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CONVERGÊNCIA A NORMAS CONTÁBEIS INTERNACIONAIS POR EMPRESAS BRASILEIRAS SOBRE MENSURAÇÃO E EVIDENCIAÇÃO DOS ESTOQUES: Um Estudo Com Empresas Textil E Calçadistas

CONVERGENCE WITH INTERNATIONAL ACCOUNTING STANDARDS REGARDING INVENTORY MEASUREMENT AND DISCLOSURE BY BRAZILIAN COMPANIES: A Study with Textile and Footwear Companies

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RESUMO

O artigo objetiva analisar as mudanças na mensuração e evidenciação de estoques com a adoção das normas contábeis brasileiras convergentes às internacionais. Tal objetivo inclui contribuições à comunidade científica e aos stakeholders das empresas. Utilizou-se amostra de 15 empresas brasileiras de capital aberto, do segmento têxtil e calçadista, compreendendo o exame do tratamento contábil dos estoques no período 2006 a 2011. A pesquisa é descritiva e documental, com abordagem qualitativa e quantitativa. Os dados foram coletados das demonstrações contábeis publicadas pela CVM. Utilizou-se de análises descritiva e de variância pela ANOVA fator Único. Identificou-se que: (a) o critério de custo é o adotado pelas empresas para avaliar estoques; (b) não há ainda efetiva adoção do ajuste ao valor líquido de realização; (c) há nível médio de observância da NBC TG 16 quanto à evidenciação dos estoques, sem melhora a partir de 2010, quando a norma tornou-se obrigatória; (d) Não há mudanças significativas nos níveis de estoque com os novos critérios vigorando desde 2010.

Palavras-chave: *Estoques. Mensuração. Evidenciação. Conformidade Normativa*

ABSTRACT

This article aims to analyze changes in inventory measurement and disclosure with the adoption of Brazilian accounting standards converging with international rules. This objective includes contributions to the scientific community and to the companies' stakeholders. The survey was conducted with a sample of 15 Brazilian textile and footwear public companies and comprises the analysis of the accounting treatment of inventories from 2006 to 2011. The research is descriptive and documentary, with a qualitative and quantitative approach. Data were collected from financial statements published by the CVM [Securities and Exchange Commission of Brazil]. Data examination involved both a descriptive analysis and a one-way analysis of variance (ANOVA). It was found that: (a) all companies adopt cost as the criterion for inventory valuation; (b) there is still no effective adoption of net realizable value adjustments; (c) there is an average level of compliance with the Brazilian Accounting Standard NBC TG 16 regarding inventory disclosure, with no improvement after 2010, when compliance with this standard became mandatory; (d) there are no significant changes in inventory levels with the new measurement criteria in effect since 2010.

Keywords: *Inventories. Measurement. Disclosure. Regulatory Compliance*

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1 INTRODUCTION

Inventories constitute relevant asset to the industrial and commercial companies. From this, comes the need for an adequate control, measurement and disclosure in the published financial statements (Iudícibus, Martins, Gelbcke & Santos, 2010). As part of the inventory, we can see assets acquired and held for sale, finished goods, products in process, raw materials, and materials employed in the manufacturing process (Scariot, 2011).

According to the converging environment of Brazilian Accounting Standard, the accounting treatment for inventories has undergone significant changes. In accordance to NBC TG 16 (CFC, 2009), the key question in the accounting for inventories is on the value of the cost recognized as an asset and how this figure should be maintained until the revenues are recognized and inventories turn into spending. This accounting standard, from the CPC 16 - R1 (Inventories) establishes that inventories should be measured at cost value or net realizable value, whichever is lower.

The changes in the form of measurement of inventories are aligned with the conceptual framework of Brazilian accounting, expressed at NBC TG Framework for the Preparation and Disclosure of Accounting and Financial Report. Based on this structure, assets must be acknowledged only when constituted as a resource controlled by the organization because of past events and from which it is expected a flow of future economic benefits to the entity. Therefore, the application of net realizable value in inventory valuation serves to evaluate whether the cost applied in this asset is retrieved in its entirety.

The adoption of the accounting standards with recent validity requires accurately and clearly disclosure, to familiarize users with the changes taking place, allowing comparability of information over time. To Iudícibus (2010), the disclosure in its adequate extent is an inalienable commitment of accounting to their users and their own goals, because concealing or supplying excessively summarized information is as damaging as providing excessive information.

