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Corporate Liquidity

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The Theory and Practice of Corporate Liquidity Policy



Executive Summary

- This paper discusses the theory and practice of corporate liquidity policy drawing on the results of a recent survey. It examines the level of Strategic Cash and Lines of Credit held by firms. Specifically, it does not examine the level of Core Cash (held to meet day-to-day needs) nor the liquidity of assets

Theoretical Considerations

- Under perfect capital market assumptions, the level of cash held by a firm has no impact on the value of that firm (other than the value of the cash itself)
- When we relax imperfections, there are two views on optimal liquidity
- The trade off view suggests that firms trade off various costs and benefits of holding cash. The benefits are:
 - Reduce the frequency of accessing the capital markets and hence the transaction costs of raising funds (transaction costs motive)
 - Ensure that funds are available for investment even when market conditions are unfavorable (precautionary motive)
- The major costs are:
 - **Negative cost of carry:** The cash earns less in interest than the debt used to fund it
 - **Negative tax shield:** The interest income on cash is taxable
 - **Investor perception:** Investors do not have full information about the firm and may be wary of management's intentions. In this case they will not attribute full value to the cash on the assumption that it will not be used productively
- In addition, firms must also consider the signals sent to stakeholders and the firm's position in negotiations with stakeholders
- The second view is the financing hierarchy/pecking order view which holds that accessing capital markets is so expensive that the whole capital structure, including the level of cash, is a consequence of its profitability, investment needs and dividend policy
 - In this view, cash is built up when the firm is profitable enough to cover investment needs. If cash builds up considerably and the firm is confident of its future profitability, then dividends are increased to slowly deplete the cash reserves

Practical Considerations

- Firms also need to consider practicalities:
 - The stock market's view of cash holdings
 - The Rating Agencies' view of cash holdings and lines of credit
- Firms need to consider cash holdings, lines of credit and debt levels within the same framework
 - Cash holdings and lines of credit are very closely related and should be compared on:
 - Relative cost
 - The positive signalling effect of having a line of credit
 - The negative signalling effect of drawing on a line of credit
 - Possible covenants in the line of credit
 - Cash holdings and debt levels should be considered within the same framework but decisions should respect the fact that cash is available with certainty whereas spare debt capacity may diminish precisely when it is most needed

Survey Results

- The level of corporate liquidity worldwide is very high: 18% of firms hold cash in excess of 20% of their assets, while 38% have credit lines in excess of 20% of their assets
- When we split the holdings of cash into core cash, held for day-to-day operations, and strategic cash, we find that strategic cash holdings are between 30% and 50% of total cash holdings. Only firms with less than 2% cash to assets have mostly core cash
- Firms hold strategic cash as a general buffer against cash flow shortfalls, but also indicate that low cash levels are a sign of efficient management. There is also evidence in support of the transaction costs and precautionary motives for cash holdings
- Two findings raise questions about whether firms are failing to coordinate related financing activities, and hence missing opportunities for better managing their financial resources. First, 25% of all companies do not consider credit lines and cash holdings in the same framework. Second, 56% of all companies would not reduce their level of liquidity when future investment opportunities decline and hence may not be optimizing their liquidity with respect to their needs
- Regarding the size of their credit lines, companies are more concerned about the flexibility provided by the line and the certainty of funding than about the associated cost

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Introduction

This Paper

This paper provides an overview of current liquidity theory together with a detailed analysis of the results of a recent corporate liquidity policy survey. The paper is divided into four sections:

- This Introduction
- Theoretical Considerations
- Practical Considerations
- Survey Results

Global Survey of Corporate Financial Policies & Practices

The empirical evidence in this paper is drawn from a survey conducted during mid 2005 by Professor Henri Servaes of London Business School and Professor Peter Tufano of Harvard Business School. The project was originated and sponsored by Deutsche Bank AG with the Global Association of Risk Professionals (GARP) acting as secondary sponsor.

