



A COMPARATIVE INTERNATIONAL ANALYSIS OF THE IMPACT OF ACCOUNTING STANDARDS ON FUNDAMENTAL ACCOUNTING VARIABLES: THE USA VERSUS LATIN AMERICA

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Abstract

This article examines the comparability between Latin American Generally Accepted Accounting Principles (GAAP) and us by studying 314 of the 20-F Forms reported by Latin American companies listed on the New York Stock Exchange during the period 1997-2001. The influence of us accounting in Latin America is evident in several areas. Nevertheless, the Latin American accounting model addresses special issues, such as inflation accounting, in a manner different from that of the us. The purpose of this research is to identify the impact of the international accounting differences on the fundamental accounting variables and to assess the frequency and materiality of these differences in four Latin American countries, namely Argentine, Brazil, Chile and Mexico. The results indicate that the gap between Latin American GAAP and US GAAP has not narrowed during the period.

Key words: developing countries, comparability, us GAAP reconciliation, Form 20-F

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Resumen

Al emplear un modelo Logit de elección múltiple ordenado y modelos de ecuaciones estructurales, se encuentra una clara relación entre educación y pobreza; los estructurales revelan la retroalimentación entre ambas variables. Producto de esta última observación, se plantea que aunque la inversión en capital humano mediante la educación es un factor clave para mejorar el ingreso de las personas, ésta por sí sola no es suficiente para alterar el cambio de condición de pobre a no pobre, pues dado que se requiere un ambiente macroeconómico favorable en el cual individuos pobres educados en el mercado de trabajo incrementen su flujo de ingresos.

Palabras claves: pobreza, educación, crecimiento económico, modelos estructurales, modelos Logit de elección múltiple.

Résumé

Dans cet article, il est procédé à l'analyse de la comparabilité existante entre les règles comptables généralement admises en Amérique latine et celles qui le sont aux États-Unis (US GAAP), à partir de l'étude de 314 rapports 20-F émis par des entreprises latino-américaines cotées à la bourse de New York durant la période 1997-2001. L'influence des règles comptables des États-Unis en Amérique latine est évidente. Néanmoins, le système comptable latino-américain a des particularités propres, telles que l'inflation, qui le différencie du modèle états-unien. L'objectif de cette recherche est d'analyser l'impact des différences comptables entre nations sur les variables comptables fondamentales, et d'évaluer la fréquence et la matérialité de ces différences pour quatre pays latino-américains: l'Argentine, le Brésil, le Chili et le Mexique. les résultats montrent que les différences entre les règles comptables latino-américaines et états-uniennes n'ont pas été réduites durant la période étudiée.

Resumo

Neste artigo se analisa a comparabilidade existente entre os princípios contábeis geralmente aceitos Latino-americanos e os Americanos (US GAAP), através do estudo de 314 Relatórios 20-F emitidos por empresas latino-americanas cotizadas na Bolsa de Nova York durante o período 1997-2001. A influência dos princípios contábeis americanos na América Latina é evidente. Não obstante, o sistema contábil Latino-americano possui algumas particularidades, tais como a inflação, que o diferencia do modelo americano. O objetivo desta investigação é analisar o impacto das diferenças contábeis internacionais nas variáveis contábeis fundamentais, e valorizar a freqüência e materialidade destas diferenças em quatro países Latino-americanos: Argentina, Brasil, Chile y México. Os resultados mostram que as diferenças entre os princípios contábeis latino-americanos e americanos não se reduziram durante o período de estudo.

Introduction

The growing internationalization of equity markets has highlighted the need to take account of international accounting differences, especially regarding the comparative analysis of fundamental accounting variables in the context of company assessment.

To achieve comparability between financial statements prepared in different countries under different regulations, the Securities and Exchange Commission (SEC) requires that foreign issuers must either use US Generally Accepted Accounting Principles (US GAAP) or present reconciliations of net income and shareholders' equity for the differences between US and local GAAP as part of a Form 20-F filing. There has been extensive coverage in the popular press discussing the necessity for non-US companies to reconcile their financial statements with US GAAP in order to be listed on a US securities exchange (for example Siconolfi and Salwen, 1992). The SEC and the New York Stock Exchange (NYSE) have on occasions taken opposite sides. The NYSE argues that SEC reporting requirements for non-US firms leave them at a competitive disadvantage in terms of the number of foreign listings relative to foreign stock exchanges. However, the SEC contends that it must protect US investors from inadequate disclosures by foreign firms. Those in favour of the 20-F reconciliation argue that requiring foreign companies to be subject to almost the same listing and disclosure rules as domestic companies is the best way of protecting domestic investors from misleading financial statements. Moreover, investors must be allowed access to foreign investments, thus ensuring the competitiveness of US stock exchanges. Opponents, on the other hand, argue that these regulations create a barrier to US exchanges due to the reconciliation costs borne by the foreign corporations.

