

# Valuing Universities' Heritage Assets in Light of the Third Mission of Universities



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*Not everything that counts can be counted, and not everything that can be counted counts.*

William Bruce Cameron (1957), "Informal Sociology: A Casual [Introduction](#) to Sociological Thinking"

**Abstract** The chapter contributes to the current debate on universities' heritage assets (UHA) value measurement by shedding light on the potential role that accounting, and reporting can play in this context. This study provides an in-depth [discussion](#) on the existing taxonomies of values for heritage assets and focuses on economic and monetary values. An original vision is used to critically observe the accounting for UHA in light of the third mission of universities.

The chapter explores the measurement of such values, under an accrual accounting mandatory transition, recently adopted by Italian universities, demonstrating how values have been distorted to match the accounting practice. Several accounting behaviours are discussed in the light of Shapiro's (Objectivity, relativism, and truth in external financial reporting: What's really at stake in the disputes? *Accounting, Organizations and Society*, 22(2), 165–185, 1997) theory of social constructivism in financial reporting to offer a critique that can be useful to financial statement preparers to reflect on their decision.

**Keywords** Universities heritage assets · Italian university museums · Third mission · Accounting · Book heritage, artworks, antiquities, and museum assets

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## 1 Introduction

In the broad view of universities as global leaders of teaching, learning and research providers, another mission, the so-called “third-mission”, is acquiring impetus. Third mission activities are defined as additional, transversal, softer and harder ways to transfer knowledge for societal impact and outreach (Etzkowitz and Leydesdorff 1997; Laredo 2007; Leydesdorff 2012). Among these third mission activities, it is possible to include universities’ direct involvement, among others, in public hospitals, museums, patents, spin-offs, and in general, in public engagement (Rolfo and Finardi 2012). Engaging the whole public is a pivotal element of the third mission that can be further fostered when universities’ cultural heritage is accessibly displayed (Santagati 2017).

This chapter presents a critical discussion on the role of accounting in valuing public Universities’ Heritage Assets (UHA), going beyond the mere measurement issue (i.e., identifying the proper book value) to embrace a more holistic approach on how value is measured in relation to such third mission activities, especially in the role of UHA in engaging the wider public.

There are different varieties of UHA, such as a university collection (departmental, school or faculty), stand-alone university museums, and, finally, a network of structured museum systems (Bragança Gil 2002; Hamilton 1995; Martino 2016). The managerial complexity, behind collections, museums and cultural networks, is incredibly various. For instance, while a collection may fluctuate in terms of use, preservation and perceived value, museums fulfil and support the university’s pedagogical role through entertaining (Heesen 2018; ICOM 2007). Collections, monuments, libraries, buildings and archives constitute an exclusive model of knowledge transmission through teaching and learning (Sanz and Bergan 2002).

Under a financial accounting perspective, public universities have been recently affected by a transition from cash-based accounting to accrual accounting (Adam et al. 2011; Agasisti et al. 2017; Becker et al. 2014; Feldman et al. 2010; Guthrie 1998). Such transition has required a general increase in reporting practices not only in financial terms but also in terms of intellectual capital production, knowledge-transfer, intellectual property value, as well as the creation of social value (Agasisti et al. 2017; English et al. 2005; Neumann and Guthrie 2002; Siboni et al. 2013). Consequently, universities’ managers are coping with measuring, calculating and reporting financial and non-financial data.

Consequently, today all public entities are called to determine the book value of their heritage assets due to public regulations that impose them to evaluate all their assets (Aversano et al. 2019a, b; Gstraunthaler and Piber 2007). The evaluation of the UHA of public universities is happening at a planetary level (Aversano et al. 2019a; International Monetary Fund 2018; Moggi 2016).

Concretely, determining UHA value is a multi-faceted problem. First, a pivotal role is played by the notion of value in museology that should be disentangled (Dumay 2016) in its application to UHA. For instance, UHA are a driver of the third mission activities of a university as they deliver informal knowledge transfer

processes. Second, a discussion on the economic value of UHA cannot be exempted from presenting a review of the different methodology applied in the museology field to account for the value creation engendered through its exploitation. Hence, a profound reflection on *what is value* in UHA is needed because this lack of definitions is causing a puzzling situation when it comes to preparing university financial statements and when universities' managers have to make decisions on the amount of value to be reported (Aversano et al. 2019a). This chapter contributes to solving this gap, suggesting that both financial and social aspects should be considered in valuing UHA, going beyond the accounting technocracy.

Although researches agree on combining financial accounting and third mission in public university contexts (Di Berardino and Corsi 2018), they have rarely been considered in the context of UHA, where different values are correlated (Aversano et al. 2019a). Through questioning the relationship, if any, between the book value of UHA and the value of UHA for the third mission purposes, our exploratory research will provide an accounting critique (Facione and Facione 2013) of the current state of the art on valuing public universities' heritage assets, looking at the content of the Italian public university financial statements, published just after the introduction of the accounting reform (reporting years 2015–2016). This data is then matched with the ones derived by the ministerial evaluation of the third mission, demonstrating the centrality of the value dilemma. The study presented here has theoretical and practical implications.

On the one hand, our critique can be retrieved in critical accounting studies with particular regard to the political power of accounting, that in our case, can be intended as investigating the consequences of valuing UHA properly (Cooper 1980; Cooper and Sherer 1984; Neu et al. 2001), especially in contrasting any potential adverse effect caused by an accounting misconception.