334 companies globally participated with responses distributed widely by geography and by industry. Further details of the sample can be found in the note "Survey Questions and Sample" which is available at www.dbbonds.com/lsg/reports.jsp.

Related Papers

In addition to this paper, five other papers drawing on the results of the survey include:

- CFO Views
- Corporate Capital Structure
- Corporate Debt Structure
- Corporate Dividend Policy
- Corporate Risk Management

All these papers are available at www.dbbonds.com/lsg/reports.jsp. The website also contains a streaming video of Professors Servaes and Tufano presenting an overview of the results at a Deutsche Bank hosted conference.

Notation and Typographical Conventions

The symbol \bar{x} denotes the mean of a dataset, while \tilde{x} denotes the median. N denotes the size of the dataset. All questions in the survey were optional and some questions were not asked directly, depending on the answers to previous questions. Therefore, the number of responses, N , to different questions varies and is shown for each question. Items in *italics* indicate that the term appeared as one of the answer options in the survey question. Items underlined indicate a reference to one of the other papers in this series. Due to rounding, the numbers in some figures may not add up to the 100% or the total shown.

Unless otherwise stated, all data in this document is drawn from the results of The Global Survey of Corporate Financial Policies and Practices.

Theoretical Considerations

Although there is no formal definition of corporate liquidity, several aspects of a company's cash policies are generally considered as components of liquidity policy:

- **Core Cash** How much cash should the company hold to satisfy daily fluctuations in cash needs?

- **Strategic Cash** How much cash should the company hold above what is required to satisfy daily fluctuations in cash needs? These funds can be held in cash or securities that can be quickly turned into cash. These securities should generally be low-risk, because they are not considered an investment by the company

- **Lines of Credit** Should a company negotiate lines of credit with banks or hold cash or do both?

- **Asset Liquidity** How liquid should assets be in general? This is a very broad area, which deals with questions, such as:
 - Should a company keep its accounts receivable on its books, or should it monetize them through securitization, factoring or other arrangements?
 - Should a company purchase specialized equipment, which has little liquidity and therefore a small resale value, or should it purchase more generic equipment, which has a high liquidity and therefore a high resale value?

This paper will deal with strategic cash and lines of credit. We will not discuss how to determine cash requirements to satisfy daily volatility in cash inflows and outflows. Nor is the decision of how liquid the company's non-cash assets should be part of this article. We feel that such a decision is mainly an investment decision and that companies need to consider such decisions in their general capital budgeting process. Thus, this paper is not about how liquid the non-cash assets should be, but about how much to hold in liquid assets (cash or cash equivalents).

There are two other types of cash that firms may hold:

- **Compensating Balances** Some loan contracts require firms to hold compensating balances. These are funds that companies have to keep in the bank at all times to satisfy the loan covenants

- **Trapped Cash** These are funds that cannot be transferred across borders without incurring significant expatriation costs such as taxes or handling fees

Because they are held for very specific reasons, we do not consider either compensating balances or trapped cash in this paper.

Irrelevance

To understand how liquidity may affect shareholder value, it is important to understand under what circumstances it does not matter.

As a starting point in the analysis, let's consider a very simplified scenario in which:

- There are no taxes
- Corporate executives have the same set of information as investors
- There are no transaction costs
- Investors and markets are rational
- The firm's level of investment is fixed
- There are no costs of recontracting or bankruptcy
- The interests of managers and shareholders are aligned

We call these the *perfect capital markets* assumptions.

Under these conditions, the amount of cash held by the firm has no impact on its value, except for the fact that the cash itself is valuable.