From the context presented, the question that motivated this study arises, that is: How has the measurement and disclosure of inventories developed, in Brazilian companies, in the scenario of changes in the accounting regulations?

Thus, the aim of this study is to analyze important changes in the measurement and disclosure of inventories over the period, which comprises the adoption of converged accounting standards to international standards, particularly in IAS 2 IASB. The research includes examining the accounting treatment of the inventories over the period of 2006 to 2011.

The period in which the study was held is considered relevant, because it is expected that nowadays, the application of the new accounting standards inherent to the subject, is in a consolidation process. The contribution of the study is to assess the validation given by companies to the new accounting standards and enforcement of the requirement established. The limitation of the study purposes refers to the non-exploitation of the possible failure of companies to adhere to standards and its effects on disclosure and transparency. On the other hand, this is a study that can be a basis for the development of other studies, enabling to identify ways to help improve companies' compliance, disclosure and transparency. Therefore, we consider it an initial study, which may prompt others to major scientific developments and attendance of the different stakeholders.

In addition to this introduction, the study consists of literature review, presentation of the adopted methodological procedures, data analysis and conclusion.

2 LITERATURE REVIEW

2.1 Characterization and inventories' measurement

To Hendriksen and Van Breda (1999), the term inventories comprises goods for sale in the normal course of operations as well as usable materials in the production of goods to be sold. According to Iudícibus, Martins, Gelbcke & Santos (2010) inventories may be tangible or intangible assets obtained and/or produced by the organization for the purpose of sale or their own use. According to Rogers, Ribeiro & Rogers (2004), inventories are assets of physical nature and the investments therein can be significant and lacking efficient control.

Based on the NBC TG 16 and the aforementioned authors, it appears that inventories are assets that remain temporarily in the company, which are elements that make up its operating cycle. In accordance to NBC TG 16, the fundamental question implied in the accounting treatment for inventories, constitutes intrinsic aspect to the context of their control, associated to the cost value recognized as an asset, and that is the manner it should be kept on the records until the related revenue is recognized. In this context, according to Souza & Diehl (2009), the stock assessment is directly connected to cost accounting, where this potential link is a favorable element for companies, when well established. Thus, the cost management have a major role in Business Administration, and it is important to produce qualified information with respect to the appropriation of costs related to inventories.

By relating the cost management with inventories, Iudícibus (1998) notes that the term cost relates to the phase in which the production factors are withdrawn from the inventory and placed in the productive process. The raw materials and other materials used in the productive process become cost components during the product manufacturing, returning to be product inventories, and then become "Cost of Sold Products" upon the sale. In the measurement process, inventories are assessed at acquisition cost, an input measure that represents the resources used to place the inventory in this condition (Hendriksen and Van Breda, 1999). It is reiterated that the CPC 16 - R1 Inventories (CPC, 2009) establishes that inventories are measured at cost value or net realizable value, whichever is lower by stating the use of input values, whereas this would not outweigh the sale value.

2.2 Regulatory developments in the accounting treatment for inventories

As referred, the accounting treatment for inventories has been undergoing significant changes due to the convergence of Brazilian standards with international standards. The current standard resulting from the CPC 16 - R1 (Stocks) carries higher demands in terms of disclosure, requiring companies to submit in the explanatory notes the policies that the organization uses to reach the disclosed value of inventories and provide detailed composition. This statement also includes inventory measurement criteria and forms of presenting cost of products sold in the income statement.

Furthermore, the comparative analysis, considering concepts, classification, measurement, costs, expenses and disclosure between the International Accounting Standard (IAS 2), CPC 16 and the rules of Law 6,404 / 76 (Brazil, 1976), shows changes in the accounting treatment of inventories in the Brazilian normative, regarding the conceptualization, measurement and classification, in addition to the requirements concerning disclosure of this asset, convergent with IAS 2 of IASB (Atadaine Sobrinho, 2010).

