Treasury Management Versus Cash Management[1]

Leire San José
University of Basque Country
E-mail: leire.sanjose@ehu.es

Txomin Iturralde
University of Basque Country
E-mail: txomin.iturralde@ehu.es

Amaia Maseda
University of Basque Country
E-mail: amaia.maseda@ehu.es

Abstract

Using a database of Spanish companies, this paper analyses the treasury management responsibilities assumed by financial departments and develops a model to confirm those responsibilities. We have developed an explanatory model that brings together the main functions of the treasurer by means of two concepts: (i) "basic cash management", which groups the management of collections and payments, liquidity monitoring in banking operations, short-term treasury forecasts, the management of banking balances on value date and negotiation with financial organizations; and (ii) "advanced cash management", which includes the management of the financing of treasury deficits, the management of the positioning of treasury peaks and the management of financial risks. In this way, the definition of cash management is empirically corroborated.

1. Introduction

Major changes of corporate treasury management policies have been in the past few decades. Treasury management has gradually taken up more and more responsibilities. In the 1960s treasury-related tasks entailed purely routine work in what was no more than an ancillary function as a centralising cash management unit linked to administrative tasks. In the 1970s the first significant changes began to take place as the economic environment was hit by recession, which favoured the emergence of new short-term monetary policy instruments and the first hints of deregulation of financial markets, but treasury management was still restricted to the obtaining of funding, the management of payments and collections and the maintenance of bank balance positions. It was not until the 1980s that it became integrated into general corporate management and finally outgrew its purely administrative function linked to the accounting department. Treasury functions began to be based essentially on a financial cash management or liquidity management perspective. More recent advances (development of new

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information and communication technologies, emergence and use of new financial instruments and an approach to business focused on increasing the value of organisations in all areas) have favoured the development of new treasury management functions, and increased the importance of treasury departments within companies. In this way, now the techniques and instruments required for optimum development are available (Fernández, 2001).

The functions now linked to treasury management extend beyond the mere control of monetary flows and positions. Exchange-rate and interest-rate volatility in the wake of the internationalisation and deregulation of currency markets, the need to increase control of credit risk in increasingly competitive markets and the appearance of new financial instruments have forced treasury management to become more forecast-based in its actions, with more emphasis on the management of investments, treasury deficits and different financial risks. Basic responsibilities of treasury departments will be those tasks that enable companies to use the techniques and information needed to minimise the financial costs of resources and maximise returns on cash surpluses, thus providing them with the necessary treasury funding in the desired currency at the appropriate time, as argued by López (2003), and others.

In the terminology of cash management literature this term brings together various functions associated with short-term financial flow management: liquidity management, banking management, management of treasury surpluses and deficits and financial risk management; it is a broader concept than the mere management of payments and collections (treasury management). In this context, our objective is to provide empirical evidence for the definition of cash management by drawing up an explanatory model. The following pages present a cash management model obtained using the technique of structural equations, which has never been used before in research analysing the factors linked to treasury management.

A salient result of our model is that the management of payments and collections and treasury forecasts are the functions to which the companies surveyed attach most importance. These are the functions that have traditionally been most closely linked with treasury management, though others which have been incorporated more recently, such as management of bank balances at value date, management of relationships with banks, management of treasury deficit funding and management of treasury surpluses, are all also highly rated by companies.

The paper is structured as follows. Following the Introduction, the second section introduces the topic of cash management, highlighting features and issues of significance for the focus of this paper and reviewing some of the arguments in favour of the advanced cash management. The third section then describes the data and the analysis procedure used in the empirical study. The results of the investigation are shown in the fourth section. The final section presents the conclusions, and the paper ends with a list of bibliographical references.

