Value Based Management Systems and Firm Performance
An Analysis of the Literature

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Abstract. The main purpose of this paper is to analyse the international VBM systems debate, understanding the state of the art in the Accounting literature. According to the systematic literature review process described by Massaro, Dumay and Guthrie (2016), with the use of NVivo software as a fundamental tool for developing the qualitative research, this study tries to identify the main streams of the VBM systems literature. The debate about VBM systems is still open and is focused on three main streams of research: studies focused on the tools, model and technicalities for the VBM systems implementation; studies related on the VBM systems characteristics and its relations with the Firm’s characteristics and studies focused on the VBM systems relation with the firm’ performance. Literature point out the necessary interrelation between the firm’s characteristics and the characteristics of this system. VBM adopters achieve a positive performance effects, in terms of shareholder value creation. Literature’ analysis show an important gap, it regards the absence of a theoretical framework for defining and analysing this type of systems and the firm’s characteristics. This study tries to fill this gap by analysing the state of the art in the accounting literature, with the scope to understand deeply the origins of the VBM performance effects.

Keywords: value based management systems, value based metrics, value based management systems adopters, corporate performance, shareholder value

1 Introduction

Over the last two decades of the twentieth century we have seen some remarkable changes in the managerial accounting at the business’ beck and call. From the traditional attention to the financial measures and the budget’s control, managerial accounting has shifted more and more to a strategic approach directed towards the identification, the measurement and the administration of the determiners of the business’ economic value for the shareholders. Some important empirical studies looked at the analysis of new techniques and instruments, like the Activity Based Costing, the Balanced Scorecard, the budgeting and the strategic control, and last at the economic value measures (Ittner, Larcker, 2001). A contribution to this was also given by the success of the financial theory in whose main setting the economic value of the company’s assets stands for the fundamental parameter for the main line of choices. As a matter of fact, the centre of attention is the economic calculation in uncertain and complex contexts. These principles have shifted the management’s attention from the idea of economic value to the determiners of the value. An answer to these measurement problems, initially the measurement in complex business and environmental contexts, and the research of explanations to the behaviour of this fundamental characteristic – the business’ economic value – comes from the Value Based Management System (VBM) (Comuzzi, 2016). The interest in VBM of many scholars, many companies, and many managers actually increased towards the end of the ‘90s and the beginning of the new century (Ittner, Larcker, 2001; Beck, Britzelmaier, 2012; Blume, 2016).

A VBM is a scheme, a holistic system of Value Based (VB) metrics that support the decision-making process. The implementation of these managerial control systems allows to connect the strategic goals to the ‘drivers’ – the determiners of the business’ economic value – such creating a cause-effect relationship that can explain all business behaviour (Burkert, Lueg, 2013). These managerial systems
have developed mainly to govern the business’ economic value (available to shareholders), to reduce conflicts between shareholder and management (Ryan, Thran, 2007; Schultze et al., 2018). The main goal of VBM is to translate the strategic goals in business’ economic value measures, guiding the strategic actions to the superordinate goal of shareholder value creation (Knauer et al., 2018).

In general terms, a Management Control System (MCS) is a system of information useful for management and organization in order to implement and maintain a series of preordained behaviours and "directions" (Otley, 1999). In this context, VBM systems can be defined as a particular management control technique (Otley, 1999), in which economic value becomes the fundamental measure for the management choices. The needs to explain the causes and the determinants of the process of shareholder value creations led to the creation of VBM systems. VBM systems can be defined as a particular management control technique (Otley, 1999), in which economic value becomes the fundamental measure for the management choices. The needs to explain the causes and the determinants of the process of shareholder value creations led to the creation of VBM systems. VBM systems can be defined as a holistic Managerial Accounting Systems (MAS) based on economic value measures that are the base and the guide for strategic decisions (Forker, Powell, 2008) (McLaren, et al., 2016). The fundamental objective of these systems is to translate the strategic objectives in measures of firm’s economic value (Knauer, et al., 2018), with the purpose of linking the decisions and strategic choices with the fundamental drivers that explain the business phenomena, in particular the creation of shareholder value.

The main goal of this work is to give a bibliographic review of the Accounting literature: (1) identifying the state of the art; (2) its most recent evolution and (3) the possible future trajectories.