Table 1 – Main aspects regarding the standards over inventories

Standards	Year	Main characteristics: Advantages and Disadvantages
Lei 6.404/76	1976	- Disclosure of Composition; evaluation criteria and effects of changes within; and items pawned or pledged as collateral. -More succinct standard but with limited disclosure. - Measurement based on cost or net realizable value (NRV), whichever is lower;
IAS 2 - IASB	2003	-Disclosure of eight compulsory items in the explanatory notes, including the items already mentioned ref. to the law 6404, including five more - Extensive standard, specific and more complex; introduction of the VLR that is an endogenous concept and more appropriate to the enterprise.
CPC 16	2009	- Equivalent to the standard IAS 2 of the IASB.

Source: Researched standards

The new standard (CPC 16 / IAS 2) requires disclosure of several items on the inventories. The disclosure occurs in the formal financial statements, but with greater depth and detail in the explanatory notes. To Iudícibus, Martins, Gelbcke & Santos. (2010) these notes are information to supplement accounting data. According to Scharf, Borgert & Paes (2008), their goal is to highlight information that cannot be reported in the financial statements, however are relevant to the understanding of accounting information. With respect to inventories, NBC TG 16 (CFC, 2009) establishes the minimum information in the financial statements to be disclosed in the explanatory notes.

2.3 Previous research on the subject

In this section, we present the key aspects of localized studies regarding the accounting treatment for inventories. These studies, domestic and foreign were developed in the first decade of the 2000s and formed the basis for the original study of the matter and guidance of this research. In addition to these, other studies were analyzed; however, the ones that come closest are reported in Table 2, considering the chronology of their publication.

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Table 2 – Basic description of the researched works

Authors / Year	Sample; sector; countries	Methodology; Data collection and Analysis	Key Findings
Lisboa (2000)	Eight companies in the four Mercosur countries.	Multiple cases, documental processing (financial statements), with descriptive analysis.	Heterogeneous accounting practices in the treatment of inventories. Cost as the measurement basis
Amenábar (2001)	Five countries in South America (Argentina, Brazil, Colombia, Peru and Venezuela)	Comparative conceptual method, literature collection (accounting principles and standards); descriptive analysis	Inventories: cost or market, whichever is lower; major differences in the determination of market value and control criteria
Murphy (2000)	Sample of Swiss companies compared to samples of companies in Japan, the United Kingdom and the United States. Accounting practices adopted in eight years (1988 to 1995).	Document collection with content analysis of the accounting practices of Swiss companies compared to companies from other countries. Quantitative analysis of indexes compiled from the practices adopted.	The adoption of IAS influences in the choice of inventories' methods of measurement, but the harmonization of information decreased by non-disclosure of information in accordance with the required standards.
Reis & Stocken (2007)	North American companies, with production technology potentially different but producing identical products.	Simulation games in four stages, in the same product market, applying historical cost and fair value on the measurement of inventories and cost of products.	With the fair value, the projections show the real situation of inventories, allowing the generation of higher profits and a decrease of uncertainty for the company.
Silva & Scarpin (2010)	Eight open capital, Brazilian companies, in the meat and meat products sector.	Documental research, with descriptive analysis of explanatory notes content from 2005 to 2007.	The companies have little evidence of cost management policies, limiting in many instances to the method of measuring inventories.
Scariot (2011)	Four Brazilian companies in the open market, part of the sector, Level 1 (one) of BOVESPA Corporate Governance	Documental research with descriptive and exploratory analysis of content of the disclosure of the companies of their financial statements for the fiscal year 2010	Regarding the statement, CPC 16 (IAS 2), companies submit disclosure with compliance level very close to its entirety.
Krishnan & Lin (2012)	Sample of American companies in the industrial, oil, pharmaceutical and retail.	Descriptive and comparative analysis of the impact of IAS 2 before the practices of USGAAPs. Documental analysis of the financial statements and simulation the consequences of adoption of the IASB standard.	Between the two normative standards, there are similarities in the inventory valuation, but they differ in the initial measurement, subsequent measurement, disclosure requirements and fiscal effect.
Yereli, Kayali & Demirlioglu (2012)	Sample of industrial spinning enterprises and Turkish textiles.	Documental data collection with analysis of impact of IAS 2, before the Turkish accounting standard that regulates the accounting treatment for inventories. It was simulated the effects of the adoption of IAS before the Turkish standard.	The adoption of IAS 2 results in large differences in the measurement of inventories in the companies studied, which would result in tax discrepancies.