2. Treasury Management: Concepts Included
2.1. Introduction

Cash management can be seen from two different perspectives depending on how many responsibilities it includes: treasury management (or basic cash management) and advanced cash management. Specifically, treasury management handles actual cash management at companies, and one of its main functions is to establish the optimum cash level so that payments can be made and received as necessary for the proper operation of the company. The second concept includes not only treasury management *per se* but also other tasks such as treasury forecasting, negotiation and establishment of relationships with financial institutions and financial risk management.

Pindado (2001) argues that basic cash management refers to that part of the working capital that makes up the optimal level needed by a company treasury. However, if the profit opportunities available in the process of cash flow creation are to be maximised, this scope must be broadened to take in more operational decisions, since optimum cash levels are influenced by other factors outside

the restrictive concept of "treasury". Linking these concepts with the concepts of monetary theory reveals that the initial reasons for cash management were transaction and precaution, and those reasons were then joined by speculation, taking it closer to the overall concept of treasury management in the broad sense of the term (Maseda & Iturralde, 2001).

2.2. Basic cash management

Treasury management or basic cash management propitiates the development of administrative techniques conducive to optimising the level of disposable assets to be maintained by a company (Myers & Mjluf, 1984; Chastain, 1986; Harford, 1999). To prevent breaks or gaps in the trading cycle due to lack of cash, administrators must calculate the cash amount best suited to their level of activity, plan the timing of the relevant payments and collections and draw up a policy of investment in assets with high liquidity that can be converted to cash at a low transactional cost to serve as support for the treasury funds maintained by the company (Kamath et al., 1985; Srinivasan & Kim, 1986).

It is therefore essential to establish the right level of disposable assets to short-term financial investments at companies. Holding the wrong amount in cash or cash equivalent may interrupt the normal flow of business activities. Moreover, the wrong safety margin may result in financial difficulties, with firms unable to meet needs that may arise at any given time or unable to take advantage of unexpected investment opportunities. Maintaining a cash surplus thus has a number of advantages. On the one hand it enables companies to carry on the normal transactions that arise in the course of their activities and avoid any treasury gaps. On the other hand it helps them cover any unexpected needs for cash by acting as a preventive balance. However, there are also disadvantages in being too conservative, as reflected in the opportunity costs entailed by assets with little or no profitability (Awan, 2001)[2]. Having liquid assets available constitutes an opportunity cost for a company, as the return on those assets is lower then the return on productive investments, but there may still be transaction costs arising from the sale or purchase of financial assets, and disadvantages in terms of taxation. The particular importance of disposable asset management as a responsibility of the company treasurer should lead companies to conduct an overall analysis of this point, covering management of the collections circuit, cash and payment circuit (Palom & Prat, 1984). This overall analysis should strive to shorten collection periods, lengthen payment periods and avoid idle resources that do not generate returns (Masson et al., 1995).

Casanovas & Fernández (2001) defend the idea put forward by Palom & Prat (1984), and indicate that treasury management is seen as "administration of the treasury circuit", entailing chiefly the analysis, study and review of the three circuits indicated (payments, collections and cash holding). However, taking basic treasury principles as their reference, these authors identify and determine more complex techniques, instruments and functions, which they also integrate into treasury management. They mention advanced cash management, which is considered to include the management of short-term investments, short-term financing and bank relationships. Therefore, although they stress the essence of treasury management, they analyse and set out more advanced management techniques and tools, which are considered as characteristic of cash management.

2.3. Advanced cash management

Torre (1997) defines treasury management as a set of techniques that act on the short-term liquidity of a company, and at the same time affect those factors and processes that translate immediately into cash, with the ultimate aim of increasing the profitability of the company and improving working capital management. In this sense cash management as an overall, integrated service of which the customer takes that part that best suits him or that he needs at any given time, served basically by a computer or another online solution. This specific notion of treasury management in a broad and in technological

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[2]   See, for example, Baumol (1952), Tobin (1956), Beranek (1963), Miller & Orr (1966), Whalen (1968), Sastry (1970), Wright (1978), which models permit to be determined the optimum cash level of firms. Fernández (1999) and Pindado (2001) provide a useful overview of these models.

