX	E ^{FX}
Louis		+	-		+	-	+	NA
2000-09	9638	0.15 (1.37)	4.89 (2.32)**	3.86%	0.10 (0.85)	4.33 (2.00)**	6.64 (6.24)***	0.65 (0.31)
2000-09 $E_{i,t}^{FX} \neq 0$	7242	0.23 (1.97)**	4.91 (2.33)**	4.58%	0.17 (1.32)	4.40 (2.06)**	6.16 (5.76)***	0.65 (0.32)
2000-09 $E_{i,t}^{FX} = 0$	2396	0.02 (0.16)	4.32 (1.66)*	1.82%	0.00 (0.03)	3.68 (1.40)	10.02 (5.13)***	NA

^a. $R_{i,t}$ = the 3-month lagged stock return of firm i for fiscal year t (the return over the 12 months extending from 9 months prior to the fiscal year-end to 3 months after the fiscal year-end); $E_{i,t}^R$ = the reported earnings for firm i in year t, deflated by market value at t-1; TA = the translation adjustment (Δ in CTA) for firm i in year t, deflated by market value at t-1; $E_{i,t}^{FX}$ = the transaction gain/loss for firm i in year t,

deflated by market value at t-1; $E_{i,t}^A$ = the adjusted earnings = the reported earnings – transaction gain/loss for firm i in year t, deflated by market value at t-1; $FTAX$ = the foreign income tax for firm i in year t, deflated by market value at t-1.

^b t-statistics is in parenthesis. ***: denotes statistical significance at the 1% level using a two-tailed test. **: denotes statistical significance at the 5% level using a two-tailed test. *: denotes statistical significance at the 10% level using a two-tailed test.

Table IV exhibits the empirical results based on industry sub-samples. It shows that stock returns on firms in the agriculture, manufacturing and the finance industry are positively affected by TA. For firms in the mining, transportation, wholesale, retail and services industry, the impact of TA on firm values is positive but insignificant. While for those in the construction and public administration industry, the impact is negatively insignificant. The industry analysis seems to suggest that the economic effect is weaker in the agriculture, manufacturing and the finance industry. This is in conflict with the results presented by Louis (2003) which suggest that the economic effect should be stronger for manufacturing firms.

Table IV: ERC Model – Industrial Analysis

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^R + \delta_2 * TA_{i,t} + e_{i,t} \quad (1)$$

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^A + \delta_2 * TA_{i,t} + \delta_3 * FTAX_{i,t} + \delta_4 * E_{i,t}^{FX} + e_{i,t} \quad (2)$$

Industry	# Obs	Model 1		Model 2				
		E ^R	TA	R-adj	E ^A	TA	FTAX	E ^{FX}
Louis		+	-		+	-	+	NA
2000-09	9638	0.15 (1.37)	4.89 (2.32)**	3.86%	0.10 (0.85)	4.33 (2.00)**	6.64 (6.24)***	0.65 (0.31)
Agriculture	31	0.87 (2.18)*	6.61 (3.46)***	25.07%	0.84 (6.96)***	6.77 (3.04)**	-2.69 (-0.26)	2.38 (0.21)
Mining	674	-0.44 (-2.39)**	4.18 (1.39)	2.81%	-0.56 (-2.73)***	4.16 (1.43)	4.50 (1.59)	2.59 (0.30)
Construction	45	0.42 (1.51)	-8.47 (-2.59)**	21.50%	0.80 (1.79)	-5.17 (-0.89)	10.96 (3.18)***	1.51 (0.06)
Manufacturing	5618	0.09 (0.74)	5.42 (2.40)**	4.74%	0.03 (0.25)	4.83 (2.21)**	6.89 (3.74)***	-2.05 (-0.91)
Transportation	461	0.64 (6.45)***	3.25 (2.04)**	6.94%	0.61 (5.85)***	2.77 (1.64)	6.36 (2.09)**	1.99 (0.29)
Wholesale	301	0.56 (3.09)***	5.17 (1.86)*	12.95%	0.56 (2.99)***	4.17 (1.58)	6.85 (2.33)**	1.66 (0.47)
Retail	164	0.22 (0.58)	2.16 (0.77)	6.56%	0.19 (0.45)	0.10 (0.03)	14.30 (8.91)***	5.95 (0.50)
Finance	386	-0.27 (-0.43)	6.80 (1.88)*	6.39%	-0.29 (-0.49)	7.05 (1.82)*	6.16 (2.27)**	10.56 (1.29)
Services	1856	0.31 (1.36)	4.22 (1.92)*	4.02%	0.27 (1.18)	3.51 (1.29)	9.84 (4.30)***	2.02 (0.42)
Public Adm.	102	0.06 (0.15)	-2.16 (-0.28)	1.98%	-0.03 (-0.07)	-3.21 (-0.37)	16.61 (2.27)**	0.39 (0.04)