On the other hand, in organisational terms, public universities' financial statement preparers and UHA managers are usually not involved in strategic decisions regarding the third mission, that is, an issue related more to academic governance. Nonetheless, their daily routine and tasks may impact, directly or indirectly, the third mission and the knowledge transfer of the entire university. With this study, we investigate the nexus with the same intent that is held by critical scholars in literature, that is, the use of accounting used to encourage organisations to evolve and become aware of the potential effect of financial statements on social change, that in our case is represented by the different values of UHA (Bayou et al. 2011; Erb and Pelger 2015; Gallhofer and Haslam 1996; Modell 2017; Shapiro 1997). The theoretical model of Shapiro (1997) for social constructivism in financial reporting will be used to discuss our findings.

Our research illustrates the presence of a biasing effect in measuring the book value of UHA that also negatively impacts the evaluation of the third mission activities, noticing the risk that wrong or unconscious procedures for measuring the monetary value of UHA may cause indirect consequences in terms of rewarding or punishing universities themselves.

The remainder of the paper is organised as follows. Section 2 unlocks the concept of UHA in light of the university third mission; Sect. 2.2 briefly discusses the role of

accounting disciplines on the theories and practices of valuing cultural heritage assets. Section 3 presents the research methodology, and Sects. 4 and 5 present and discuss our findings. Section 6 concludes our study with implications, limitations and suggestions for further research.

## 2 Unlocking the Concept of UHA Values

To investigate the relationships between the accounting of UHA and the universities' third mission, it is useful to appeal to our imagination: contrast the idea of dusty shelves, plenty of old books and memorabilia with tourist lines and school kids ready to observe the Book of Kells at Trinity College of Dublin, the Anatomic Théâtre in Bologna or natural science museums all over the world. It is easy to understand the potential of UHA as a source of knowledge for societies and younger generations. Conversely, it is not so intuitive to discern how to record, organise and use accounting information to explain the potential benefits deriving from UHA.

Universities were among the earliest public organisations establishing modern museums, and traces of university museums start from the seventeenth century and earlier (Boylan 1999). Today, there are certainly more university museums and galleries around the world than at any time in history and among these, are the most important collections and museums. UHA incorporate a vast range of artefacts and intangible goods, as indicated by Lourenço's definition (2008, p. 328):

encompassing science, art and nature, museums and collections, artefacts and specimens, ugly and beautiful, easy and difficult, historical and in use, savoir faire and values, books and documents, buildings and gardens—in short, space and time, form and function, tangible and intangible.

Regardless of the heterogeneity of their UHA, the representatives of collections and museums of 12 European universities in 2000 founded the project “Universeum network”, aimed at the preservation and promotion of academic heritage in Europe; the project was announced in a Declaration of Halle Academic Heritage and Universities: Responsibility and Public Access. The group defined academic heritage as “university collections, museums, archives, libraries, botanical gardens, astronomical observatories, monuments of significance” (Universeum 2010, Statute).

In 2005, the Council of Europe, Committee of Ministers, Recommendation Rec (2005) 13 highlighted specific strands of improvement for UHA in order to improve the strategic view of UHA for the social responsibility of universities. The strategies included in the Recommendation covered issues related to finance, access (exhibitions and museums), professionalisation, training, research, awareness, relations with the local community and international relations.

Scholars affirm that between universities and UHA there is an organic and identified relationship that needs to be carefully nurtured to prosper (Duhs 2011; Hammond et al. 2006; Nissley and Casey 2002; Stanbury 2000). For instance,

Simpson (2014) contests any financialization of UHA propending for an assessment based on the role UHA plays in preserving the history of the university for teaching and research, as well as, for educating and engaging societies and the public, in other words, their intrinsic value, cultural and social value (Biondi and Lapsley 2014).

We support the idea that beyond such *value* or *values* of UHA, there might be political implications. More should be investigated in terms of the responsibility of universities' museums to be accountable for their presence and value within a university setting (Kozak 2016), and accounting can be used for promoting UHA more than just disclosing their ability to generate financial returns (Jardine 2013; Talas and Lourenço 2012).

Seeing that the meaning of “value” might be controversial, in the next pages, the chapter addresses the multiple facets of “values” that could be applied in accounting for UHA. The discussion will start by presenting a taxonomy of values in museology, and further light is shed on the economic value in museology. Finally, it presents the problem of quantification of the monetary value applied to UHA based on international accounting standards.

## ***2.1 A Taxonomy of Values Created by UHA in the Field of Museology Literature***

The term *values* applied to heritage refers to the meanings and values given to heritage by individuals or groups of people (Díaz-Andreu 2017). There is extensive literature on many classifications of values, including historical, aesthetic, economic, social and scientific ones. In one of the latest debates on the rationalisation of values, Fredheim and Khalaf (2016) count more than ten different definitions. These definitions span from an entire century, such as in the case of the 1903s pamphlet of Riegl (1982) to the latest ICOMOS revisions of 2013 (Fredheim and Khalaf 2016). Almost forty different types of values are mapped, and monetary or economic value only play a small part.

Applying a value creation logic to UHA, collections, exhibitions, museums and museum hubs, all these settings have “a dependency tie with a university” (Bragança Gil 2002, p. 1). According to Sanz and Bergan (2002): “the university presents itself as an actor of collective responsibility guaranteeing the sense of certain moral, intellectual and technical values” (Sanz and Bergan 2002, p. 9). Consequently, a wide range of values can be applied to UHA, especially considering that UHA contribute to the so-called university social responsibility in the generalisation of scientific knowledge among the general public and, particularly, the promotion of scientific interest and curiosity among the youth (Bragança Gil 2002). Table 1 reports a taxonomy elaborated starting with the typologies of values mapped by Fredheim and Khalaf (2016) and subsequently applied to UHA.