point of view has been for decades in theory. However, it began to acquire true significance in today's difficult global economic environment, risk reduction and cash-management efficiencies are critical to corporate success (Platt, 2003). The management of interest-exchange rate risk and the management of contractual relationships with financial institutions are other functions that have been added to cash management, with the purpose of increasing profitability with the minimum risk and in the best conditions (Welch, 1999; Mulligan, 2001). So far we have considered in this way the cash management or the treasury management in a broad sense, which groups availability, profitability, planning and financial risk with liquidity management as argued Von Eije & Westerman, 2002; Bort, 2004, and others. Moreover, it includes a set of strategic and organisational measures concerned with working capital, risk management, banking relationships and planning that affect both the cash flows and the financial results of firms.

In short, treasury management is based on payment and collection management, liquidity management and banking management which has now taken on a broader perspective that includes the planning of disposable treasury assets and their subsequent monitoring, a strategy for investing surpluses to obtain maximum profitability and finance deficits with minimum costs, management of interest-rate and exchange-rate risks and, finally, banking management (Charro & Ortiz, 1996; López, 2003). Cash management brings together actions concerned with liquidity management (Kirkman, 1977; Driscoll, 1983; Torre, 1997), payment and collection management (Driscoll, 1983; Palom & Prat, 1984; Masson et al., 1995; Torre, 1997; Casanovas & Fernández, 2001), treasury forecasts (Pindado, 2001), banking management (Torre, 1997; López, 2003), investment of treasury surpluses and deficit and financing management functions (Masson et al., 1995; Torre, 1997; Pindado, 2001) and financial risk management (Masson et al., 1995; Buckley, 2004).

All these responsibilities are interconnected, which generates an overall model of cash management with a policy aimed at obtaining profits or reducing costs to generate value for firms and, in short, help attain the general goals of those firms. Treasury management in a broad sense, or advanced cash management, not only involves financial tools and techniques for managing liquidity but entails an entire corporate culture. "Corporate culture" means "the set of beliefs, expectations and basic principles shared by the members of an organisation. These beliefs give rise to rules of conduct (norms) that powerfully shape the conduct of the individuals and groups in the organisation and thus distinguish it from other organisations" (Leal, 1991)[3]

This vision of treasury management from a broad perspective covers three fundamental aspects, as shown in the following figure:

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[3] For an overview of corporate culture, see Cameron & Quinn (1999)

Figure 1: *Cash management* and liquidity management concepts
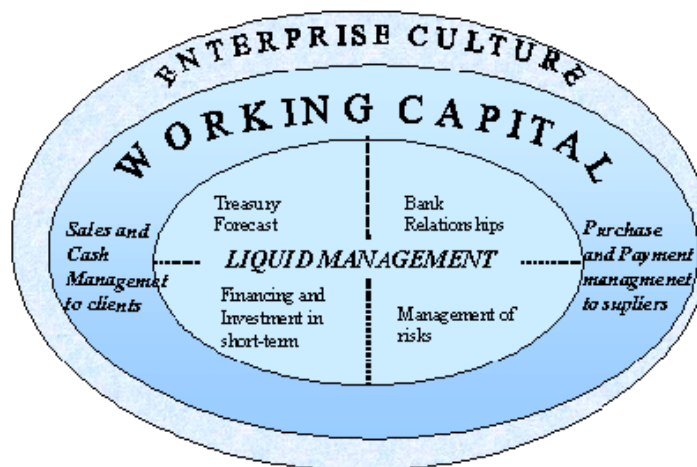
　　　The basic attribute is liquidity management, through which the necessary disposable assets are obtained when required, at the minimum possible cost. This responsibility requires the forecasting of liquid asset flows, the planning of short-term financing and investment sources and relationships with financial institutions, and risk management. The second attribute is working capital management, which handles the disposable assets obtained from sales and collections, and purchases and payments. These two cash flows -payments and collections- are the principal source of financing and investment for business activity. Although larger companies may have a specific department to manage these concepts, they are so closely related to treasury matters that they can be subsumed into treasury management in the broad sense. The development of all these functions depends on the corporate culture of the firm, in the sense of the set of shared beliefs and values as to the way in which the above functions are carried out. In this regard, numerous authors have considered culture as a critical factor for organisations (Gordon, 1985; Parker, 2000) and have drawn links between corporate culture and corporate financial management (Denison, 1984; Gordon, 1985), though other authors reviewing their work have failed to find hard evidence of such links (Siehl & Martin, 1990).