In order to investigate this issue further, in this paper we examine the 20-F reports of Latin American companies listed on the NYSE during the period 1997-2001. The objective of this study is to determine the degree of comparability of the financial information presented by Latin American companies in an international stock market. Based on a sample of 314 Forms 20-F, we examine the degree of harmonization and convergence between Latin American accounting and US accounting practices. We analyse the items which cause differences in fundamental

accounting variables (net income and shareholders' equity) under both standards. We also assess the comparability that exists between Latin American and US accounting practices, the degree of convergence between accounting standards, and the frequency and material effects of adjustments on net income and shareholders' equity. The issue examined is whether firms are required to incur the cost of reconciling items which may only constitute a non-material difference between foreign and US GAAP income and equity.

We have analyzed financial statements of Latin American companies because of the proximity and economic interdependence between the United States and Latin America, mainly Mexico and Chile, resulting from the North American Free Trade Agreement (NAFTA), and Argentina and Brazil, resulting from the Economic, Accounting, and Administration MERCOSUR Integration Group (GIMCEA), and because these are in emerging markets that have experienced an important development in this period.

There is relatively little research on the accounting convergence of developing countries. Previous research analyzing the impact of accounting differences using US GAAP reconciliation has been limited to an assessment of country differences including the UK, the Netherlands, Sweden, Australia and Japan (e.g., Weetman and Gray, 1990, 1991; Weetman *et al.*, 1998; Adams *et al.*, 1999; Hellman, 1993; Norton, 1995; Cooke, 1993; Street *et al.*, 2000). However, few studies on US GAAP reconciliation have included, solely or predominantly, companies from emerging countries, and since the 1990s many of them have entered the US capital market by trading their stock on the NYSE. Rueschhoff and Strupec (1998) and Davis-Friday and Rivera (2000) are among the few studies on US GAAP reconciliation that have included companies from developing countries. The research reported in this article extends earlier research by investigating the degree of accounting harmonization of Latin American companies with US standards.

Our study may be seen as a contribution to the literature regarding accounting standards, reconciliation and accounting reportage for firms from developing countries.

The remainder of the article is organized as follows. The study begins with a discussion of the background for this research and a review of previous literature. This section is followed by the research methodology section, which includes sampling and data analysis considerations. Thereafter, the findings are presented. The closing section provides concluding comments on the implications of the study.



Background

Research focusing on the harmonization or convergence of global accounting standards tended to study the harmonization of accounting standards in a subjective, descriptive or analytical manner (Meek and Saudagaran, 1990; Rivera, 1989; Samuels and Piper, 1985). More recently, research addressing harmonization tends to be more empirical: analyzing national accounting standards (*de jure harmonization*) or analyzing the accounting practices of companies (*de facto harmonization*) (Nobes and Parker, 1998; Tay and Parker, 1990).

Several prior studies have examined the progress of international accounting harmonization by examining whether official national accounting standards are in compliance with International Accounting Standards (*de jure harmonization*) (for a review of these studies see Larson and Kenny, 1999 and Street and Larson, 2004). The results indicate that national accounting standards are converging with international standards, although a number of significant differences remain to be addressed before convergence is achieved (Street and Larson, 2004). The harmonization or convergence of accounting regulations in Latin American countries has only been addressed in response to the North American Free Trade Agreement (NAFTA). The American Free Trade Agreement Committee for Cooperation on Financial Reporting Matters published the "Significant differences in GAAP in Canada, Chile, Mexico and the United States" (2002). This publication compares accounting pronouncements issued in those countries, as well as GAAP differences between those countries and the IASB.

Other studies have examined corporate financial statements to determine the degree of harmonization in accounting practices (*de facto harmonization*) (Meek and Saudagaran, 1990; Street *et al.*, 1999; Street and Gray, 2002). These studies have mainly focused on the differences between a specific domestic set of accounting standards and either IAS's or US GAAP.