**Table 1** A selection of value typologies for heritage assets applied to UHA

A selection of value typologies for heritage assets	Application to UHA
Administrative, strategic	Providing the necessary conditions for the preservation, study and public fruition Strategic asset for increasing the competitiveness and visibility of universities Foster universities' interdepartmental collaboration
Aesthetic, archaeological, architectural, artistic	Exhibit artistic and archival patrimony, inherited from decades or even centuries of the university's existence Display and therefore protect Preserve scientific ceremonial, commemorative, decorative, didactic objects from risk degradation and loss In situ preservation Art galleries (especially for recent universities)
Bequest, townscape, landscape and ecological, tourism, local environment	Preserve uniqueness of places herein cities Provide public services including some university theatres, concert halls and arts centers, herbaria and botanical gardens Manage touristic flows
Cultural, symbolic	Promote of scientific interest at whole Public engagement activities
Curiosity	Promote of curiosity among the students
Commercial, economic, monetary, capital, estate	Visitor attractions Cultural destination for the territory Host events Movements of works and objects Historical buildings and settings (for ancient universities)
Educational, recreation, edutainment, creative	Educate and inform Host events Communicate sciences Researchers' nights Place to test different pedagogies
Historic, identity, monumental	Preserve institutional identity Be a historical memory of a given university/place Institutional archive of the university itself
Local distinctiveness, associative, prestige, uniqueness	Join network for broader cultural sector of a territory Preserve memories of local teachers and their biographies Contribute to the prestige of a university in terms of ranking
Scientific, research production, knowledge, technological	Study scientific ceremonial, commemorative, decorative, didactic objects Acquire objects from donations
Social	Increase scientific literacy among professors, students and staff Extend education to a large public (beyond the traditional one) as form of social inclusion

## ***2.2 A Review of the Methodology for Estimating the Economic Value of Cultural Heritage Assets***

Prior museology studies have addressed the long-standing issue of accounting for scientific, cultural, artistic and heritage assets (Barton 2000, 2005; Carnegie and Wolnizer 1995; Carnegie and Wolznier 1999; Micallef and Peirson 1997; Rentschler and Potter 1996). These studies have focused primarily on how private organisations of cultural heritage cope with measurement issues, without addressing the public perspective. Among others, the work of Stanton and Stanton (1997) addressed explicitly the role of accounting in valuing heritage assets. These authors discussed the opportunity to provide a “reliable measure” of heritage assets, concluding that both value-in-use (VIN) and value-in-exchange (VIE) are not trustworthy measures from an accounting perspective. They reached a conclusion that provides more importance to an admixture of financial and non-financial accounting: “accounting for heritage assets is distinguished by partial inclusion and measurement. Accurate information on all assets is more likely to be achieved by a non-financial focus” (Stanton and Stanton 1997, pp. 1003–1004).

Table 2 lists the most common quantitative methods used in museology studies; also, qualitative methods are synthesised in an online resource by the Cultural Heritage Counts for Europe Report (CHCfE Consortium 2015).

With the exceptions of VIN and VIE, almost all the other methodologies involve a third-party perspective, which can be an individual or the society as a whole. When it comes to accounting for the monetary value generated by a specific UHA, the problem is moving the focus from the salient feature of the object itself to embracing the view of the ability of the object under analysis to derive future financial flows or economic benefits from its ownership or management (Plaza 2010). Basically, the problem embraces a managerial perspective. The next section discusses what is intended for monetary value to be disclosed, concerning why the accounting of monetary value is mandatory and why accounting principles and practices should be redesigned.

## ***2.3 The Monetary Value of UHA***

According to the International Accounting Standard (IAS) 38, the value of an intangible asset is linked to the future economic benefit potentially flowing from such asset, including revenues, cost savings and other types of benefits. While IAS 38 can help private organisations to reach a conclusion, governmental-driven organisations like public museums, universities and public research centres apply International Public Sector Accounting Standards (IPSAS).

IPSAS 17 clarifies that in case of public institutions “these [intangible] assets are rarely held for their ability to generate cash inflows, and there may be legal or social obstacles to using them for such purposes.” As reported by recent works of

**Table 2** Quantitative methodologies to establish the economic value of cultural heritage

Type of value	Definition	Authors
Value-in-use (VIN)	Value-in-use is defined as the inherent service potential of an asset. In accounting practice, value-in-use is measured by the opportunity cost of holding the asset in a particular use, “for practical purposes”. This devolves to an estimated market price “as if” the asset was to be offered for sale.	Stanton and Stanton (1997)
Value-in-exchange (VIE)	Measuring the value-in-use of a heritage asset devolves into measuring its possible value-in-exchange: if an asset can generate any services, the discounted net present value of that income stream will determine the asset’s value.	
Willingness-to-pay (WTP)	Willingness to pay may derive from ensuring future value-in-use by a individual for himself, his family, and descendants, or merely from guaranteeing value-in-use by others (vicarious value to the individual). For a cultural heritage site, then, the use value that a visitor receives would be defined as the largest amount of money the visitor would be willing to pay, over and above any actual entry fee, to gain access to the site. We find the total use value generated by the site as the sum of all of the individual visitors’ WTPs.	Ruijgrok(2006), Stanton and Stanton (1997), Plaza (2010)
Use value	Use value is defined as the maximum WTP to gain access to the site.	Navrud and Ready (2002)
Non-use value	Non-use value includes benefits that people enjoy because they know that the site is being preserved.	
Altruistic value	The desire that the site be available for others to visit.	
Bequest value	The value of the site’s preservation for future generations	
Option value	The current non-visitor may decide to become a visitor in the future.	
Existence value	The preservation of the site, even if no one ever actually visits it.	
Choice modelling	Based on the characteristic theory of value, it expresses the value of a cultural heritage by defining its characteristics and establishing the importance of options between them.	
Willingness-to-accept	Willingness to accept compensation for the loss of the cultural assets.	Tuan and Navrud (2008)

(continued)