3.　Data and Research Method
3.1. Sample

This study was conducted on Spanish firms with more than 10 employees. The sample was selected randomly using random number tables after listing the population in alphabetical order, with no replacement of individuals. 625 companies were selected, of which only 501 (80%) responded.

　　　Data were collected by means of telephone interviews, a method that ensures a high response rate. To ensure the highest possible number of replies, business respondents were made aware of the study in advance by means of a letter indicating the purpose and importance of the study. In cases when they were reluctant to reply or made excuses, a date and time were arranged in advance for the telephone interview. The final response rate was approximately 80%, and the interviewees were the persons responsible for treasury management at the firms (financial managers in 43.2% of the cases, managers or administrators in 22.6%, account managers in 10.1%, treasury managers in 5.8% and others in 6.1%).

　　　The following table summarises the technical characteristics of the study:

Table 1:   Technical characteristics of the study

UNIVERSE	Spanish firms with more than 10 employees
SAMPLE	501 firms
SAMPLING	Simple random
TARGET GROUP	Heads of treasury management at firms
TECHNIQUE	Telephone interview based on a closed questionnaire with Likert Scale answers (1 - 5)
DATE PERFORMED	Field work was carried out by a telemarketing firm (GIZAKER S.L. http://www.gizaker.net) on June 16th – 22nd 2005
MARGIN OF ERROR	Em= ± 4.21% with a confidence level of 95%, p=q=0.5, for overall data

3.2. The Questionnaire

To enhance reliability and validity, great care was taken in designing the questionnaire. An 11-item questionnaire was used to measure the three key constructs identified. Each question on the questionnaire focused directly on a specific issue and it was ensured that questions were brief and clear. While designing the survey instrument, it was ensured that instrumentation bias was avoided. The questionnaire was then pre-tested on five business respondents. The pre-testing brought to light certain problems in questionnaire completion, which were then sorted out. The revised questionnaire was again pre-tested on a group of 10 business respondents and found to work well. Some items had already been used in 2003 in an empirical survey of 217 firms [4]

     This questionnaire brings together information that first of all enables a descriptive analysis to be drawn up of the degree of importance attributed by firms to treasury management responsibilities, and then focuses on drawing up a model that can explain the concept of treasury management to a significant degree. The questions are presented via a Likert type scale (1-5)

ITEMS
CASH MANAGEMENT FUNCTIONS
Short-term treasury forecasts, at least monthly
Establishment of an optimum cash level
Optimisation of liquidity
Monitoring and optimisation of the purchase-payment circuit
Monitoring and optimisation of the sales-cash circuit
Monitoring of banking positions at the value date
Day-to-day control of banking positions
Maximisation of returns on treasury surpluses
Minimisation of costs of short-term borrowing
Coverage of interest-rate risk
Coverage of exchange-rate risk

(Nomenclature of all the items can be found in Appendix 1)

3.3. Methodology

Factor analysis was used to develop a model that can explain cash management. First of all, exploratory factor analysis was used to define constructs by the inductive approach, and thus to deduce theoretical models (Arruda et al., 1996). Secondly, confirmatory factor analysis was used to show the validity of the constructs arising from those deductions. To validate the model and make it more robust, the sample was also subdivided randomly into two, with exploratory factor analysis then being applied to one of the subsamples and confirmatory analysis to the other. This method was applied to various splits of the original sample, with the argument that if it fitted in all of them, the scales of the model obtained would be validated. Confirming the model both inductively and deductively for different selections from the same population ensures that the measuring process is free from any systematic error.