The method used for reviewing the literature is the systematic literature review as introduced by Massaro, Dumay e Guthrie in 2016, and employed in the previous contribution by Massaro, Dumay, Garlatti in 2015. This study is organized as follows: methodology and research questions, results and dominant theme analysis; and discussion and conclusions.

2 Methodology

The method used in this review is the systematic literature review as described by Massaro, Dumay and Guthrie in 2016. The process of conducting a structured bibliographic review is a process that must be logical and based on methodological rigor (Hart, 1998).

The steps followed in this studied are the following:
1. Definition of the research hypothesis;
2. Definition of the review protocol;
3. Analysis of the publications;
4. Identification and analysis of the dominant theme;
5. Conclusions and Discussion.

2.1 Research questions

The research problems concern mainly two important areas, the problems related to the knowledge of a state of an object and the problems related to the research of the correlation between two defined variables. The problem definition and the formulation of the relative hypothesis are the first step, with the literature analysis, for the creation of clear and logic cognitive framework (Kothari, 2004). The main scope of this study requires the development of questions related to the knowledge of the state of the international debate about VBM systems. The research questions can be identified as followed:

D.1 How is the VBM systems literature developing?
D.2 Which is the state of the art of the literature?
D.3 Which are the possible future trajectories of the research about the VBM systems?
2.2 Review protocol

The research protocol of this work can be detailed by the following steps:

a) Definition of the articles sample, in particular the journal that are the bases of this research;
b) Analysis and selection of the researched articles;
c) Determination of the coding system, the base of the analysis;
d) Discussion about the international debate.

a) Sample definition and the research criteria. In order to ensure a higher degree of “reliability” of the reference journals. The journal chosen are the only that are part of the Academic Journal Rating 2015 defined by Chartered Association of Business School. The categories of this classification that are part of the study are: Accounting; General Management, Ethics and Social Responsibility; Strategy.

The journals selected have a qualitative rating of at least 3 stars.

The research keywords used were: Value Based Management System, Value Measure and Value Key Performance Indicator. Other keywords were added: Economic Valued Added, Residual Income Model, CFROI, Discount Cash Flow Method, Return on Invested Capital, that are the “classical” model and metrics identified by the literature as application of VBM systems (Lee, 1999; Young, O’Byrne, 2000; Ryan and Trahan, 2007).

b) Analysis and selection of the articles. In the first research step the keywords are searched inside each journal’s search engine, in order to ensure the significance of the articles sample. The number of articles identified in the research are equal to:

- 40 inside Accounting category;
- 23 inside General Management, Ethics and Social Responsibility category;
- 14 inside Strategy category.

In the second research step the articles was analysed by the researcher, in order to identify the relevance and the significance of the articles for the purpose of this work. The total number of selected articles is 52, divided as follows:

- 31 inside Accounting category;
- 11 inside General Management, Ethics and Social Responsibility category;
- 10 inside Strategy category.

This review is focused on the 31 Accounting articles, the other (Management and Strategy articles) have a comparison role for understating deeply the international debate.

c) Definition of the coding system. The Constant Comparison Analysis is one of the most used qualitative data analysis techniques (Leech, Onwuegbuzie, 2011) for the literature review (Onwuegbuzie, et al., 2012). This type of analysis consists in the systematically reduction of the sources to code with the inductive approach. The text should be read by the researcher and then he develops the principal themes of the review from the codes (Onwuegbuzie, et al., 2012). The Constant Comparison Analysis is used in this study, with the support of NVivo software as qualitative analysis software for the development of the coding system, of the nodes and for understanding the principal theme of the international debate.

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1 This guide is based on the top review judgment members of the scientific committee. It is a guide of the quality of journals in which economics and managements academics develop their research (Academic Journal Guide, 2015).


4* Journals: are part of this category a restricted number of 4 star journals, which represent outstanding excellences worldwide. These journals have a higher impact factor score and represent the best theoretical advancement of this research field.

4 Journals: this type of journals have generally a higher impact factor scores in the reference field. They have a higher level of submissions and a lower level of acceptance.