**Table 2** (continued)

Type of value	Definition	Authors
Hedonic pricing	Statistical calculation procedure that results in a percentage of property values that can be attributed to a historical characteristic of a good and its environment.	Ruijgrok (2006)
Impact value	As important as market and governance, impact values constitute the process of valorising the cultural and social value regarding qualities.	Ellwood and Greenwood (2016), Klammer (2002, 2016), Vecco (2010)
Travel cost	Calculation of the cost for a visitor to travel to the site.	Bedate et al. (2004)

accounting scholars (Aversano et al. 2019a, b), the nature of public cultural heritage assets is often that of being a public good (Scott 2010), whereas the cultural context influences its accounting (Adam et al. 2011). Biondi and Lapsley (2014) argued that neither the International Accounting Standard Board (IASB) nor the International Public Sector Accounting Standard Board (IPSASB) have specifically defined heritage assets, even if IPSAS 17 depicts a taxonomy of heritage assets and states that “some assets are described as heritage assets because of their cultural, environmental or historical significance” (IPSAS, 17).

Biondi and Lapsley (2014) have discussed the economic value of UHA stating that “their public value (in cultural, environmental, educational and historical terms) is not reflected in a financial value based purely on a market price; usually there are prohibitions or restrictions on their disposal by sale; they are irreplaceable and incomparable; they have a long-lasting, useful life; they have non-rival and non-excludable consumptions attributes, so they may be regarded as public goods” (Biondi and Lapsley 2014). So, what is the proper basis, if any, to evaluate UHA?

A possible solution is offered by the work of Aversano and Christiaens (2014), who suggest adopting a multi-stakeholder engagement activity to determine a shared choice of accounting criteria to be applied in the measurement phase. This solution can contribute by giving university managers different perceptions of the cultural value of an item under analysis (Ellwood and Greenwood 2016). For instance, during the *Perfumum* exhibition that took place in 2018 at Palazzo Madama in Turin, Italy, the history of perfumes was illustrated and enriched with explanation and the exposition of ancient academic pharmacological treatises. Such manuscripts, which were moved from a university library to an external exhibition, generated cash flow to the benefit of the organisers. Conversely, the exposition has benefited from having established a partnership with the university. The university has also contributed to generating different types of values with this transaction, and only a minority of them are traced using an accounting lens. Consequently, using other non-financial metrics, accounting for UHA might be helpful to university managers in becoming aware of the potential of their collections and also establish managerial policies on how to track the values generated. Nowadays, public universities are obliged to report the value of UHA to be recorded in the financial statements, and

simultaneously, they are asked to express their ability to manage UHA without being fully aware of the potential of their UHA. From an organisational perspective, those who usually prepare the financial statement and who manage UHA belong to completely different departments. For such reasons, we advocate for the need for clarity when it comes to valuing UHA, and a multi-stakeholder approach could be a solution. In other words, it is likely to say that public universities taking care of UHA, establish clear managerial practices, procedures and actions for managing UHA, also using accounting to serve the purpose of enhancing the value creation process generated by UHA.

Unfortunately, without any clear guidance on how to value UHA, there is the risk of compromising the comparability of the financial statements of public universities, especially when the financial statement is used as a driver for distributing public funds as it contaminates the national ranking.

### **3 Methodology**

Our research focuses on the Italian context of UHA, and this study aims at investigating the correlation between the mandatory accounting of UHA and the national evaluation of third mission activities carried out by universities. This approach is original thanks to its discussion about an actual situation and provokes debate on the possibility of negative consequences derived by a blind conviction that monetary accounting is sufficient for giving value to UHA.

#### ***3.1 Describing the Context Where Accounting Is Called to Take Action***

Our study focuses on the Italian context, where in the last twenty years normative changes have occurred, in terms of universities' autonomy (Arcari and Grasso 2011; Salvatore 2011), governance (Maran 2010), evaluation of performance (Palumbo 2012), reporting systems representation of results (Biondi 2013; Catalano and Tomasi 2010) and management control (Del Sordo 2005).

One of the latest regulations, namely the "Gelmini reform" (Italian Law 240/2010), sets out accounting policies, as a means to adopt financial statement reporting in accordance with requirements and guidelines issued by the Ministry of Education, University and Research (MIUR), including three-year economic and financial plans and consolidated accounts for more structured and large universities.

Lastly, in 2011, the National Agency for the evaluation of Universities and Research Institutes (ANVUR) was established, to take a step forward in the process of evaluation and quality assurance of the Italian university system. According to Agnella et al. (2012), the third mission is defined by ANVUR as a new way of teaching and doing research through listening, dialogue and collaboration with all

social actors. In Italy, Legislative Decree 19/2012 defined the principles of the system of self-assessment, periodic evaluation and accreditation of universities, and subsequently, the DM 47/2013 and 987/2016 adequately recognised the third mission as the institutional mission of universities to be evaluated in terms of cultural content, social, educational and civil awareness.

### ***3.2 The Italian Scenario for Evaluating the Monetary Value of UHA***

In Italy, the University of Modena and Reggio Emilia (UNIMORE) is leading several processes of cataloguing, promoting and institutionalising the role of Italian university museums. The composition of the cultural heritage includes: anthropologic artefacts; demo-ethno-anthropologic materials; archeologic artefacts; drawings; photos; art and antiquities; contemporary art pieces; prints; natural assets (from botany, mineralogy, palaeontology, planetology, zoology, and petrology); scientific and technological assets; numismatic assets; and musical instruments. According to their recent survey, the Italian pool of university museums includes 64 museums, 38 collections and nine botanic gardens and herbaria (UNIMORE 2001, accessed in January 2018).

Moreover, all Italian universities have been forced to measure and give monetary value to a whole range of assets, including UHA.