^a $R_{i,t}$ = the 3-month lagged stock return of firm i for fiscal year t (the return over the 12 months extending from 9 months prior to the fiscal year-end to 3 months after the fiscal year-end); $E_{i,t}^R$ = the reported earnings for firm i in year t, deflated by market value at t-1; TA = the translation adjustment (Δ in CTA) for firm i in year t, deflated by market value at t-1; $E_{i,t}^{FX}$ = the transaction gain/loss for firm i in year t, deflated by market value at t-1; $E_{i,t}^A$ = the adjusted earnings = the reported earnings – transaction gain/loss for firm i in year t, deflated by market value at t-1; $FTAX$ = the foreign income tax for firm i in year t, deflated by market value at t-1.

^b t-statistics is in parenthesis. ***: denotes statistical significance at the 1% level using a two-tailed test. **: denotes statistical significance at the 5% level using a two-tailed test. *: denotes statistical significance at the 10% level using a two-tailed test.

Table V presents the empirical results based on yearly analysis. Our results show that the impact of TA is not robust. Significantly negative δ_2 coefficients are found in the years 2000 and 2001 while significantly positive δ_2 are reported in years 2008 and 2009. The only similarity between the results in our study and Louis (2003) is that he also observes a significant negative δ_2 in the years 2000 and 2001. We would postulate that the differences between our and Louis' (2003) empirical results are due to the different sampling periods which are affected by a different set of global economic events. The next question would be what causes the non-stationarity of the relationship? During the period from 2000 to 2001, the US dollar gained value while the US economy suffered a recession (see Figure 1). Similarly, for the 2008-2009 period, despite the fact that the US economy experienced a long-run recessions, the US dollar gained strength. Although both periods have similar economic conditions and experienced an increase in the value of the US dollars, the effects of TA on firm values are diametrically opposite. Therefore, we may argue that the strength of the currency and the economic conditions of the domestic country do not seem to be a major contributing factor for the observed non-stationarity of the relationship between firm values and translation adjustments.

Table V: ERC Model – Yearly Analysis

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^R + \delta_2 * TA_{i,t} + e_{i,t} \quad (1)$$

$$R_{i,t} = \delta_0 + \delta_1 * E_{i,t}^A + \delta_2 * TA_{i,t} + \delta_3 * FTAX_{i,t} + \delta_4 * E_{i,t}^{FX} + e_{i,t} \quad (2)$$