Source: Elaboration based on previous studies

Based on the studies produced in Table 2, we identify that Lisbon (2000) and Amenábar (2001), concentrated their research on the harmonization in accounting practice in South America, which includes the accounting treatment for inventories. Kings and Stocken (2007) and Krisha & Lin (2012), built their studies in companies based in the US, but also kept the focus on the accounting treatment of inventories and measurement criteria. We can mention the studies within the Brazilian context of Silva & Pumps (2010) and Sacariot (2011). Their concern is the management of costs and, consequently, the measurement of inventories and its measurement from the IAS 2. Murphy's (2000), and Yereli,, Kayali & Demirlioglu (2012) research is the object of study of other realities, the first in Japanese companies compared to other realities and the second in Turkish companies, dealing both on the adoption process IAS 2 of IASB.

3 METHODOLOGY

3.1 Research characterization

It is a descriptive research because it depicts accounting practices adopted by Brazilian companies in the accounting treatment for inventories. To Sampieri, Collado & Lucius (2006), descriptive studies intended to measure or collect information independently. As for the procedures, it is documental, and according to Gil (2010), it aims to collect, analyze and interpret the data obtained from specific documentation accessed.

The research approach is classified as qualitative and quantitative. Qualitative, because it describes the accounting policies adopted by companies studied in the measurement and disclosure of inventories It is also characterized as quantitative because it uses basic statistical techniques and variance analysis to evaluate the impacts of regulatory changes in inventory levels before and after the changes in accounting regulations.

3.2 Sample

We used the sample from Brazilian public companies. It consists of 15 companies in the textile and footwear industry from 2006 to 2011. The choice of companies occurred using the criterion of intention, provided the sector's characteristic to maintain significant stock value.

Considering that the accounting standard inherent in the accounting treatment of inventories was published in 2007, and came into force in 2010, the period studied (2006-2011) is relevant. This longitudinal analysis helps to understand whether the companies maintained changes in inventory valuation standards, which affect inventory levels.

Even if the sample is restricted, it is understood as sufficient, as previous studies have also relied on samples that are more restrictive. Therefore, with the selected sample we can carry out a deeper analysis, with a qualitative aspect, which guarantees the scientific rigor of research, validating the results.

3.3 Data collection and processing

Initially, the data were collected, summarized and categorized, enabling the identification of the criteria employed in the measurement of inventories and mainly if the disclosure elements at NBC TG 16 were met. After this analysis, we identified the compliance levels in each company, quantifying them in percentage. We evaluated the compliance even during the years wherein said NBC was not mandatory, because we expected a proactive behavior in this regard, in a sample of companies with listed securities and traded on the BOVESPA. The items that we considered to assess conformity were prescribed at the NBC TG, observing that the companies had disclosed:

1. Accounting practices adopted in the measurement of inventories, including cost method used;
2. Total inventory accounting value and the accounting value in appropriate classifications to the entity;
3. Total inventory accounting value recorded at fair value subtracting costs to sell;
4. Inventory Value recognized as expense during the period;
5. Value of any reduction of inventories recognized as expense in the period (VLR);
6. Book value reduction recognized as a reduction for inventory value recognized as expense in the period;
7. Circumstances or events that led to book value reduction;
8. Inventory accounting value pledged as a guarantee for liabilities.

Considering the amount of disclosed items, it was possible to estimate the level (in %) of disclosure of every company for each year. This level (or compliance index) was calculated by dividing the total number of items evidenced by each company for the total of items that should have been evidenced, that is, the eight the aspects listed. In order to avoid bias or inconsistencies in the analysis of the disclosure of the items in each company, one of the researchers first conducted the analysis, the second researcher reviewed, and then we held a subsequent validation. Based on the data obtained, we carried out a descriptive assessment inherent to aspects of measurement and regulatory compliance in the disclosure of inventories.

In order to complement the descriptive analysis, it was necessary to identify the inventories acknowledged in the accounting statements, thus balancing them with total assets and gross margins of the companies identified. These data were used to analyze inventory levels and gross margins in two different periods: (a) from 2006 to

2009, when there was the compulsory compliance with NBC TG 16; (b), 2010 and 2011, years in which the NBC TG 16, became mandatory.