UHA monetary value constitutes, precisely, the opening amounts to be included in the first financial statements prepared under an accrual basis (Chiaravalloti 2014). The financial reporting scheme provided by the Italian Ministry of Education and Research (MIUR) classifies all cultural heritage assets under one specific count, herein tangible assets A) II.4 called *book heritage, artworks, antiquities and museum assets*. The explanation given is:

Account A) II.4 represents the value of the bibliographic material, all the publications of the libraries, and in general, all those assets that can be considered heritage, artworks and museums materials. (Technical operative manual, MIUR, 2016, p. 4)

Unfortunately, according to the same guideline, the definition of depreciation methods and expected useful lives introduces a distinction between book heritage that loses value over time and book heritage that does not. All the items included under the first category must be fully depreciated (Liguori et al. 2012). According to that manual, scientific articles and journals have “temporary importance” (Technical operative manual, MIUR 2016, p.7) so they will be fully depreciated. Managers have a discretionary role in determining the concept of temporary importance. For book heritage that does not lose its value over time, indeed, the ministry suggests constituting a non-distributable equity reserve (called “Fondo di dotazione”).

With value lost, value acquired, depreciation, revaluation and compensation, it is not surprising if someone gets lost and the question has been over problematised. In the current Italian context, more than one university manager has asked, and presumably many are now asking, how to value UHA.

### 3.3 *Data and Methods*

Because of the presence of basic statistics and qualitative information, this study can be labelled as a mixed-method (Creswell and Clark 2011).

As presented in the introduction, we are scrutinising: (1) the ability of UHA to generate different types of values, and in particular, in the context of third mission; (2) the economic value creation engendered through the exploitation of UHA has been studied by museology providing different accounting tools; (3) monetary value, indeed, continues to be referred to financial reporting standards, and in the case of public universities, there is not a unique orientation.

Consequently, our study implies two different ontologies. The ontology of the monetary value of UHA, that is, the book value of UHA expressed in euros and a different ontology used by the national evaluation of the third mission of Italian University (rank based on specific criteria over a bunch of categories), whose expression assumes the form of indicators to account for the value creation of UHA.

Such established monetary value of UHA can be retrieved solely in universities that have already completed the transition to accrual accounting. For such purposes, our sample only includes the universities that have experienced the accrual accounting transition for at least two years (2015–2016) and have accounting information published on the financial statements, accessible through public websites. The book value of UHA (*BOOK15* and *BOOK16*), the representativeness of UHA over the total of tangible assets (*PROP15* and *PROP16*) and the presence of impairments (*Δ1516*) have been collected from the financial statements.

The second order of quantitative data is related to the evaluation of third mission activities published by the MIUR. The specific section of the reports is the one related to the creation of social values in term of production and management of cultural goods (*BC*) and public engagement activities (*PE*). The first considers the managerial efforts that universities put in place to offer cultural goods, while the second is where the activities carried out through museums are evaluated. *BC* and *PE* are the latest data available according to the last governmental evaluation of the Third Mission 2011–2014. *BC* is an indicator of a rank that identifies four levels (from A to D), where A is assigned to the top performer universities regarding cultural goods and services offered. A fifth category, namely NV classifies those universities for which data are not available. *PE* is an indicator expressing a score given by the MIUR. *BC* and *PE* are not financial data (neither are related to financial information).

### 3.4 *The Sample and Its Selection*

Our sample includes all Italian public universities recognised by the MIUR in 2017 (n = 67), and excluded:

- distance-learning universities for making their educational services virtual and universally accessible;
- universities that have not yet adopted accrual accounting;

Therefore, our final sample is composed of 52 universities, and Table 3 provides a breakdown according to their dimension in term of student enrolments.

Within our sample, it is possible to account for 244 university museum sites. Individually, we counted 31 botanic gardens, herbaria and astronomic observatories; 151 natural and life sciences museums; 40 social sciences and humanities museums; and 22 historical archives and archaeological sites. In two cases, universities have one museum with several distinct collections, while the majority are characterised by an organisational structure with a museum hub. While one university has 24 museums and collections, there are also cases of universities that do not have a declared explicit museum but still have UHA.

### 3.5 The Model

To describe the Italian landscape of public universities' museums (Miller and Power 2013), we included other variables in our statistical analysis, such as the number of students (*STU*) and the year of foundation (*YEAR*). *STU* expresses a number of the potential users of third-mission services (not including potential financial contributions received but regarding social impacts and public engagements). Data for students has been collected using the enrolment databases made available by MIUR as of November 2017. The *YEAR*, useful for considering the historical roots of universities, identifies ancient universities versus younger institutions. The oldest university considered is a millennial one, while the youngest has been in operations for only a few decades. The oldest in our sample is the University of Parma (established in 962), while the University of Bologna, known as the mother of modern universities, dates back to 1088. Finally, the variable *MUS* relates to the description and quantification of universities' museums and museum hubs and has been derived from university and departmental websites. Table 4 reports the descriptive statistics for the variables analysed.

The variable about the provision of cultural goods (*BC*) groups universities in clusters from A to D. Our sample counts: for A, 1 university; for B, 14; for C, 20; for D, 3; and 7 not valuable institutions (NV). These last seven institutions received a

**Table 3** Composition of the sample

	Large	Medium	Small	Total
Number of public universities in the sample	24	18	10	52 (77.6% of Italian public universities)
Number of students enrolled during the academic year 2016/2017	947.573	211.700	130.276	1.289.549

Source: authors' elaboration

score from the MIUR regarding the third mission but not for *BC*. Each cluster reflects a different level of UHA activities, such as the management of archaeological sites and the management and provision of cultural goods using museum facilities ([Annex I](#) and [Annex II](#)). A test on the existence of any correlations between variables has also been performed, showing the results of the multiple correlations.