3 Journals: this type of journals have generally a good rate of acceptance and are very selective journals. They have a good metric score but not all of the journals in this category have an impact factor score.
The coding system is useful for identifying the dominant theme in the international debate. The main steps followed in this type of analysis are four:

- Step 1 – Sources reading: the 31 reference articles included in the Accounting category was read and identified according to the procedure described. Then the text was reduced and the first level codes were created;
- Step 2 – Nodes building: the nodes were created with the aggregation of each code from its source;
- Step 3 – Analysis of the tree nodes: the result of the analysis of the code relation is the hierarchical nodes tree, that divides the principal theme of the international debate.

In the below picture (picture 1) is showed - with the use of the conceptual maps, the aggregation mechanisms between codes and nodes and in the end, the VBM systems category.

Picture 1: Tree nodes

Representation of the tree nodes

Knauer et al. (2018) have identified two principal streams of research in which the international debate about the VBM systems is divided:

- Studies that are focused in the relation between firms’ characteristics and VBM systems;
- Studies of the VBM system performance effects.

This study confirms the previous findings (Knauer, et al., 2018), but it finds another category, that regards the studies of tools models and technicalities which are the bases for the VBM systems adoption.

3 Results

3.1 Publications analysis

D.1 How is the international debate about the VBM systems developing?

From the analysis of the global distribution of the analysed contributions (picture 2) we can see that the international literature about VBM systems is more concentrate in the period from 2002 to 2018. There is also a huge number of articles included in the period 2016-2018, that represent the 25% of the total articles.
Instead, the separate analysis of the three-journal’s category identified, Accounting, Management and Strategy, show different type of results. The distribution of each category is different from the global distribution. The Accounting articles are homogeneously distributed in the period from 1998 (oldest article) to 2018 (youngest articles). The main concentration of the articles is present in two periods, 1998-2002 and 2014-2018. This result is completely different than the other two categories (Management and Strategy). The paper founded in the Management category are mainly concentrated in the period from 2000 to 2007, in this period there is the 50% of the total number of articles. The 75% of the articles that are part of Strategy category are included in the period from 2015-2018. This result can highlight a recent interest of this argument in the international debate. The separate analysis of each categories shows us different literature trends. (picture 3).

Picture 3: Accounting Paper, Management Paper and Strategy Paper BoxPlot

Elaboration of the data with R Software
In the end of this analysis must be reported that the 21.15% of total articles (35.48% of the Accounting category) comes from the Management Accounting Research Journal. Indeed, in the period from 2000 to 2009 the main topics published by this journal are: techniques of costing, change in the management accounting and in the management control, performance measurement and managerial practices (Management Accounting Research Editorial Board, 2010). In sum, is possible to underline that the international debate about the VBM systems is still open, but it is not possible to define a clear literature’s trend for each literature’ categories.

3.2 Identification and analysis of the dominant theme

Definitions and conceptual evolution

The VBM systems were the object of the great literature attention by the end of 90’s and the beginning of the new century (Ittner, Larcker, 2001) (Beck, Britzelmaier, 2012). The economic value measures were the “classical” approach for the corporate strategy determination and evaluation, since the ‘90s (Barsky, et al., 1999). In this context was possible to witness at the great success of the Economic Value Added (EVA) model introduced by Stewart Bennett and to the development of the other similar models that derives from the Residual Income approach. These systems are used as a fundamental tool for assessing managerial performance and as central measures for the management control systems (Malmi, Ikaheimo, 2003). The fundamental formulation of these systems derives from the theory of agents; VBM is systems for aligning property and management interests, in order to reduce the cost that can be derive from the conflicts of interest (Lovata, Costigan, 2002; Ryan, Trahan, 2007; Firk, et al., 2016; Knauer, et al., 2018; Shultze, et al., 2018). Among these, we can include an important theoretical framework about VBM systems based on a normative approach. It is used as a theoretical contribution for studying and interpreting the empirical research about these systems (Ittner, Larcker, 2001). In this stream, VBM systems can be defined as a systems of management control based on economic value measures, that are the guide for the strategic decisions (Foraker, Powell, 2008; McLaren, et al., 2016). Consequently, the main goal of these systems is to translate the strategic objectives in measures of firm’s economic value (Knauer, et al., 2018). Thus, the strategic objectives are linked to the drivers of the company’s economic value creation. This process allows to understand the chain of cause-effect relationships, the base for the explanation of the business phenomena (Burket, Lueg, 2013).