Consider the following example

Example 1

Suppose that:

- A firm has two sets of assets: Cash and Other Assets
- The Other Assets generate expected annual returns of €10 in perpetuity but do not grow
- No reinvestment of profits is required
- The required rate of return on Other Assets is 10%
- The firm does not have any debt financing
- The firm has €5 of Cash
- The firm's investment policy is fixed

The value of the firm in this case is €105, computed as:¹

$$\begin{aligned}
 \text{Value of the Firm} &= \text{Value of Other Assets} + \text{Value of Cash} \\
 &= \frac{\text{Cashflow}}{\text{Return}} + \text{Value of Cash} \\
 &= \frac{10}{10\%} + 5 = 100 + 5 = 105
 \end{aligned}$$

Could the firm increase its value by adding an additional €15 of Cash to its balance sheet? The answer is No, because the additional funds would have to come from an

¹ The Value of Other Assets is computed by discounting the perpetual cashflow of €10 back at a discount rate of 10%. See Appendix II for a derivation of the discounting formula.

issue of additional shares. The value of the company would therefore go up by €15, but this is exactly the amount raised through the equity issue.²

Thus, there is no particular benefit to holding more Cash. Each Euro of Cash held simply increases value of the firm by one Euro.

The following simplified market value balance sheets outline the situation.

Figure 1: Firm Valuation Without and With Additional Cash Holdings

	Assets		Liabilities and Equity	
Low Cash Case	Other Assets	100	Equity	105
	Cash	5		
	Total	105	Total	105
High Cash Case	Other Assets	100	Equity	120
	Cash	20		
	Total	120	Total	120

Rates of Return

It is important to be clear on the appropriate rates of return on the assets above. The cash will earn a lower rate of return than the other assets. It might be tempting to argue that the cash is not earning the “cost of capital” and is hence destroying value. However, cash is safer than other assets and so the required return on the firm as a whole falls. An investment in cash is the same as an investment in a project that does not add any shareholder value, but does not destroy any shareholder value either. It is a zero Net Present Value project.

Earnings Per Share

We now consider the impact of cash holdings on Earnings Per Share (EPS). Assume, as above, that other assets return 10% and that cash returns 5% and consider again the two scenarios: a base case with €5 of cash and a case where the firm issues equity to finance an additional €15 of cash. Figure 2 illustrates this example.

² The firm could also raise the additional funding through debt financing. We do not discuss debt in this article unless it has a direct impact on the level or value of liquid assets. See our paper [Corporate Capital Structure](#) for a discussion of optimal debt policy.

Figure 2: EPS Without and With Additional Cash Holdings

	Without Additional Cash		With Additional Cash	
	Calculation	Value	Calculation	Value
Before New Cash				
Shares Outstanding:		100		100.0
Firm Value:		€105.00		€105.00
Share Price:	€105.00 / 100.0	€1.05	€105.00 / 100.0	€1.05
After New Cash				
Capital Raised:		€0.00		€15.00
Revised Firm Value	€105.00 + €0.00	€105.00	€105.00 + €15.00	€120.00
New Shares Issued:		0	€15.00 / €1.05	14.3
Total Shares Outstanding:		100.0	100.0 + 14.3	114.3
Share Price:	€105.00 / 100.0	€1.05	€120.00 / 114.3	€1.05
Earnings on Other Assets:	€100 × 10%	€10.00	€100 × 10%	€10.00
Earnings on Cash:	€5 × 5%	€0.25	€20 × 5%	€1.00
Total Earnings:	€10.00 + €0.25	€10.25	€10.00 + €1.00	€11.00
EPS:	€10.25 / 100	€0.10	€11 / 114.3	€0.10

Thus, firms with more cash have lower EPS, holding everything else constant. However, this does not result in a decline in firm value because the earnings are also safer and safer earnings trade at a higher multiple. In fact, in the above example, the earnings multiple on the other assets is 10 times, while the earnings multiple on the cash is 20 times.³

Investors Can Hold Cash

One last objection to the irrelevance argument is that investors can easily hold cash themselves and did not invest in the firm so that it could hold cash—hence cash holdings create no value. This argument is absolutely correct but the holdings, under the perfect capital market assumptions, do not destroy any value either. The firm may as well return the funds to shareholders, but the fact that it does not return the funds does not imply that value is destroyed.⁴

The Trade-Off Theory of Cash Holding

Under perfect capital market assumptions holding cash neither creates nor destroys value. The firm can always raise funds from capital markets when funds are needed, there are no transaction costs in raising these funds, and the funds can always be raised at a fair price because the capital markets are assumed to be fully informed about the prospects of the firm.