There is an evident and statistically significant correlation between *MUS* and *STU*, which means that the largest universities have more museums. There is also a correlation between *MUS* and the book value of UHA, showing that the presence of museums is positively correlated with the book value of UHA. A higher UHA book value is positively related to museums' arrangements. *PE* is not related to the book value of UHA, while it seems to be associated with the age of the university; the older the university, the higher the effort posed to engage societies. Regarding the linear regression model, we based our quest on the link between *PE*, as an expression of third mission rating, and the latest book values of UHA, resulting in the following test:

$$Y_i(PE) = \beta_0 + \beta_1 \log_{10} BOOK16 + \epsilon_i$$

Since the values of the observed variables are largely distributed and very spaced out, it was decided to apply a logarithmic transformation to *BOOK16* to preserve the goal of improving the knowledge of a phenomenon and reducing the final variance ([Hancock et al. 2010](#)). Calculations were made using R.

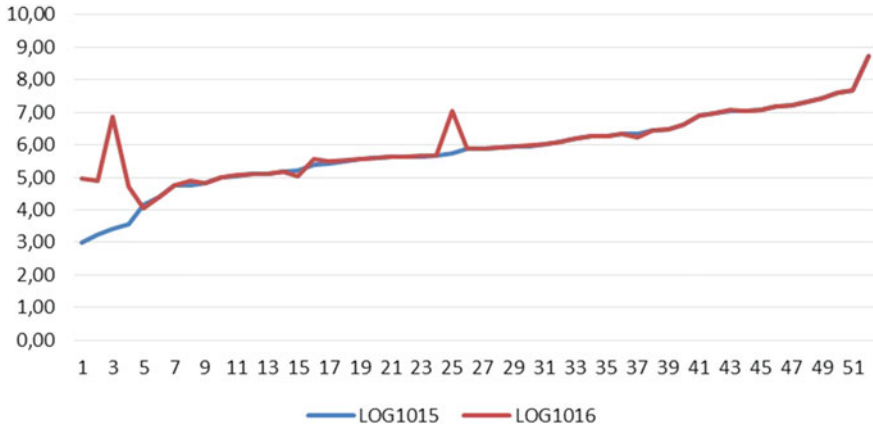
## 4 Findings

The overall book value of heritage assets—books, artworks, antiquities, and other museum assets—accounted for 793.940.007 € as of 31 December 2016 and 773.503.671 € as of 31 December 2015. However, from 2015 to 2016, several impairments of such assets were applied, reflecting that universities started the process of accounting for UHA after the introduction of accrual accounting, and the process is still ongoing. While the impairment may suggest the need for revising the initial estimated value of UHA, a surprising result comes from the analysis of the weight of UHA over the total amounts of tangible assets (of 2016), or in other words its relative value of their UHA. In 37% of the cases, universities register a very small relative value of UHA (among 0.02% and 0.47%); while 42% of universities had a relative value of UHA ranging from 1% to 6%. Only eleven universities published a relative book value that ranged from 10% to the extreme case of one university, showing a ratio of 63%. This information shows the extreme variability of the data as the scale varies in the order of  $10^4$ .

Figure 1 shows the value of the log10 of *BOOK15* and *BOOK16* (Y-axis), for each university of the sample (X-axis), in ascending order. Two evident peaks can be seen; each one represents a considerable impairment, that is, a process of adjusting the book value after its revision was performed by two different universities.

**Table 4** Descriptive statistics

	BOOK15	BOOK16	Δ1516	PROP15	PROP16	MUS	YEAR	STU	PE
Min	1000.00	10,886.43	-485,148.68	0.00	0.00	0.00	18	488	0
Max	523,306,345.95	523,354,600.95	10,305,499.60	0.63	0.63	24.00	1055	100,280	1
SD	72565805.86	72528646.01	1747754.81	0.136407	0.40	6.19	318.89	21,186.02	0.20
UNIT	Euro	Euro	Euro	%	%	Number	Years	Number	Score



**Fig. 1** The trend of book values of Italian universities' UHA as  $\log_{10}$

**Table 5** Results of the linear regression between the book value of UHAs and the results of the third-mission ranking

Regression statistics	
Multiple R	0.979
R square	0.959
Adjusted R square	0.938
Standard error	0.015
p-value	0.021

Especially for universities with the lowest monetary values, initially determined, it is highly probable that this value can be adjusted in the long run.

When it comes to analysing the link between the book values and the third mission ranking, we have applied a linear regression model. The universities labelled as *NV* and *Excluded\_BC*, and the University of Florence (an outlier) have been excluded from the sample. The results of the linear regression are shown in Table 5.

$R^2$  values confirm the adequacy of the model to interpret the existence of a positive influence between the book value of UHAs (normalised by the  $\log_{10}$ ) and PE given by the MIUR. As the p-value is 0.021, this relation is statistically significant.

#### 4.1 From the Notes to the Financial Statements

Reading through the financial statement, our study reveals the presence of different measurement bases and accounting strategies for UHA (Table 6), ranging from more sophisticated techniques, where UHA are impaired according to their fair value through experts' opinions, or drastic decisions such as in the case of removal of all the heritage assets from the first financial statements for future experts' valuations. Another alternative is represented by the case of UHA registered at the cost of



acquisition/price-to-market/disposal cost, minus any provisions for impairment. Noteworthy is the case of fully depreciated assets applied when the inability to determine a reliable value life or the cost-benefit of determining such value is labelled as unworthy. Lastly, there is the case of UHA considered as a commodity with an associated value of zero. In this case, the financial statement preparers have decided to consider all the items with a modest price, and consequently, they have discounted their value to zero. In the case of UHA equal to zero, universities consider their book heritage as a commodity.