Tools, Models and Technicalities

Part of the literature on VBM systems are focused on the study of tools, models and technicalities for the adoption of these systems. One of the first model widespread on a large scale was the Economic Value Added (EVA) introduced by the book "The Quest for Value" by Stewart Bennett (1991). EVA is a measure used for the decision-making and also for the valuation of the performance (Riceman, et al., 2002). Therefore, it is a base of the VBM systems; some scholars define this measure as a Performance Measurement Innovations, the starting point for the VBM systems (Malmi, Ikaheimo, 2003; Chiwamit, et al., 2017). Indeed, it consider the determination of an "Economic Value Added", able to link the strategic implementation with the strategic goal of maximizing the economic value for the shareholders (Riceman, et al., 2002; Gleadle, Cornelious, 2008).

The EVA is a specific formulation of the Residual Income model (Schueler, Krotter, 2008) – Stewart proposes an adjustment to the accounting measures in respect to the originally identified variable – the history of this performance measure is much longer than EVA. For this reason, it was object to a long debate in the Management-Accounting literature during the period 60-70’s (O’Hanlon, Peasnell, 2002). The basic idea of the formulation is that: managers must guarantee a greater result than the cost of capital employed (Lovata, Costigan, 2002). This model has been part of the international debate for a long period of time. Many scholars have placed their attention on the creation of models and measures related
to EVA, such as the Redefined Economic Value Added (REVA), the Return on Net Assets (RONA), the Economic Profit and the Cash Flow Return on Investments (CFROI) (Young, O'Byrne, 2000). At the beginning of the '00s, it was possible to count more or less 160 different adjustments of the main components of the EVA model, the operating income and the cost of invested capital (Lovata, Costigan, 2002). One of the primary objects of a VBM systems regard the alignment of the managements and shareholders’ interests for decreasing the cost of interest’s conflicts (Lovata, Costigan, 2002; Ryan and Trahan, 2007; Firk, et al., 2016; Knauer, et al., 2018; Shultze, et al., 2018). Therefore, a series of measures, technicalities and models were developed for the management remuneration systems, an important mechanism of Corporate Governance (Garvey, Milbourn, 2000). The measures of performance - base of these systems, changed during the 1990s, shifting to the adoption of economic value measures for the management compensation systems, in order to align the strategic objectives with the corporate value (Garvey, Milbourn, 2000).

Many studies and possible applications of these models were done, for example Lee (1999) has tried to unify the previous contributions and the possible implications of the Residual Income Model (RIM) within VBM systems. Other contributions have placed the emphasis on the evaluation of assets and investments as a managerial control tool (Dutta, Reichelstein, 1999).

Finally, the studies on the technicalities of VBM systems have involved also in the study of specific business areas such as Research and Development (Stark, Thomas, 1998; Jazayeri, Scapens, 2008), where the introduction of VB metrics can become the guiding tool in the operative definition of the corporate strategy (Jazayeri, Scapens, 2008). This concept is the base of the “Business Value Scorecard”.

In sum, the debate on the tools, models and technicalities bases of the VBM systems is still open today. The literature interest in these concepts have took place mainly in the period between the late ‘90s and early '00s. The analysis of these instruments was conducted in a heterogeneous way. Each study is focused in specific parts of these complex systems with different goal that changes in function of its implementation.

**VBM Systems and Firm’s characteristics**

In the 1990s, we can see the affirmation of the VBM systems, many large multinational companies such as Coca-Cola and Briggs & Stratton (Young, O'Byrne, 2000) adopted measures of economic value as a guide to management control systems and also in the compensation plans of the management. This process began with the purpose of aligning the interests of the ownership structure with those of management. These systems were adopted for contributing to the primary objective of the shareholder value maximization. The empirical literature of the late 90’s has highlighted particular incongruences and errors in the application of these systems (Ittner, Larcker, 2001). In 2003, Malmi and Ikkäheimo have studied six large Finnish multinational companies in order to verify the application and the level of implementation of these systems. The authors didn’t identify a clear implementation of these systems. It was not possible to identify the specific characteristics of the systems and the organizational levels engaged. Ittner and Larcker (2001) through a regulatory and bureaucratic approach defined the fundamental characteristics of a VBM system and a guide for its implementation. The two authors have also identified the possible solutions for each dimension of these systems. The correct study and implementation of a VBM system consists - according to the authors, in the following six steps:

1. Choosing specific internal objectives that lead to shareholder value enhancement;
2. Selecting strategies and organizational designs consistent with the achievement of the chosen objectives;
3. Identifying the specific performance variables, or “value drivers”, that actually create value in the business given the organization’s strategies and organizational design;
4. Developing action plans, selecting performance measures, and setting targets based on the priorities identified in the value driver analysis;
5. Evaluating the success of action plans and conducting organizational and managerial performance evaluations;
6. Assessing the ongoing validity of the organization’s internal objectives, strategies, plans, and control systems in light of current results, and modifying them as required.