From a methodological perspective, several of these studies have attempted to measure accounting harmonization on the basis of indices. Most of them analyse the impact of accounting differences using US GAAP reconciliations. They use US GAAP as a benchmark, and compare it with other GAAPs such as UK GAAP (Weetman and Gray, 1990, 1991) (Weetman *et al.*, 1998) (Adams *et al.*, 1999), GAAPs of other European countries (Hellman, 1993) (Goldberg and Godwin, 1992; Whittington, 2000), Australian GAAP (Norton 1995), Japanese GAAP (Cooke, 1993), Dutch GAAP (Vergoosen, 1996), and International GAAP (Street *et al.*, 2000). There

are others studies that use IAS as the yardstick (Adams *et al.*, 1993) and others such as Gray (1980), who uses the standardized method of analysis and presentation of company accounts developed by the European Federation of Financial Analyst's Societies.

The comparative international accounting literature suggests that US GAAP are likely to be more conservative than those for the UK (Weetman and Gray, 1991; Weetman *et al.*, 1998; Adams *et al.*, 1999). The differences between UK and US GAAP have been reported as material and growing in recent years (Weetman *et al.*, 1998). The most frequent and material adjustments have been the accounting treatment of goodwill, deferred taxes and intangible assets.

On the other hand, Hellman (1993) reports that US GAAP is more conservative than Swedish GAAP, and Norton (1995) finds that the hypothesis that US GAAP is more conservative than Australian financial reporting practice is not supported in terms of the impact on profits, but is supported in terms of the impact on shareholders' equity.

Street *et al.* (2000) examine US GAAP reconciliations by non-US companies complying with IASB standards. They find that the differences between IASB and US GAAP are narrowing. They argue that IASB standards, in terms of their overall impact on net income, are sufficiently close to US GAAP to be acceptable to the SEC and IOSCO.

Two studies focus on companies from developing countries (Rueschhoff and Strupec, 1998; Davis-Friday and Rivera, 2000). Rueschhoff and Strupec's (1998) study finds that differences in accounting principles cause extreme variations in reported net income, shareholder's equity and equity return for some developing countries (Mexico, Argentine and Chile). They observe that local GAAP are less conservative than US GAAP. The greatest disparities occur for the Mexican firms. An adjustment for income taxes is the category they find to be used most frequently and the one that caused the greatest adjustments. Davis-Friday and Rivera (2000) study the 1995 and 1996 20-F reports filed with the SEC by Mexican firms. The results show that on average, net income measured under Mexican GAAP is about 26 per cent greater than the US GAAP measure, and Mexican GAAP equity is on average 74 per cent greater than US GAAP equity. The largest number of adjustments is for deferred taxes, compensation and intangible assets.

Finally, a number of recent capital market studies in the US have attempted to assess the value relevance of non-US GAAP information and reconciliations to US

GAAP. The research findings suggest that non-US GAAP accounting has value relevance (Meek, 1983; Pope and Rees, 1992; Chan and Seow, 1996). However, the value relevance of the reconciliation to US GAAP is less clear with mixed results, although a stronger case can be made for shareholder's equity reconciliation compared with earnings reconciliation (Amir *et al.*, 1993; Bandyopadhyay *et al.*, 1994; Rees, 1995; Barth and Clinch, 1996; Fulkerson and Meek, 1998).

Research design

Description of the sample

The sample consists of Latin American companies listed on the NYSE. The database for this study was derived from Form 20-F. We decided to focus on four countries: Argentina, Brazil, Chile and Mexico, because the number of firms from the other Latin American countries were less relevant (Table 1). It may be argued that the NAFTA and the GIMCEA are responsible for listings from Chile and Mexico, and from Argentina and Brazil. Our study overcomes limitations associated with others studies by not using a matching procedure or including US firms in our sample. Each foreign firm with securities listed in the US capital markets is matched with itself.

Table 1
Number of firms from developing countries listed on the NYSE
at the end of each year, listed by country

Country	1997	1998	1999	2000	2001
Argentina	9	9	9	10	10
Brazil	17	26	27	32	35
Chile	19	19	20	20	20
Colombia	1	1	1	1	
Mexico	17	19	21	22	24
Panama	2	2	2	2	2
Peru	3	3	3	3	3
Puerto Rico	3	4	6	6	7
Venezuela	1	1	1	1	1
Total	72	84	90	97	103

A relatively large number of firms, fourteen in total (most of them Brazilian companies) used US GAAP in preparing their annual reports, thereby not needing reconciliation. Two companies used international standards to provide reconciliation with US GAAP. These companies were excluded from this study.

The final sample contains 81 companies. The sample includes 314 20-F Forms; 31 from Argentina, 120 from Brazil, 74 from Chile and 89 from Mexico. The sample represents 77.53 per cent of the possible observations. The frequency by year and by country is shown in Table 2.