## 5 Discussion

Our model revealed a linear and significant correlation between the book value of UHA and the rating received by national ministerial evaluation. Translating this into managerial practice, it can be said that more efforts have been spent on the process of quantifying UHA book values and more “points” have been collected in the national ranking. These “points” are salient in the way they contribute to determining award strategies as additional funds as well more possibilities to hire workforce.

Concerning the measurement of UHA, several reflections can be considered according to Shapiro's model (1997) on social constructivism in financial reporting.

**Table 6** Accounting behaviours adopted by financial statements preparers of Italian Universities

Measuring bases and accounting strategies for UHA	Explanation given	Percentage of universities applying the strategy
HA are held at cost of acquisition/price-to-market/disposal cost, minus any provisions for impairment.	There are no quoted market prices available in an active market, consequently, the fair value cannot currently be reliably measured.	20%
HA are impaired according to their fair value through experts' opinions attached to the financial statements	Prudently, an equity reserve is created	15%
HA are registered basically following their historical cost	Faithful representation	30%
Fully depreciated asset	Lack of usefulness of the results derived from measurements, or inability to determine useful life, or the cost-benefit of determining the value is not worthy. UHA considered as a commodity with value = 0	20%
Removal of all the heritage assets from the first financial statements for future experts' valuations	Preserving faithful representation	15%

In his work, he presents three different propositions for financial reporting, which can be usefully applied in our case. For Shapiro, the proponents of a critical-interpretative perspective (1) see financial reporting as an instrument of (sometimes radical) social change. Second, proponents of an economic view (2) prioritise the supremacy of respect for standards (considered able to produce beneficial consequences)—even if standards incentivise financial statement preparers to commit accounting misrepresentations. A third case, for Shapiro, is called decision usefulness (3), for which the primary concern for financial statement preparers should be to improve the decision relevance and reliability of the reported information for users, even if the recorded data may impose indirect adverse economic consequences on some reporting entities. In this case, reliability and accuracy are the perpetuated options (Erb and Pelger 2015).

In our study, the universities financial statement preparers that want to preserve a prudential behaviour have written-off the book value of UHA to postpone such valuation in due course. Similar is the case of universities having a book value of UHA equal to zero, not because of a write-off, but mostly due to a cautionary approach, waiting for future experts' recognitions and valuations.

In all the other cases, where the book value differs from zero, we can find the application of Shapiro's model. In particular, the universities that see financial reporting as an instrument of social change invest in sophisticated techniques engaging experts in an in-depth valuation process (1). Experts have museology background and in their work can consider a vast range of values linked to UHA, and also the contribute of such UHA to the third mission. Universities that support the faithful representation use the historical cost as a reliable driver, respecting the technocratic background but ignoring any museology tools or practice (2); and, the ones perpetuating the decision relevance of accounting (3) register a book value that considers costs such as acquisition/price-to-market/disposal cost, but also any provisions for impairment. In this last case, monetary value is the priority, but there is space left open to impairment, meaning the possibility of revising the monetary value associated to a particular element of UHA, if needed.

This research highlights two different perspectives in the broad framework of public universities' accounting processes. On the one hand, the data has shown the relevance of accounting for UHA and how it directly influences the ability of the university to be rewarded for its third mission, mainly when cultural heritage assets and museums contribute to the university activities. Conversely, our study shows how the comparability of public universities' financial statements is jeopardised by the very vast freedom of interpretation of reporting rules and policies.

If we assume an external user-driven perspective, the problem of comparability might not be relevant, given that only the government is the actual salient agent in the social contract with universities. However, if we adopt a multi-stakeholder perspective, as the concept of the third mission itself implicitly requires, dissimilar financial reporting might be misleading about the contribution that universities can effectively bring for the development of their society.

This last consideration introduces one of the central questions arising from this research. From the literature review, we have discerned three main philosophies

underlying the concept of UHA: the values of UHA according to museology, the museology-driven economic value and the accounting techniques (in most of the cases) to appraise and translate it into monetary terms. We have presented an elaborate list of strategies through which a public university museum creates value that should be considered and integrated for UHA. Such integration should encompass the financial, intrinsic, social, cultural and public value created as a whole, and this can happen also considering every qualitative appraisal and stakeholders' opinions (Biondi and Lapsley 2014). What emerges clearly from our discussion is the existence of discrepancies between values intended in museology (also including economic value) and the value appraised in accounting terms. So, there is a lack of multidisciplinary background and also organisational cooperation when it comes to appraising UHA "values". This result confirms the existence of the conflictual relationship between financial reports and the values of UHA, as reported by Aversano et al. (2019b).

Unfortunately, these recommendations appear to have not influenced the accounting methodologies of these assets. On the contrary, where the issue becomes complex in terms of accessibility, usability and management, there is a real disorderly and self-determined behaviour, which, as a result, undermines the credibility of the information contained in the financial statement. It will be years before Italian universities can implement at least a reliable estimation of such assets.

The other forms of values established by the museology literature might be beneficial, especially in critical cases, where a process of sense giving is necessary. For instance, when UHA are not accessible to the open public and not arranged through museums, their ability to be transformed in cash is useless. In all these similar cases, considering other types of values might be a valid option. Another critical case is represented by the fact that UHA are not separable from other objects, like when it is impossible to separate the container from the content, such as murals, or peculiar representative architectural elements with high historical, cultural and intrinsic value. In all the cases, where UHA are not movable, or when they constitute part of other tangible assets, a separate accounting treatment should be considered, at least because, even if they might not be able to generate direct cash flow, the maintenance costs, security costs and other preservation expenses are incurred.