[4]   The results of this study can be found in Iturralde et al. (2008).

Structural equations have not previously been used in research to analyse factors linked to cash management. The structural equations method can be used to construct unobserved variables that define and statistically validate the theoretical concepts studied, reasoned and explained by researchers: in this case the responsibilities of cash management.

4. Cash Management: Empirical Analysis
4.1. Descriptive Analysis.

Treasurers or treasury managers undertake various tasks in all areas of cash management, such as management of payments made and received, monitoring of liquidity of banking operations, short-term treasury forecasts, management of account balances at value dates, negotiation with banks, management of treasury deficit funding, management of treasury peaks and management of interest and exchange rate risks.

Figure 2: Responsibilities of advanced cash management: averages.
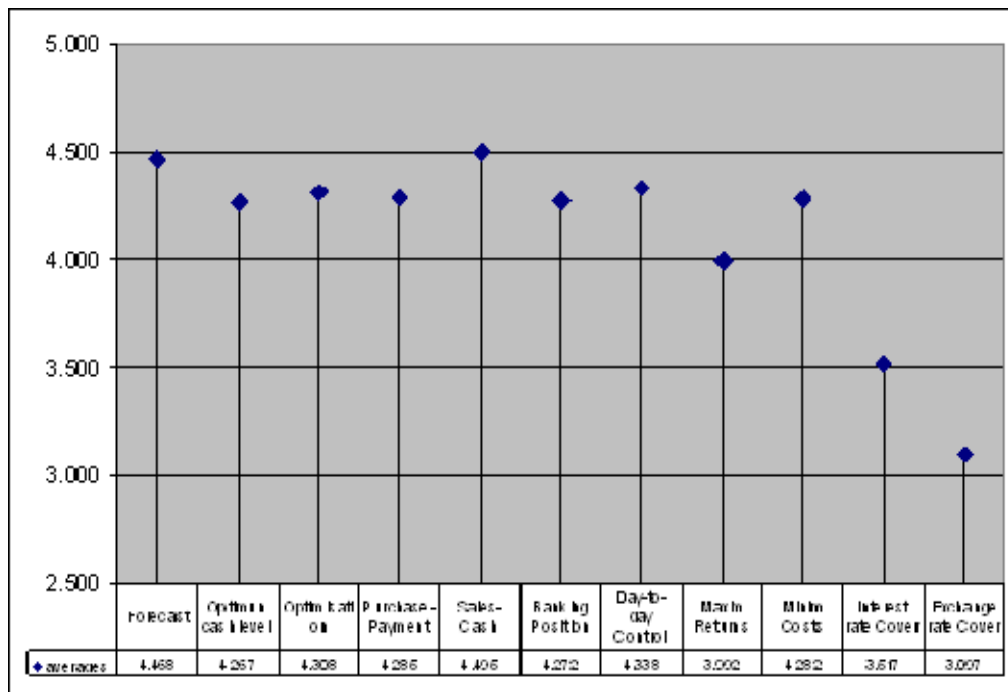
Monitoring and optimisation of the circuit of payments received is the variable that scores highest among the firms surveyed (4.495), possibly because it brings together management functions concerned with the main payments received by firms, on which their survival depends. The preparation of treasury forecasts (4.468) obtains the second highest score on average, mainly because proper treasury management must be based on knowledge of future positions. The responsibilities which obtained the lowest score are coverage of interest rate risk (3.517) and exchange-rate risk (3.097), but some firms are unaware of these functions and others find them of little relevance due to the low degree of influence of such risks on their financial activities.