Table 2
Frequency of the sample

<i>20-F</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>Total</i>
Argentine	1	8	8	7	7	31
Brazil	14	25	27	27	27	120
Chile	11	12	18	18	15	74
Mexico	9	19	21	20	20	89
Total	35	64	74	72	69	314

Using Form 20-F, we have collected the following information for each company: country (Argentina, Chile, Mexico and Brazil), year of Form 20-F (from 1997 to 2001), industry (agreeing with the North American Industry Classification System), and size (measured by the variable net sale at the end of each year).

Methodology

In order to understand the significance of Latin American-US GAAP differences in practice, it is necessary to develop a methodology that will facilitate the assessment of how such differences have an impact on accounting results. Using US GAAP as the yardstick, it is possible to make an assessment of the relationship between the reported fundamental accounting variables of some countries and those same fundamental accounting variables in accordance with US GAAP.

For the purpose of making quantitative analysis of differences in accounting practice at the aggregate level, Gray (1980) developed a so-called index of conservatism. The purpose of the index is to measure the extent to which disclosed profits in one country are more or less conservative than in other countries; a particular GAAP is said to be more conservative if, on aggregate, it provides a lower net income (or shareholder's equity) level. Weetman and Gray (1990, 1991), Cooke (1993), and Street et al (2000) utilized the index in a similar manner. Weetman et

al (1998) rename the index to focus on comparability. The index of comparability indicates the measurement impact of accounting differences.

For the purpose of this study, to compare Latin American GAAP with US GAAP, the index is calculated as follows:



NI_{usai} = Net income according to US GAAP

NI_{domi} = Net income according to domestic GAAP

SE_{usai} = Shareholder's equity according to US GAAP

SE_{domi} = Shareholder's equity according to domestic GAAP

IC_{nii} = Index of comparability for net income

IC_{sei} = Index of comparability for shareholder's equity

The denominator has been taken as US fundamental accounting variables to provide a benchmark against which the Latin American fundamental accounting variables can be compared, while 20-F reconciliations are addressed to investors that are accustomed to US GAAP (Weetman *et al.*, 1998). The neutral value of 1.0 is used for consistency with previous literature. An index value greater than 1 means that the Latin American net income or shareholder's equity is less conservative than the US GAAP measure would have been. An index value less than 1 indicates that the Latin American net income or shareholder's equity is more conservative than the US GAAP measure would have been. An index value exactly equal to 1 indicates neutrality in comparison with US GAAP with respect to the effect of accounting standards.

The overall index of comparability was measured and tested for each of the five years, taking each year separately in order to obtain a view of the impact on reported fundamental accounting variables on a year by year basis. We analysed the index by country, industry and size. Furthermore, the findings have been presented as distributions of adjustments in materiality bands. The index values were grouped according to measures of accounting materiality, taking the levels of 5% and 10% for fundamental accounting variables as rule of thumb materiality limits.

In order to test whether the Latin American reported fundamental accounting variables were significantly above or below US reported net income and shareholder's equity, the non-parametric Wilcoxon signed ranks test was applied. The Wilcoxon test is useful when the researcher is able to rank differences in order of absolute magnitude. It is based on departures from a hypothesised neutral median value of 1.0, with no adjustment for outliers. We also use the Kruskal-Wallis test to examine

whether there is a significant influence of year, country, industry or size on the total magnitude of the index.

Since the 20-F reconciliation contains details, it is therefore possible to establish the relative effect of individual adjustments items. The data were analysed using the survey carried out by the IASB (2001). The accounts resulting in reconciliation items were summarized into thirty categories. We distinguished between adjustments applied to net income and shareholder's equity. Table 3 reports the categories of reconciling adjustments.

Table 3
Classification of the adjustments

ad0	zad0	Restatement of prior year financial statements	ad16	zad16	Restructuring and redundancy costs
ad1	zad1	Taxation	ad17	zad17	Sale and lease back agreements
ad2	zad2	Pensions and other post retirement benefits	ad18	zad18	Segmental information
ad3	zad3	Business combinations	ad19	zad19	Operating expenses
ad4	zad4	Goodwill	ad20	zad20	Revenue recognition
ad5	zad5	Business disposals	ad21	zad21	Loan losses
ad6	zad6	Investments	ad22	zad22	Interest in long term assurance business
ad7	zad7	Tangible fixed assets	ad23	zad23	Leases
ad8	zad8	Capitalization of interest	ad24	zad24	Provisions, reserves and valuation adjustments
ad9	zad9	Intangible assets	ad25	zad25	Inventories
ad10	zad10	Stock based compensation plans	ad26	zad26	Dividends
ad11	zad11	Accounting for associates and joint ventures	ad27	zad27	Adoption ias
ad12	zad12	Financial instruments	ad28	zad28	Others
ad13	zad13	Foreign exchange gains and losses	ad29	zad29	Depreciation
ad14	zad14	Capital instruments and debt	ad30	zad30	Effects of inflation on US GAAP adjustments
ad15	zad15	Minority interest			

adj = adjustment j on net income.

zadj= adjustment j on shareholder's equity.