To conduct these tests, we used the Analysis of Variance technique (ANOVA Single Factor) to identify: (a) Changes in average levels of compliance in attendance with the requirements of disclosure in the period before and after the compulsory adoption of NBC TG 16 (IAS 2); (b) Changes in average inventory levels due to the effective enforcement of NBC TG 16; (b) Changes in average levels of gross margin of the companies as a consequence of changes in the measurement criteria in inventories. We used the same analysis of variance using ANOVA and T-test, that is, 2006 compared to 2011. As these results were not different from the ones in which the analysis included the previous four years, and the two sequent years to the compulsory standard under consideration, we presented only the results listed in Chapter 4.

According to Stevenson (1997), the analysis of variance using the ANOVA single factor, is considered a suitable test for the analysis of the mean differences of two or more samples, which are not necessarily the same size and when we cannot assure the normalcy of their distribution, which is the justification for its use.

In spite of all the non-occurrence actions, the main limitation of the research is related to two major aspects (a) no control over the data correction presented in the accounting statements; (b) possible faults in the data research collection and identification.

4 PRESENTATION AND DATA ANALYSIS

4.1 Inventories Evaluation Criteria

To achieve the aim of analyzing changes in the measurement and disclosure of inventories over the period comprising the adoption of converging accounting standards to international standards, we evaluated the regulatory compliance compared to what is provided in CPC 16 (NBC TG 16). We first identified the inventory assessment criteria the companies studied.

Over the period of 2006-2011, all companies revealed to measure their inventories at acquisition cost, construction or elaboration. In addition to revealing the adoption of the input values to measure inventories, there were also changes in this measurement criterion, even with the adoption of the new standard CPC. Amenábar (2001) in his research regarding companies in South America, also observe the measurement of inventories at cost in the actual sample. Conversely, we find Murphy's research (2000), which identified that the adoption of international standards changed the form of inventories measurement.

Moreover, with respect to measurement criteria, we attempted to evaluate which adjustment criterion was adopted, so that the inventories would not exceed their market value according to current regulations until 31/12/2009, or would not exceed their net realizable value, as recommended at TG NBC 16. The information inherent to this analysis are in Tables 1 and 2.

Table 1 - Inventory cost value adjustment criteria, used by companies from 2006 to 2009

Adjustment	Market Value		Realizable net value		Total	
Year	Nº	%	Nº	%.	Nº	%
2006	12	80%	3	20%	15	100%
2007	12	80%	3	20%	15	100%
2008	10	67%	5	33%	15	100%
2009	9	60%	6	40%	15	100%
Average	10,8	72%	4,2	28%	15	100%

Source: Research Data

Based on Table 1, we observe that in the years 2006 to 2009, on average, 72% of the analyzed companies used Adjustment at Market Value (AVM) to measure the value of inventory cost. However, 28% of companies revealed using the Net Realizable Value (NRV) as the criterion of inventory cost value adjustment.

Is worth mentioning that during the period from 2006 to 2009, there was the compulsory compliance with NBC TG 16, but nearly 30% of the companies studied, were using the adjustment at the net realizable value as an instrument to adjust their inventory cost value.

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In continuation of this analysis, we sought to identify, from the requirement of compliance with the NBC TG 16, the criterion used by companies - for adjustments in the inventory cost value, according to data presented in Table 2.

Table 2 -Inventory cost value adjustment, used by companies from 2010 to 2011

Adjustment	Market Value		Realizable net value		Total	
Year	Nº	%	Nº	%.	Nº	%
2010	7	47%	8	53%	15	100%
2011	7	47%	8	53%	15	100%
Average	7	47%	8	53%	15	100%

Source: Research Data

Based on Table 2, developed from the financial statements data, we observe that in 2010 and 2011, on average, 47% of companies continued using Adjustment at Market Value (AVM) to adjust the cost value of inventories, even though, this specific criteria was no longer the standard. However, in this period, 53% of companies revealed using the net realizable value (NRV) as inventory cost value adjustment, in compliance with the TG NBC 16. The situation is not ideal, because it would be expected that at those two financial years 100% of the companies studied were in full compliance with the actual accounting standards.

In Silva & Pumps (2010) research, there was little disclosure on cost management policies, restricted in many instances at the cost method for measuring inventories. In this study, we observed a good level of disclosure, especially when focusing in the adjustments applied, although the nomenclature remained the same with the new actual standard, which requires the adjustment to the net realizable value rather than adjustment to market value.