In general, the remaining responsibilities obtain high scores (above four in almost all cases). None of them stands out from the rest. The responsibilities in question are day-to-day control of banking position (4.338), monitoring of banking positions at value date (4.272), establishment of an optimum cash level (4.267), optimisation of liquidity (4.308), and monitoring and optimisation of the purchase-payment circuit (4.285). Other responsibilities include minimisation of costs of short-term

borrowing required to cover treasury deficits (4.282) and maximisation of returns on treasury surpluses (3.992)

In short, all treasury management responsibilities obtain high scores except coverage of financial risks. Particularly high scores are obtained by management of payments for payments received, due to its importance for the survival of firms, and by management of treasury forecasts as a way of obtaining advanced information on movements of available liquid assets.

4.2. Explanatory Model

Factor analysis was used to develop a model capable of explaining cash management and showing the results arising from its use. To define the construct used in the explanatory model, which cannot be observed directly in actual businesses, exploratory factor analysis was used first on a subsample, followed by confirmatory analysis on another, different subsample, to make the model more robust.

Exploratory Factorial Analysis
Exploratory factorial analysis is applied to a randomly selected subsample. The following table shows determinant values of the correlation matrix, KMO (Kaiser-Meyer & Olkin) and Bartlett's sphericity test. An examination of this table reveals that the correlations between the variables used are still sufficiently high to justify the application of a factorial analysis of principal components.

Figure 3: Explanatory Factorial Analysis of Treasury Management.

BASIC CASH MANAGEMENT (BCM)			
Determining factor in the correlation matrix KMO simple suitability measure			0.669
Bartlett's Sphericity Test			Chi-square 323.038, df = 21 (p-value = 0.000)
Rotation Method			Principal Components
			Orthogonal
Variance Accounted for after Rotation			70.69%
Item Loadings		Communality	Saturation of component*
1 Factor *Liquidity Management*	Short-term cash forecasts, at least monthly,	0.575	0.75
	Establishment of an optimum cash level	0.687	0.774
	Optimisation of liquidity	0.534	0.667
2 Factor *Operational Management*	Monitoring and optimisation of the purchase-payment circuit	0.832	0.884
	Monitoring and optimisation of the sales-cash circuit	0.825	0.886
3 Factor *Banking Management*	Monitoring of banking positions at the value date	0.737	0.825
	Day-to-day control of banking positions	0.758	0.861
ADVANCED CASH MANAGEMENT (ACM)			
Determining factor in the correlation matrix KMO simple suitability measure			0.632
Bartlett's Sphericity Test			Chi-square 169.817, df = 6 (p-value = 0.000)
Rotation Method			Principal Components
			Orthogonal
Variance Accounted for after Rotation			91.58%
Item Loadings		Communality	Saturation of component*
1 Factor *Investment Management*	Maximisation of returns on treasury surpluses	0.988	0.951
2 Factor *Financial Management*	Minimisation of costs of short-term borrowing	1.000	0.975
3 Factor *Risk Management*	Coverage of interest-rate risk	0.812	0.845
	Coverage of exchange-rate risk	0.862	0.924

Saturations lower than 0.4 in absolute value have been eliminated.

The results of the exploratory analysis show that the eleven variables concerned with treasury management responsibilities can be grouped into two components with only minimal information loss.