The involvement of other stakeholder opinions in the process of value determination is essential. A driver for implementing a multi-stakeholder solution can be retrieved from Boylan (1999) who affirms that three elements should be considered in the case of UHA: the relevance in terms of value and potential future importance of historic items; the co-operation between the university and the outside community, with the intent of joining local networks and displacing any 'orphan' collections to potential interest authorities; and the autonomy of adequately qualified and experienced curators, conservator-restorers, technicians and administrative and finance staff in managing UHA. If these three elements were considered in training university managers in accounting for UHA, then the contrasting situations highlighted in the work of Aversano et al. (2019b) could be partially resolved.

What emerges clearly from this study is that nowadays, in the Italian case, the financial statement's book value of UHA does not account for the reality and most of

the time is far from the reality (Hines 1988). In terms of political implications generated through such accounting and reporting, it should be highlighted that nowadays financial statement preparers are completely excluding all measures of the economic value of HA provided, disregarding what prominent scholars have said in the literature (Adams and Harte 2000).

## 6 Conclusions

This chapter proposes the integration of stakeholder engagement with any attempts of determining the monetary value of UHA in universities. The study explains the existence of a statistically significant link between the monetary value of UHA and the scores obtained by Italian universities in a recent ministerial evaluation of the third mission activities. In this study, we have expanded the Biondi and Lapsley proposition of stakeholder engagement to embrace, in the case of universities, the importance of value creation for the third mission, such as public engagement of societies and knowledge transfer.

We have also reviewed the vast literature on the different meanings of values taken from museology, presented a review of the techniques available to determine the economic value, and, finally, presented the issue of establishing the monetary value, mandatorily by law. Currently, the book value of heritage assets of public universities is highly biased and not reliable, and we have only found evidence of an in-depth systematic review of all UHA items in a few cases. Most of the cases disregard the potential that these assets have for public engagement and societal outreach, and with this chapter, we have shed light on the decisive role that accounting might play in enhancing and giving voice to UHA.

Due to the recent transition to accrual accounting, the case of Italian universities is material, as several public universities around the world are facing a similar problem in accounting for their cultural heritage assets' value. The sample used is also statistically significant, providing us with a generalisation of our results, and consequently, a fertile ground for our critical insights. Reflections should be made in organisational and managerial terms, as universities that would like to adopt an interpretative-critical use of financial statements (according to Shapiro's model of 1997) need to invest time and resources in dealing with the accounting methods for their UHA.

Finally, a domino effect might be generated by misuse of the evaluation of the third mission activities as a criterion for distributing public funds to universities because a biased valuation of UHA book value may downsize the position of a university in the rankings, and this can lead to universities myopias in not giving strategic importance to third mission activities. In turn, the competition between universities will increase concerning their ability to create social value also through UHA, and it is easy to think that universities will soon be compartmentalised on their ability to manage, organise and display, accounting for UHA.

In conclusion, the social critique presented in this paper aims to stimulate a profound reflection on the use of accounting for UHA by financial statement preparers in determining the future consequences of their accounting choice over their university prestige and reputation. This critical discourse reflects the fact that UHA managers are usually left out of the strategic governance of universities, while indeed they should be more involved, and decision-makers have to listen to their voice as a sort of counterpart (Gallhofer and Haslam 2017). Furthermore, there is enough space for other forms of accounting such as non-financial accounting to communicate all the values created by universities through its cultural heritage, such as qualitative intrinsic, social, cultural and natural “values” that are more important and often significantly greater than economic accounting value. Using non-financial disclosure, internal and external users might be more aware of the value of their UHA, and of the value of the investments for preserving, restoring and increasing UHA.

Further studies can be conducted on the managerial implications related to a multi-stakeholder appraisal of the value generated through UHA and the problems that can be seen in opening up the box of traditional accounting. By translating accounting for cultural heritage into action, the role of the university for sustainable development will increase, as universities' museums and UHA are a softer way to support knowledge transfer and public engagement.

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## Annex I

Main variables grouped by the rank assigned by the MIUR in evaluating the third mission

	BOOK15	BOOK16	log <sub>10</sub> 15	log <sub>10</sub> 16	Δ1516	PROP15	PROP16	MUS	YEAR	STU	PE
A	27,270.16	27,302,655.08	7.44	7.44	32,500.08	0.18	0.17	22	211	40,414	0.42
B	40,939,964.76	41,687,710.43	6.11	6.27	747,745.7	0.11	0.12	7.64	363.07	27,755.71	0.53
C	8,164,170.209	8,273,375.12	6.28	6.29	109,204.9	0.05	0.05	5.05	452.1	29,572.1	0.48
D	38,166.81	2,519,916.81	4.31	5.50	2,481,750.00	0.00	0.02	2.33	248.67	22,794.33	0.549
NV	1,182,831.64	1,201,517.02	5.73	5.76	18,685.38	0.01	0.01	0.86	57.57	15,059.86	0.41
Excluded_BC	199,611.82	224,504.82	4.54	5.04	24,893.00	0.08	0.10	0.14	33.71	8814.57	0.40

## Annex II

### Multiple correlations

	log <sub>10</sub> 15	log <sub>10</sub> 16	Δ1516	PROP15	PROP16	MUS	YEAR	STU	PE
log1015	1.000								
log1016	<b>0.945</b>	1.000							
Δ1516	-0.555	-0.286	1.000						
PROP15	0.711	0.725	-0.442	1.000					
PROP16	0.599	0.626	-0.382	0.989	1.000				
MUS	<b>0.832</b>	<b>0.939</b>	-0.222	<b>0.852</b>	0.793	1.000			
YEAR	0.361	0.430	0.210	0.111	0.060	0.249	1.000		
STU	0.802	<b>0.938</b>	0.003	0.614	0.532	<b>0.881</b>	0.642	1.000	
PE	-0.226	-0.043	0.788	-0.256	-0.232	-0.119	0.705	0.258	1

Bold in cases where p-value < 0.05

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