After removing the most frequent adjustments, we analysed the effect of these individual adjustments by constructing partial indices, and evaluating the quantitative impact of the adjustments on US GAAP for individual items.

Where adj = adjustment j on net income

zadj= adjustment j on shareholder's equity

IC_{adj} = Partial index by adjustment j on net income

IC_{zadj} = Partial index by adjustment j on shareholder's equity

The interpretation of the partial index corresponds with that of the overall index of comparability. The partial index values measure the contribution of each 20-F reconciling item. The neutral value of 1 is retained for consistency. We have analysed the mean of the index by each analysed factor. We also use a test to examine whether there is a significant influence of country, industry or size on the partial index of comparability. As the distribution of the partial index is not a norm, we use the non-parametric Kruskal-Wallis test.



Results

Index of comparability

Tables 4 and 5 include median values and means of the overall index for each year and country. For calculation purposes, the outliers were excluded. The mean net income index of comparability was 1.67. This implies that for the period 1997-2001 Latin American net income was 67 per cent higher than the same net income measured in accordance with US GAAP. Table 6 classifies all observations in terms of their level of materiality. With regard to overall income, a large proportion of the observations (64.3 per cent) were material (differences exceeding 10 per cent). However, 45.35 per cent of material observations related to a decrease in net income under US GAAP, which confirms their relevance in increasing the mean index. The reconciliations of shareholder's equity also provide significant differences. The index of comparability with respect to total equity for the period was 1.32, indicating that Latin American shareholder's equity was 32 per cent greater than the same shareholder's equity measured in accordance with US GAAP. For the whole period, again a rather large proportion of the adjustments of shareholder's equity (45.63 per cent) was material (exceeding 10 per cent).

The overall index of comparability reveals that in 1997 the adjustments to net income under Latin American accounting principles represented 24% of net income under US GAAP (index 1.24), and by 2001 the difference had risen to 79% (index 1.79). There is an apparent indication that harmonization of measurement had moved in a negative direction over the period. Argentinean companies caused the increase in 2001. The

Table 4
Index of comparability- net income

	<i>Argentina</i>		<i>Brazil</i>		<i>Chile</i>		<i>Mexico</i>		<i>Total</i>	
	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>
1997	0.95	1.06	1.03	0.98	1.10	1.09	1.70	1.48	1.24	1.05
1998	0.99	0.98	0.99	1.01	1.77	1.02	2.60	1.08	1.77	1.02
1999	0.97	0.93	3.73	1.91	2.04	1.08	1.00	0.97	1.98	1.10
2000	1.37	1.14	2.47	1.10	1.16	1.07	0.76	1.01	1.39	1.07
2001	1.78	2.02	2.32	1.24	2.22	1.16	1.13	1.05	1.79	1.11
Total	1.26	1.05	2.14	1.03	1.69	1.09	1.42	1.08	1.67	1.08

Table 5
Index of comparability-shareholder's equity

	<i>Argentina</i>		<i>Brazil</i>		<i>Chile</i>		<i>Mexico</i>		<i>Total</i>	
	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>
1997	1.05	1.04	2.47	1.00	1.03	1.03	1.30	1.21	1.59	1.04
1998	1.05	1.05	1.15	1.01	1.04	1.05	1.41	1.26	1.21	1.05
1999	1.02	1.04	1.09	1.04	0.99	1.00	2.00	1.29	1.38	1.07
2000	1.02	1.07	0.99	1.02	1.01	1.03	1.33	1.09	1.11	1.04
2001	3.56	2.82	0.99	1.02	1.03	1.04	1.22	1.08	1.41	1.04
Total	1.64	1.07	1.27	1.01	1.02	1.03	1.48	1.19	1.32	1.04

Table 6
Frequency table of distribution of values of index of comparability

Level of materiality	Index values	ICrn (%)	ICse (%)
Adjustment of Latin American fundamental accounting variable is -10% or more of the amount of us fundamental accounting variable	£ 0.90	18.95%	8.73%
Adjustment of Latin American fundamental accounting variable is between -5% and -10% of the amount of us fundamental accounting variable	0.91-0.94	7.06%	7.14%
Adjustment of Latin American fundamental accounting variable within $\pm 5\%$ of us fundamental accounting variable	0.95-1.04	21.18%	34.12%
Adjustment of Latin American fundamental accounting variable is between +5% and +10% of the amount of us fundamental accounting variable	1.05-1.09	7.43%	13.0%
Adjustment of Latin American fundamental accounting variable is +10% or more of the amount of us fundamental accounting variable	³ 1.10	45.35%	36.90%

ICni =Index of comparability for net income.