4.2 Disclosure of inventory accounting policies

Following the study, we assessed the compliance level to the standard NBC TG 16 concerning the disclosure of the accounting treatment for inventories. We assessed this compliance during the period 2006-2009, when the standard was not mandatory, and the period of 2010 and 2011, when there was the requirement for compliance (Table 3).

Based on Table 3, it appears that throughout the period analyzed, the compliance levels in the disclosure of inventories remained stable and very close to 70% on average. It is relevant to say that the disclosure held from 2006 to 2009 features conformity nearly identical to that observed in 2010 and 2011. Thus, the validity of provisions of the NBC TG 16, from 2010, was not a determinant factor in increasing compliance in the disclosure of companies surveyed. Disclosure requirements expressed in the norm and presented in section 2.2 of this study were very similar to the compliance levels in the companies surveyed throughout the analysis period.

Table 3 – Regulatory compliance of the disclosure requirements of the NBC TG 16

Nº	Company/Year	2006	2007	2008	2009	2010	2011	Average
1	Alpargatas	62%	62%	56%	57%	71%	71%	63%
2	Cambuci	80%	80%	80%	80%	36%	55%	69%
3	Grendene	71%	71%	71%	73%	64%	64%	69%
4	Vulcabrás	60%	56%	55%	55%	82%	73%	64%
5	Buttner	73%	82%	73%	73%	73%	73%	75%
6	Cedro Cachoeira	64%	64%	78%	67%	57%	50%	63%
7	Carlos Renaux	80%	80%	80%	80%	78%	78%	79%
8	Cataguases	67%	67%	67%	70%	80%	80%	72%
9	Cia Santanense	55%	55%	55%	55%	55%	55%	55%
10	Dohler	64%	64%	64%	64%	55%	64%	63%
11	Teka-Kuehnrich	67%	67%	67%	67%	82%	82%	72%
12	Têxtil Renauxviem	67%	67%	67%	67%	67%	67%	67%
13	Vicunha Têxtil	64%	64%	62%	62%	62%	92%	68%
14	Wembley	60%	60%	60%	80%	50%	50%	60%
15	Karsten	80%	80%	40%	60%	64%	70%	66%
	Average	68%	68%	65%	67%	65%	68%	67%

Source: Research Data

The best regulatory compliance levels in the disclosure of the inventories are above 70% (72% to 79%), and on average, the best compliance was identified in the company Charles Renaux, close to 80%. The worst compliance level, below 60%, refers to the company Cia Santanense, only 55% in the whole period. Thus, neither the requirement for compliance with such normative provisions, improved the level of the company's disclosure from 2010.

It appears thereby that in the textile segment and footwear companies, the compliance to NBC TG 16, regarding the disclosure of the aspects inherent to the stocks, cannot be regarded as complete, because of the compliance levels found. In a way, the disclosure levels corroborate the findings arising from Table 2, when has already been observed a low level of use of the discount to net realizable value as a criterion to adjust the value of inventory cost, revealing no regulatory compliance.

Scariot (2011) analyzed the case of four companies and concluded that they complied almost entirely, to what is established in CPC 16 in reference to the valuation criteria, measurement and disclosure. However, in this study, with 15 Brazilian companies in the textile and footwear sector, the compliance level with respect to the disclosure required by the same CPC was lower than 70%. We observed that only 47% of companies, reported performing adjustment to net realizable value, as determined by the new standard. Therefore, we observed very distinct behavior from that observed by Scariot (2011), when we noticed that almost all of the companies met the measurement criteria, which included the adjustment to net realizable value.

4.3 Compliance with NBC TG 16 and inventory levels and Gross Margin

Following the study, we analyzed of the development of inventory levels in the researched sample, prior to and after the requirement of compliance to NBC TG and, therefore, the value of inventories was put into perspective in relation to total assets. We examined the evolution of gross margin during the study period by assessing impacts on the Cost of Products Sold of companies, in light of enactment of the new accounting standards. Analyzes were performed through the Analysis of Variance (ANOVA - Single Factor), and the results are shown in Tables 4, 5 and 6.