Year	# Obs	Model 1		Model 2				
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Louis		+	-		+	-	+	NA
2000-09	9638	0.15 (1.37)	4.89 (2.32)**	3.86%	0.10 (0.85)	4.33 (2.00)**	6.64 (6.24)***	0.65 (0.31)
2000	481	0.03 (0.10)	-5.33 (-2.51)**	1.77%	0.00 (0.00)	-3.62 (-1.75)*	4.43 (2.36)**	7.63 (1.17)
2001	559	0.37 (2.55)**	-4.96 (-3.12)***	7.56%	0.41 (2.94)***	-4.27 (-2.37)**	5.60 (2.42)**	-19.77 (-1.96)*
2002	730	0.33 (3.10)***	1.84 (1.12)	4.72%	0.30 (2.87)***	1.03 (0.64)	5.40 (2.79)***	-8.55 (-2.24)**
2003	752	-0.34 (-2.01)**	0.44 (0.41)	1.30%	-0.40 (-2.34)***	-0.23 (-0.21)	5.11 (1.89)*	4.73 (0.88)
2004	965	0.25 (1.47)	3.16 (2.76)***	4.28%	0.18 (1.08)	1.07 (0.89)	7.78 (5.12)***	-4.82 (-1.13)
2005	1081	0.26 (1.65)*	-0.56 (-0.60)	1.12%	0.22 (1.40)	-0.58 (-0.62)	3.45 (1.83)*	8.67 (1.76)*
2006	1169	0.24 (1.46)	1.73 (2.16)**	3.12%	0.14 (0.87)	0.64 (0.87)	6.03 (4.58)***	1.06 (0.24)
2007	1291	0.45 (5.36)***	1.14 (1.52)	4.30%	0.39 (4.72)***	0.06 (0.07)	6.69 (3.72)***	-2.66 (-0.91)
2008	1334	0.19 (3.12)***	1.06 (1.86)*	1.70%	0.19 (3.09)***	1.06 (1.83)*	0.07 (0.07)	-0.26 (-0.13)
2009	1276	-0.05 (-0.49)	5.58 (6.62)***	5.17%	-0.11 (-0.98)	5.19 (5.07)***	7.31 (3.93)***	0.56 (0.17)

^a $R_{i,t}$ = the 3-month lagged stock return of firm i for fiscal year t (the return over the 12 months extending from 9 months prior to the fiscal year-end to 3 months after the fiscal year-end); $E_{i,t}^R$ = the reported earnings for firm i in year t , deflated by market value at $t-1$; TA = the translation adjustment (Δ in CTA) for firm i in year t , deflated by market value at $t-1$; $E_{i,t}^{FX}$ = the transaction gain/loss for firm i in year t , deflated by market value at $t-1$; $E_{i,t}^A$ = the adjusted earnings = the reported earnings – transaction gain/loss for firm i in year t , deflated by market value at $t-1$; $FTAX$ = the foreign income tax for firm i in year t , deflated by market value at $t-1$.

^b t -statistics is in parenthesis. ***: denotes statistical significance at the 1% level using a two-tailed test. **: denotes statistical significance at the 5% level using a two-tailed test. *: denotes statistical significance at the 10% level using a two-tailed test.

V. Conclusions

We use the earnings response coefficient (ERC) model to study the impact of translation adjustments on stock returns. The sampling period covers a ten-year span from 2000 to 2009. Contrary to the previous results reported by Louis (2003), our results show that translation adjustments are positively associated with stock returns, and thus suggesting that the accounting effect dominates the economic effect. Even after accounting for the degree of foreign exposure, the accounting effect continues to dominate the economic effect during our sampling period.

The conditional association analysis we conducted suggests that firms with zero transaction gain/loss behave differently from those with non-zero transaction gain/loss. In principle, firms reporting non-zero transaction gain/loss tend to be those operating integrated foreign operation (IFO) units. Similar to the results reported for the whole sample, a significantly positive impact of translation adjustments on the values of firms is also observed for firms with non-zero transaction gain/loss. However, this relationship becomes statistically insignificant for firms with zero transaction gain/loss. The result implies that the accounting effect experienced by firms exclusively choosing current rate method may have been neutralized by a strong economic effect.

The results from the industry analysis show that the stock returns of firms in the agriculture, manufacturing and finance industry are positively affected by translation adjustments. This evidence suggests that economic effect is weaker in these three industries, which is in conflict with the findings of Louis (2003), who proposes that the economic effect should be stronger for manufacturing firms. Our yearly analysis reports that the impact of translation adjustment is non-stationary. Although a strong economic effect is observed in the years 2000 and 2001, a strong accounting effect is also found in the years 2008 and 2009. This reversal does not seem to be related to the value of US dollar or the underlying economic conditions.

Our empirical results raise a few questions requiring further investigation. First, why do some firms choose to adopt current rate method only, and what characteristics do these firms possess? Second, what causes the time-series fluctuations of the value relevance of translation adjustments? If this non-stationarity is not correlated with the strength of currency or underlying economic condition, could be it regulatory or behavioral? Finally, what leads to the variations of the impact of translation adjustments across industries? In addition to industrial classification,

more detailed cross-sectional analysis at firm level may provide a better picture of this cross-sectional variation.

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