ICse = Index of comparability for shareholder's equity.

value of the index for Argentinean companies rose from 1.37 in 2000 to 1.78 in 2001. Nevertheless, the value of the index for Mexican companies levels off towards 1, meaning that there has been a harmonization process between Mexican and US GAAP. On shareholder's equity, from 1997 to 1999, a gap emerged between Latin American and usshareholders' equity, but the temporal trend was reversed during 2000 and 2001.

In reviewing the differences between countries, the maximum restatement in net income was carried out by Brazilian companies. Brazil was the least conservative country of the sample. After Brazil come Chile and Mexico, with domestic net income of 69% and 42% respectively higher than American net income. Argentinean net income was the closest to us net income. There is practical neutrality between these standards. The mean index values for the four countries were greater than the neutral value. This implies that Latin American accounting practices tend to be less conservative than US GAAP.

The results of the shareholder's equity index show that the greatest disparities occur for the Argentinean companies. After Argentina come Mexico and Brazil. Chilean shareholder's equity was closest to American shareholder's equity. Again, the value of the index was higher than 1, so American GAAP were more conservative than Latin American GAAP in the measurement of shareholder's equity.

The results for the others factors reveal that the maximum restatement of net income by industry was carried out by companies included in non-financial entity. These adjustments increased their domestic net income by more than 34% to recalculate it in line with us GAAP. The medium-sized companies were the ones that modified their domestic net income to a greater absolute extent to calculate it according to US GAAP (index 1.95). However, the maximum variation of shareholder's equity was carried out by companies included as financial entities (index 2.14), adding adjustments to the domestic figure. The largest sized companies were the ones that modified their domestic shareholder's equity to a greater absolute extent in order to calculate it according to US GAAP (index 1.51) (Table 7 and 8).

Table 7
Index of comparability by industry

	Net Income Index				Shareholder's Equity Index			
	Financial		Non-financial		Financial		Non-financial	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1997	0.94	0.94	1.64	1.05	1.37	1.37	1.23	1.03
1998	0.89	0.89	1.22	1.05	1.77	1.97	1.77	1.01
1999	0.81	0.84	1.44	1.08	4.41	1.21	1.77	1.09
2000	0.89	0.92	1.13	1.04	1.24	1.20	1.41	1.03
2001	1.69	0.98	1.39	1.04	1.31	1.13	1.83	1.11
Total	1.04	0.90	1.34	1.05	2.14	1.16	1.62	1.07

Table 8
Index of comparability by size

	Net Income Index						Shareholder's Equity Index					
	Small		Medium		Big		Small		Medium		Big	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1997	1.55	1.04	1.28	1.11	0.98	1.03	1.10	1.00	1.05	1.03	2.81	1.21
1998	1.31	1.01	3.39	1.06	0.94	0.85	1.09	1.02	1.30	1.09	1.32	1.19
1999	1.93	1.20	1.91	0.93	1.80	1.27	1.65	1.02	1.21	1.08	1.28	1.17
2000	1.28	1.03	1.12	1.10	1.77	1.08	1.28	1.04	1.00	1.04	1.06	1.05
2001	1.29	1.10	1.87	1.41	2.19	1.11	1.22	1.02	1.13	1.04	1.72	1.08
Total	1.49	1.07	1.95	1.09	1.63	1.08	1.30	1.02	1.14	1.05	1.51	1.12

The non-parametric Wilcoxon test (Table 9) indicates that statistically significant differences between Latin American and us net income occurred in the years 1999, 2000 and 2001 (at $p<0.05$). The range of values above and below 1.0 was such that the median values in those years were significantly different from 1.0. Moreover, the Wilcoxon test confirms the significance of Argentina's, Chile's and Mexico's results. There were also significant differences for industry, and small and medium-sized companies. The results for the shareholders' equity index confirm that the index value for all the analysed factors was significantly greater than 1.