This framework - built according to a bureaucratic approach, affirms that the coherence between the corporate characteristics, the organizational characteristics and the characteristics of these systems is a necessary and sufficient condition for their correct implementation.

The study of McLaren et al. (2016), conducted on three New Zealand companies in the period 2012-2015, highlights significant investment for the company represented by the VBM adoption and the necessity to institutionalize these models for their implementation. According to the authors, VBM didn’t survive at the shocks of regulatory changes and financial crises because it was not closely aligned with the corporate and organizational culture.

Even the organizational actors such as CEO and CFO have an important role for conditioning the characteristics of the VBM systems. According to the study conducted by Burkert and Lueg (2003) on 52 German companies over the period 1990-2000, these systems are influenced by the cognitive characteristics of the organizational actors. In particular, the authors affirm that the figure of the CFO compared to the CEO figure is the one that most modifies the management controls based on economic value measures. The organizational actors have also an important impact on the economic value determinants such as the specific firm’s risk (Toms, 2010).

Then, particulars studies concern the analysis of the characteristics of the companies that implement these systems. Lovata and Costing (2002) study a sample of 1386 companies, in this sample they identify 115 companies that adopt VBM systems, in particular, EVA model. The study shows that the EVA adopters are those that have a higher percentage of institutionalized ownership and a lower frequency of internal ownership. Moreover, the companies that adopt this model are those that pursue defensive strategy, measured by the low rate of new investments in research and development. Other type of studies has focused their attention on the adoption of these models in particular internal and external environmental contexts (Gray, 2006; Dekker, et al., 2012; Woods, et al., 2012; Adams, 2017; Chiwamit, et al., 2017; Editorial, 2018).

This stream of research highlights an important concept: the coherence between the organizational characteristics, the business ones and the VBM systems characteristics as a necessary condition for the adoption of these systems. Therefore, there is a necessary symbiosis between the characteristics of these systems, the characteristics of the firms and the characteristics of the external environment.

**VBM systems performance effects**

In the end of the ‘90s another stream of studies was developed close to the research about the relations between the firm’s characteristics and the VBM systems characteristics - the studies focused on the VBM systems performance effects (Knauer, et al., 2018).

The positive effects of VBM systems adoption on the firm’s performance are based on many factors, mainly from the alignment of the organizational goals with the shareholder value creation (Firk, et al., 2016), but also from other contingent factors such as the institutional environment (Lueg and Schäffer, 2010). These systems help to reduce the agency costs by align the shareholder and management interest (Lovata, Costigan, 2002; Ryan, Trahan, 2007; Hughes, 2009; Firk, et al., 2016; Knauer, et al., 2018;
Based on this many studies have focused their attention on the possible performance effects that can arise from the VBM adoption. Riceman et al. (2012) administered some questionnaires to 117 financial managers of firms located in New Zealand. This analysis shows an increase in firm’s performance through the implementation of management compensation systems based on the EVA model. In particular, the increase in performance is higher when the managers are compensated through models based on measures of economic value, such as the EVA. According to the authors, this result changes in function of the hierarchical level of these systems. A management compensation systems based on measures of economic value should increase the firm’s performance. The same conclusion is reached by Ryan and Trahan. (2007). The authors through the analysis of 84 companies that adopt the VBM systems in the USA, come to the conclusion that the adoption of this systems as a management compensation systems enhance the firm’s performance. The authors have also pointed out that the increase in performance is negatively correlated with the firm’s size and it is only in the long-term perspective that these systems allow to obtain the best performances. However, the proper use of the EVA model as VBM system is linked to the ability of the determination in a correctly way of the cost of company’s capital (Forker, Powell, 2008).