- Basic cash management, which includes three levels: liquidity management (short-term treasury forecasts, at least monthly, establishment of an optimum cash level, optimisation of liquidity), operational management (monitoring and optimisation of the purchase-payment circuit, monitoring and optimisation of the sales-cash circuit), and banking management (monitoring of banking positions at the value date, day-to-day control of banking positions).
- Advanced cash management, which also includes three levels: investment management (maximisation of returns on treasury surpluses), financial management (minimisation of costs of short-term borrowing), and risk management (coverage of interest-rate risk, coverage of exchange-rate risk).
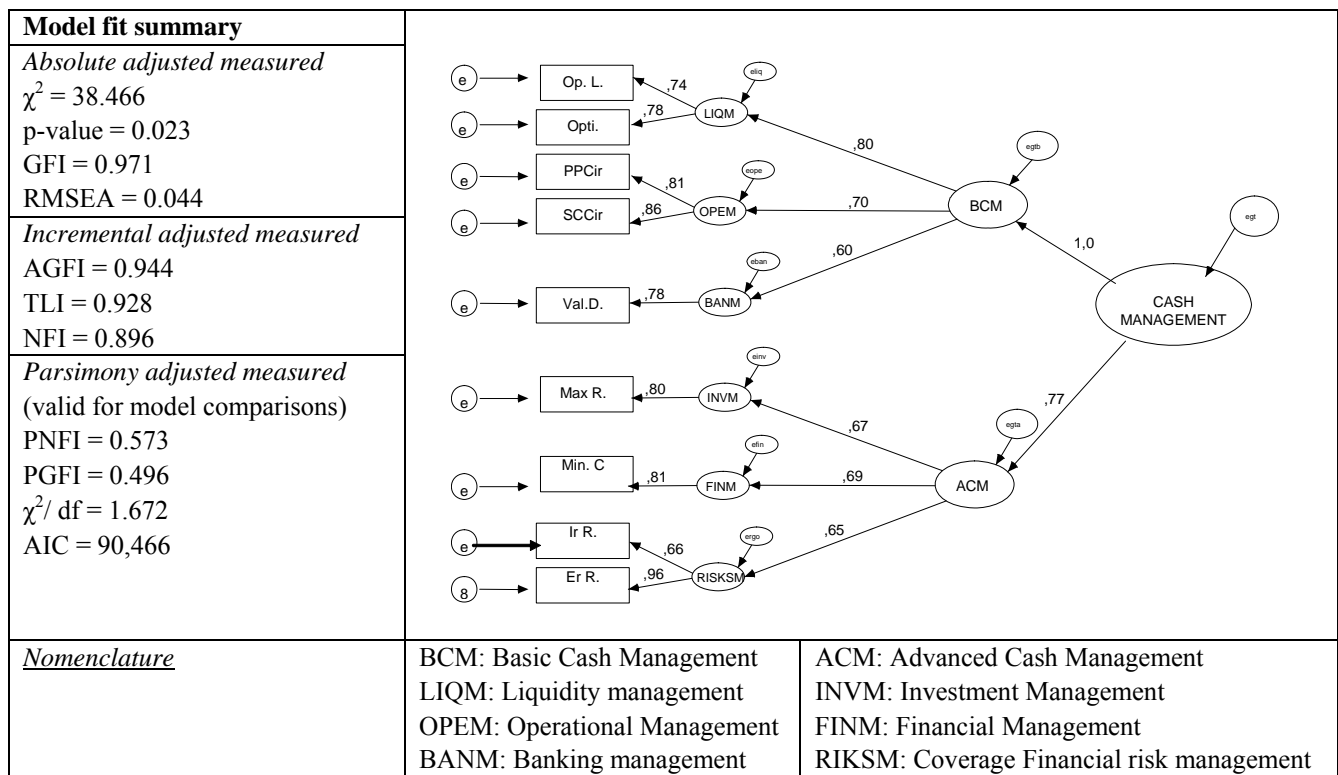
Confirmatory Factorial Analysis

Confirmatory factor analysis is then applied to different subsamples to produce a valid, reliable scale for measuring this factor.

Using statistical techniques from a convergent perspective, the present study aims to provide evidence of the existence of a single underlying concept that can explain cash management sufficiently well to bring together the variables in the scale considered overall. To obtain a valid, reliable scale capable of expressing the concept of treasury management, the internal consistency of the model is checked using reliability techniques (Cronbach's alpha, composite reliability and extracted variance), convergent validity and discriminant validity of factors.