Table 9
Results of Wilcoxon test

	Net income	P value	Shareholder's equity	P value
Overall		0.00*		0.00*
Year				
1997		0.12		0.00*
1998		0.56		0.00*
1999		0.00*		0.02*
2000		0.03*		0.00*
2001		0.00*		0.02*
Country				
Argentina		0.03*		
Brazil		0.08		0.03*
Chile		0.00*		0.02*
Mexico		0.01*		0.00*
Industry				
Financial		0.00*		0.00*
Non-financial		0.00*		0.01*
Size				
Small		0.00*		0.00*
Medium		0.00*		0.00*
Large		0.06		0.00*

* Significant at 5%.

The results from the Kruskal-Wallis test conclude that there were no statistically significant relationships between country, year, company size or industry and the quantitative variation of the domestic net income to be restated as US GAAP. However, regarding the quantitative variation of domestic shareholder's equity, all the analysed factors, except year, influenced the index of comparability (Table 10).

Table 10
Results of Kruskal-Wallis test

	<i>Net Income Index</i> <i>P value</i>	<i>Shareholder's Equity Index</i> <i>P value</i>
Country	0.65	0.00*
Year	0.19	0.45
Industry	0.08	0.00*
Size	0.97	0.01*

* Significant at 5%.

The impact of different adjustments items

Table 11 lists the top ten categories that have the highest number of reconciliation items. Table 12 shows the quantitative impact of the most frequent adjustments in the fundamental accounting variables. First of all, it is expected, due to the sample of firms from high inflation economies, that this category would cause significant adjustments. Latin American GAAP requires that financial statements recognize the effects of inflation. On the other hand, under US GAAP general price level-adjusted financial statements are not required. Nevertheless, the reconciliation to US GAAP does not include a reversal of the restatement of financial statements for the effects

Table 11
Frequency of the adjustments

<i>Adjustments %</i>	<i>Net Income</i>	<i>Shareholders equity</i>
Taxation	78.80	75.63
Capitalization of interest	47.47	43.99
Tangible fixed assets	42.09	45.57
Minority interest	40.82	41.14
Pensions and other post retirement benefits	33.54	39.24
Goodwill	32.91	32.59
Intangible assets	32.28	30.06
Investments	29.11	24.68
Provisions. Reserves and valuation adjustments	27.53	23.10
Others	21.84	18.99

of inflation. The SEC does not require Latin American firms to reconcile what may be the most significant reporting difference between the two countries, inflation accounting, because it represents a comprehensive measure of the effects of price-level changes in the Latin American economy and, as such, is considered a more meaningful presentation than historical cost-based financial reporting.

A review of the Latin American 20-F reconciliation reveals that aspects of the accounting treatment of deferred taxes and tangible fixed assets are the most significant component of the difference in reported net income and equity, both in frequency of occurrence (Table 11) and magnitude of adjustment (Table 12).

Table 12
Partial index of comparability

<i>Adjustments</i>	<i>ICadj</i>	<i>Mean</i>	<i>ICzadj</i>	<i>Mean</i>
Taxation	ICad1	1,93	ICzad1	3,34
Pensions	ICad2	0,75	ICzad2	2,65
Goodwill	ICad4	1,16	ICzad4	0,99
Tangible fixed assets	ICad7	2,64	ICzad7	-1,63
Capitalization of interest	ICad8	0,96	ICzad8	0,69
Intangible assets	ICad9	1,03	ICzad9	1,01
Minority interest	ICad15	1,07	ICzad15	0,92

ICadj = Partial index by the adjustment j on net income

ICzadj = Partial index by the adjustment j on shareholder's equity

The effect of adjustments for deferred taxes was a decrease in the reported Latin American income to be translated into US GAAP income. This difference was also reflected, on a cumulative basis and with the same sign, in the reconciliations to shareholder's equity reported in the 20-Fs. On average, the effect of the adjustment was such that Latin American reported net income was 93% greater than US net income (index 1.93) and Latin American shareholder's equity was 234% greater than shareholder's equity under US GAAP (index 3.34) (Table 12). However, the frequency and quantitative impact of this adjustment decreased during the period as consequence of the standards issued in 2000 (revised Bulletin D-4 "Accounting for Income and Asset Taxes and Employee Profit Sharing" in Mexico, and Technical Bulletin No. 6 in Chile). Prior to the effective date of these standards, deferred income taxes resulted from the partial liability method of accounting whereby only identifiable, nonrecurring temporary differences (those expected to reverse over a definitive period of time) were accounted for. Under US GAAP, deferred income tax

is recorded under the liability method (SFAS109). Therefore, the results of efforts made to harmonize taxation must be positively valued, because the frequency and the quantitative impact of this adjustment have decreased during the period 1997-2001.