The study of Firk et al. (2016) carried out on the companies that are part of the MSCI Europe Index and of the S&P 500 Index in the period from 2005 to 2010, have also confirmed that the adoption of a VBM system increases the firm’s performance, in terms of economic value creation for the shareholders. The authors have also added that there are other contingent factors such as the institutional environment, the orientation to particular financial measures and the specific model of Governance that can increase the firm’s performance from the VBM systems adoption. This is possible for the complementarity of an institutional environment that pursues consistent objectives with these systems.

Communication with the shareholders with additional information about the economic value creation and about the firm’s fundamental economic value is considered part of a VBM system (Schultze et al., 2018). This mechanism allows to increase the firm’s performance. The study of Schultze et al. (2018) is focused on the consequences of the VBM systems disclosure on the firm’s performance. In particular, the authors studied the financial report of 118 large corporation listed in the German large-cap and mid-cap index in period from 2000 to 2004. They highlight that a proper implementation of the VBM system and Value Based Reporting is linked to low information asymmetry and low cost of capital. The implementation of these two systems allows the control of the internal operation.

The VBM systems are also useful as control systems in particular firm’s complex operations. The research of Knauer et al. (2018) based on a sample of 235 extraordinary firm’s operations of companies listed on Germany index in the period between 2003 and 2012, has shown that the adoption of economic measures improved the market positive reaction to these investment operations, but this result isn’t confirmed in the disinvestment operations. However, in the long term, is not found significant differences between VM users and non-users in the control systems for investment and disinvestment operations. Therefore, the adoption of these systems has positive effects for both operations.

After the analysis of the empirical contributions identified is possible assert that there is a direct correlation between the adoption of VBM systems and firm’s performance, in particular the creation of shareholder value. The adoption of these control systems has confirmed in the various studies the evidence, that VBM systems adoption as managerial and management control systems and its use as management compensation systems contribute to the improvement of the firm’s performance, in terms of shareholder value creation.
4 Discussion and Conclusions

D.3 Which are the possible future trajectories of the research about the VBM systems?

The debate about the VBM systems is still open today, the recent contribute (Firk et al., 2016; Chiwamit et al., 2017; Knauer, et al., 2018; Shultze, et al., 2018) is a clear evidence of this. Recent literature is focused on the study of the firm’s performance, on the implementation of these systems, and also on the study of the firm’s characteristics and its relations with the VBM systems. However, it isn’t possible to found in the literature a theoretical framework able to define univocally the characteristics of these systems. For this reason, this work could be the basis for the creation of this framework on the basis of the contributions identified.

The main limit of this research concerns the articles sample. The main goal of this study is to point out the state of the art in the international literature about the VBM systems, analysing the “top quality journals” - i.e. journal that has a greater influence in its respective academic sectors identified by the Academic Journal Guide. This journal selection guaranteed to this review a higher degree of “reliability”, but this procedure has also limited the range of the contribution’s observation that are part of the international debate. Another type of research approach as for example using Scopus and Web of Science search engines would be more dispersive, but could provide more international contributions for the bases of the VBM systems bibliographic review.

In the conclusion, the analysis of the contributions has allowed to highlight the direction on which the VBM systems debate has developed from the late of ’90s to today. In this review was also possible to identify three important areas of VBM system’s studies: the studies that concerns tools, models and technicalities useful for the implementation of these systems; the studies focused on the relations between the firm’s characteristics and of the VBM systems characteristics and the studies focused on the relations between the firm’s performance and the adoption of this kind of systems. The researchers of tools, model and technicalities of the VBM systems have wrote many contributions by the late of ’90s, but these studies are not homogeneous. Indeed, the object of these studies concerns specific areas and specific managerial and business practices. Then, the literature highlights one necessary conditions for the correct implementation of the VBM systems, that is the coherence between the organizational characteristics, firm’s characteristics and VBM systems characteristics. There is a necessary symbiosis between the firm’s characteristics, the organization’s characteristics, the characteristics of the VBM systems and the “external” environment characteristics. This symbiotic relation enhances the firm’s performance. Finally, the adoption of these control systems has confirmed in the various studies the main evidence – the adoption of these model as managerial control systems and its use as management compensation systems contribute to the improvement of the firm’s performance, in terms of shareholder value creation.

References