The factors meet the reliability requirements, since the Cronbach's alpha obtained for each factor is high, the composite reliability is close to or higher than 0.6 (Bagozzi & Yi, 1994) and the extracted variance reaches the recommended figure of 0.5 (Fornell & Larcker, 1981). Convergent validity is checked by the overall model fit measures. It is observed that the p-value of the chi-square does not attain the recommended figure of 0.05 (see Figure 5). However, this does not necessarily mean that the proposed model fails to reproduce faithfully the data observed, because this statistic is substantially affected by the size of the sample (Hair et al., 1998), so it is necessary to analyse the rest of the indices to determine whether the measurement model is valid. GFI, AGFI, NFI, IFI, TLI and CFI are close to or higher than 0.9, indicating a good model fit. The root mean square error of approximation (RMSEA) also indicates a good fit at 0.05. Furthermore, the discriminant validity of the scale is ratified, determining that the results and the coefficients of causal analyses will not be modified by problems of collinearity, and all factors are distinct from one another.

The path diagram in the following figure also shows that the weight of each item in each factor in the solution is close to or higher than the figure of 0.7 established.

Figure 4: Model fit for the cash management scale and path diagram.

Model fit summary		
Absolute adjusted measured		
$\chi^2 = 38.466$		
p-value = 0.023		
GFI = 0.971		
RMSEA = 0.044		
Incremental adjusted measured		
AGFI = 0.944		
TLI = 0.928		
NFI = 0.896		
Parsimony adjusted measured (valid for model comparisons)		
PNFI = 0.573		
PGFI = 0.496		
$\chi^2/df = 1.672$		
AIC = 90,466		
Nomenclature	BCM: Basic Cash Management	ACM: Advanced Cash Management
	LIQM: Liquidity management	INVM: Investment Management
	OPEM: Operational Management	FINM: Financial Management
	BANM: Banking management	RIKSM: Coverage Financial risk management

The model reflects the idea that treasury management comprises basic cash management and advanced cash management. Basic cash management includes the constructs for liquidity management, operational management and banking management. Advanced cash management includes those for investment management, financial management and management of financial risk coverage. The theoretical concept underlying this model is supported by the opinions of the treasury managers surveyed, who understand cash management as including not just liquidity management tasks but also others such as management of payments made and received, forecast management, banking management, investment management, financial management and financial risk management.

5. Concluding Remarks

This paper analyses the responsibilities taken on by financial departments in treasury management, seeking to corroborate empirically the existence of a broader concept of treasury management that brings together not only liquidity management but also more strategic tasks, such as management of treasury surpluses, deficit management and financial risk management. The population used takes in all 6,740 firms with 10 or more employees with registered offices in Spain. A sample of 501 Spanish firms with 10 or more employees is used. The structural equation technique is used for the study.

The firms interviewed have a positive view of the most important responsibilities of cash management, and specifically stress the importance of monitoring and optimisation of the sales-cash circuit and the drawing up of short-term treasury forecasts, at least monthly. This paper has confirmed the prevailing opinion in financial literature that companies see all the responsibilities of cash management as highly important, and denotes great concern for activities concerned with treasury management in a broad sense or advanced cash management.

The results are also consistent with previous studies which evidence that treasury management in a narrow sense, or basic cash management, focused on the management of liquid assets and on the treasury income and outgoings circuits has evolved into treasury management in a broad sense or advanced cash management. This can be defined as the obtaining of the disposable assets required and the appropriate time and at the minimum possible cost. To that end, treasury forecasts are drawn up, it is decided what short-term financing and investment operations to carry out and relationships with financial institutions are analysed, risks are managed and the payments and collections circuit is monitored and analysed. We also suggest that it is necessary to consider the set of shared beliefs and values as to the way in which financial functions are carried out, i.e. the corporate culture in regard to cash management.

This seems to indicate that cash management is a culture that forms part of the strategy of companies and depends more on managers themselves than on the characteristics of companies.

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