The results about the adjustment related to tangible fixed assets show that the proportion of companies that make this adjustment has increased over the years. Continuing through Table 12, on average, the effect of this adjustment is that Latin American reported net income was 164% greater than US net income (index 2.64) and Latin American shareholders' equity was 263% lower than shareholders' equity under US GAAP (index -1.63). The US insistence on historical cost accounting requires the elimination of any element of depreciation based on replacement cost and of any revaluation of fixed assets. However, under Argentinean and Brazilian GAAP, the revaluation of property plant and equipment is allowed, and under Chilean GAAP, certain tangible fixed assets are reported in the financial statements at amounts determined in accordance with a technical appraisal.

Another significant item among those listed in Tables 11 and 12, in terms of both recurrence and amount, is the capitalization of interest. Under Chilean, Argentine and Mexican GAAP, the capitalization of interest is optional, whereas under Brazilian and US GAAP, the capitalization of interest is required. In the early years of capitalization net income is higher in the capitalising company and profit is lower in the write-off company. But then, as time progresses, with any one transaction, the position reverses and the write-off company looks better because there is no amortisation. Consequently, the result of this reconciliation led to an increase in the reported Latin American fundamental accounting variables to arrive at US amounts. The cumulative effect caused by this difference is also reported in Table 12.

The results obtained from the application of the Kruskal-Wallis test are shown in Table 13. The net income partial index of taxation, tangible fixed assets, intangible assets and goodwill was related to the country. Also, tangible fixed assets were related to size, and goodwill to industry. On the other hand, the firm's country determined all the shareholders' equity adjustments. The magnitude of shareholder's equity adjustments related to taxation and goodwill showed a relationship with industry, while tangible fixed assets, intangible and minority interests were related to size. There was no temporal trend in the magnitude of the adjustments; there was no relationship between year and the magnitude of the adjustments.

Table 13
Results of kruskal-wallis test for partial index

Partial Index	Year		Country		Industry		Size	
	N I	S E	N I	S E	N I	S E	N I	S E
Taxation	0.30	0.65	0.00*	0.00*	0.65	0.00*	0.39	0.34
Pensions	0.80	0.43	0.15	0.03*	0.87	0.74	0.51	0.72
Goodwill	0.95	0.98	0.00*	0.00*	0.00*	0.00*	0.83	0.02*
Tangible fixed assets	0.14	0.97	0.00*	0.00*	0.91	0.73	0.00*	0.00*
Capitalization interest	0.21	0.15	0.45	0.00*	0.65	0.64	0.59	0.99
Intangible assets	0.85	0.99	0.00*	0.00*	0.30	0.79	0.08	0.02
Minority interest	0.47	0.45	0.68	0.00*	0.94	0.60	0.44	0.00

* Significant at 5%.

Summary and conclusions

Prior works examining the differences between Latin American financial reporting practice and US GAAP suggest that the latter are more conservative. This study has attempted to assess the quantitative impact of these differences on the measurement of net income and shareholder's equity for Latin American companies reporting on Form 20-F to the SEC.

The results from the analysis of overall differences in net income and shareholders' equity between Latin American GAAP and US GAAP indicate that Latin American practices were less conservative than US GAAP during the period, in terms of the impact on fundamental accounting variables. These results are consistent with Rueschhoff and Strupec (1998) and Davis-Friday and Rivera (2000).

The most frequent category of reconciling items was deferred taxes, capitalization of interest and tangible fixed assets. The same results were obtained in IASB(2001). Most of the adjustments have decreased their quantitative impact during the period. The efforts made in formally harmonizing the subjects discussed such as taxation must be positively valued. However, the partial index of comparability for tangible fixed assets has steadily increased, creating the necessity to reduce their practical treatment in order to achieve the desirable harmonization.

Finally, the results indicate that the differences between Latin American and US GAAP are not significant, but did not narrow during the period 1997-2001. The temporal trend in the use of adjustments has increased over time, suggesting a decline in the comparability of the financial statements. The results confirm the concern of the standard setting bodies to achieve the comparability of financial statements. Given the NAFTA and the fact that the SEC does not require reconciliation

of the most important difference between Latin American and US GAAP inflation accounting, it still appears that the SEC could not eliminate or simplify the required reconciliations for Latin American firms filing Form 20-F. These findings suggest that national regulators and standard setters need to work with an aim toward convergence of national GAAP and US GAAP.



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