Table 4 – Compliance Average levels with the disclosure requirements of NBC TG 16

Compliance NBC TG	Account	Average	Variance
Period 2006/2009	60	0,6676	0,0082
Period 2010/2011	30	0,6591	0,0167

Variation Source	SQ	gl	MQ	F	value-P	F critical
Between groups	0,0014	1	0,0014	0,1296	0,7197	3,9493
Within groups	0,9713	88	0,0110			

Source: Data Research

Based on the information of Table 4 it is identified the average levels of compliance in the measurement and disclosure regarding the inventories of companies in two distinct periods. During the period, which includes the years 2006-2009, we observe that on average, companies reported 66.76% compliance with NBG TG 16, bearing in mind that in recent years this standard was not a mandatory compliance. In the years 2010 and 2011, the average regulatory compliance with respect to NBC was 65.91%, which initially discloses worsening in attendance, despite the obligation. However, the difference between these averages is not statistically significant, since the value of statistical F is much lower than the critical F, as well as the Value-P 0.7197. It reveals that there is significant likelihood of these means of compliance to be equal.

It appears, therefore, that the effective exercise of NBC TG 16, from 2010, did not affect the regulatory compliance levels regarding the researched companies. It is worth mentioning that the average degree of compliance with the standard, in the period this is being required, does not look satisfactory.

Subsequently, we held an analysis to assess possible impacts of the adoption of the measurement criteria of inventories provided on NBC TG 16 in the inventory value of the companies. The results are shown in Table 5.

Based on the information on Table 5, we can observe the average levels of inventories (inventories in relation to total assets) in business in two different periods. During the period from 2006 to 2009, we observe that on average, companies held inventories equivalent to 13.73% in relation to their total assets, and in this period, the constant measurement rules of NBG TG 16 were not of mandatory compliance.

Table 5 – Evolution of Average levels of inventory levels with the requirements of NBC TG 16

Inventory /Total Asset	Account	Average	Variance			
Period 2006/2009	60	0,1373	0,0025			
Period 2010/2011	30	0,1293	0,0038			
Variation Source	**SQ**	**gl**	**MQ**	**F**	**value-P**	**F critical**
Between groups	0,0013	1	0,0013	0,4331	0,5122	3,9493
Within groups	0,2610	88	0,0030			

Source: Data Research

In the final period, 2010 and 2011, the values of inventories of the companies now account for 12.93% compared to their total assets. Initially, there is a slight decrease in the company inventory levels, following the effective exercise of TG NBC 16. Using the data, is possible to verify that the difference between these averages that represent the value of inventories in relation to the Assets of companies is not statistically significant, since we observe a similar situation regarding the measures “F” and Value-P, observed in the analysis of Table 4.

Considering the adoption of the new criteria for measuring inventories, from the need to comply with the NBC TG 16, we attempted to assess the impact of this situation at the Gross Margin (in%) of companies, because changes in the form of valuing inventories are reflected in the CPV, and consequently in the aforementioned margin (Table 6).

Table 6 – Evolution of Average Levels of gross margins in compliance to NBC TG 16

Gross Margin	Count	Margin	Variance			
Period 2006/2009	60	0,2514	0,0130			
Period 2010/2011	30	0,2355	0,0295			
Variation Source	**SQ**	**gl**	**MQ**	**F**	**value-P**	**F critical**
Between groups	0,0051	1	0,0051	0,2743	0,6017	3,9493
Within groups	1,6204	88	0,0184			

Source: Data Research

The data of Table 6 show the means of the gross margin in companies in two different periods. Initially, during the period from 2006 to 2009, when on average, companies reached gross margins of 25.14% compared to net revenue, and the, in the period comprising 2010 and 2011, gross margins of companies account for 23.55% to net revenue. It is noticed slight reduction in average gross margins of companies following the effective exercise of NBC TG 16, however, this difference was not found statistically significant, as the statistical F is much lower than the critical F, indicating significant likelihood of those two means to be equal. Thus, although not statistically proven, the decrease in gross margin levels, we perceive coherence with the findings from the Table 5, when there was also a decrease in the inventory levels (although not statistically significant), because the reduction of inventory values increases the CPV and reduces the gross margin.

According to Krishnan & Lin (2012), the IAS adoption by North American companies would lead to pressure on companies, especially regarding changes in information systems, internal controls and tax planning. Similarly, Yereli, Kayali & Demirlioglu (2012) in a study performed in Turkey, verified that the IAS adoption, concerning inventories, would result in great differences in the accounting records, which can lead to tax differences. These findings from previous studies are distinguished in the sample of Brazilian companies in the textile and footwear industry, since this sample, even with the adoption of CPC 16 (corresponding to IAS 2) did not reveal significant changes, neither in the average inventory levels nor in average values of gross margins. Comparing current results with the studies referred (Krishnan & Lin, 2012; Yereli, Kayali & Demirlioglu, 2012), we conclude that the researched Brazilian companies did not have significant changes in their accounting policies for the accounting treatment for inventories. Despite the existence of the convergent standard to the default IAS, there was a decrease in compliance level (Table 4).

5 FINAL CONSIDERATIONS

The research aimed to analyze important changes in the measurement and disclosure of inventories in the adoption period of convergent Brazilian accounting standards with international standards. In answer to research question, and based on the analysis, it noted that over the period studied all companies surveyed revealed measure their inventories at the cost of acquisition, construction or development. This finding reveals the adoption of the input values to measure inventories. In addition, it appears that there were no changes in this measurement criterion, even with the mandatory adoption of the new normative issued by the CPC. With regard to the criteria for adjustment of the value of inventory cost, it appears that after the effective requirement of the standard enforcement only 53.3% of the companies used the net realizable value, mandatory criterion. This situation may not be appropriate, because in the financial years 2010 and 2011 it was expected that 100% of the companies were in full compliance with current accounting standard, using the adjustment to the net realizable value as a means of measure the costs and inventories.

We observed that throughout the period analyzed, the regulatory compliance levels in the disclosure of inventories remained stable and close to 70%. We observed that the disclosure held from 2006 to 2009 is in nearly identical compliance to that of 2010 and 2011. Thus, the validity of provisions of the NBC TG 16 from 2010 was not conclusive in increasing compliance, corroborated by low compliance with statistical significance about it. The average degree of compliance over the period did not seem satisfactory for companies that trade their shares in the stock market. We identified a small decrease in the levels of inventories of companies after the effective exercise of TG NBC 16. However, the difference between the averages representing the value of inventories compared to the Assets of companies was not statistically significant. A similar situation was observed from the analysis of the development of gross margins, which presented a small decrease that even if not statistically confirmed, revealed coherence with inventory levels reduction.

Comparing our findings with previous studies (Table 2), it is reiterated that: (a) the level of disclosure in this study cannot be regarded very satisfactory, which is consistent with that observed by Silva & Pumps (2010); (b) even if Scariot (2011) observed good level of disclosure, it is emphasized that this study was in companies with high demand for disclosure, by their level of governance, which is distinct from our sample; (c) Lisbon (2000) and Amenábar (2001) did not identify harmony in the disclosure of companies in countries of South America, a fact that is not very different from what our study conducted in Brazil. It showed no adherence to current Brazilian accounting standard, or homogeneity of accounting practices; (d) in this study, the adoption of the standard of IAS 2 did not cause impacts concerning the inventory levels and cost of products sold, contrary to observations made by Yereli, Kayali & Demirlioglu (2012), with Turkish companies, and by Reis & Stocken (2007), who observed these

Even though this research considers a restricted sample, their results can be deemed relevant because they contribute in pointing to the reality of the accounting practice of an important economic sector over a period of six years. The impacts of the study for the scientific community prove to be meaningful, because it allows correlating the most recent developments on the theory of accounting to the procedures adopted by companies. Moreover, how they recognize such developments. This analysis strengthens a rethinking on the practical suitability of the theory. Regarding the various stakeholders of companies, the contribution of the study is to enable them to know how companies are measuring and showing the components of inventories, enabling a refinement in order to analyze and interpret the financial statements.

This research can be continued, with a larger sample, in either commercial or industrial segments, as well as the timeline and expansion of statistical analyzes. It is also recommended to carry out studies in broader contexts, within international scope, increasing the perception of the accounting treatment of the inventories. Further contribution of future studies is the specific research with companies about the main causes or barriers for not adopting or only partially adopting the new standards. Then, on grounds of major argumentations, we can target improvement actions in the standards framework, enabling the improving compliance. Companies recommend the same with respect to disclosure, transparency and/or accountability. Considering these objectives, the realization of interviews with financial managers could produce information that will enable the accomplishment of the intended diagnosis.

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