³ The required rate of return on the Other Assets is 10% so the valuation multiple is $1/10\% = 10\times$ whereas the required rate of return on the Cash is 5% giving a valuation multiple of $1/5\% = 20\times$.

⁴ If the company holds more cash than it should, and investors want more exposure to the company's actual investments, the investors can undo the effect of corporate cash holdings in their personal portfolios. They can do this by holding less cash themselves or by financing some of their investments in the firm using borrowed funds.

We relax these assumptions one by one to assess whether holding excess funds can be beneficial for firm value.

Cost of Carry

Under perfect capital market assumptions, if a firm were to raise an additional Euro of debt and hold that Euro as cash then the interest rate charged on the debt should be the same as the interest earned on the cash. The cash investment is totally safe and the debtholders should thus only require an interest rate reflecting this safe investment.

In practice, this would only be the case if the firm were to put the extra funds in escrow so that it would never have access to the funds. Otherwise, it is likely that the cost of the debt will be higher than the interest earned on the cash. This cost of carry is a cost borne by the shareholders of the firm and reduces firm value.

Negative Tax Shield

One of the main benefits of having debt financing is the tax-deductibility of interest payments (see our paper on [Corporate Capital Structure](#)). This feature reduces the firm's tax bill, thereby increasing shareholder value. Holding everything else constant, cash holdings have the opposite effect—they undo the tax savings associated with debt financing, thereby destroying shareholder value.

The Transaction Costs Motive

By holding cash, firms can avoid having to raise external funds. Raising external funds forces firms to incur both direct and indirect costs. We label as “transaction cost motives,” the preferences to avoid direct costs which are the “out of pocket” costs for raising funds. Indirect costs, which we discuss in the next section on “precautionary motives” include market impact, informational costs, and other harder to measure elements of raising external funds.

The transaction costs of raising additional funds in debt, and particularly, equity markets can be substantial [see Lee et al. (1996)]. Moreover, raising funds in capital markets is time-consuming, so it may not be possible to raise new funds quickly enough to meet opportunities. The transaction costs motive for cash holdings says that firms hold strategic cash to avoid these transaction costs.

The transaction costs motive suggests that:

- Firms with better investment opportunities should hold more cash because the opportunity cost of cash shortfalls is higher
- Firms with more volatile cash flows should hold more cash to protect against the higher likelihood of cash shortfalls
- Small firms should hold more cash, because the transaction costs of raising funds are partly fixed and therefore higher for small firms when computed as a fraction of the amount raised
- The level of capital spending, itself, should also be positively related with cash levels, assuming that the level of current capital spending is a good proxy for future investment needs
- Firms that pay dividends can always cut them when funds are needed; they are therefore expected to hold less cash

- Firms in countries with financial markets that are better developed are expected to hold less cash, because they face lower transaction costs when they need to raise money⁵

The Precautionary Motive

Raising external funds not only requires payment of direct costs (like underwriting fees), but also exposes the firm to various indirect costs. Many of these relate to underpricing—or unavailability of funds—as a result of informational asymmetries, distrust of management, or market wide forces.

In practice, financial markets are not as well informed about the prospects of the firm as the management of the firm. This information asymmetry between the firm and the market implies that the valuation of the firm in capital markets is not always 'fair'. When a firm needs new financing, it is possible that its securities are undervalued by the market, because the market is not fully aware of the firm's prospects.⁶ If that is the case, firm management may be reluctant to raise funds through the issuance of these undervalued securities, because this would dilute existing shareholders. As a result, value is lost. The precautionary motive for cash holdings suggests that firms hold extra cash, so that when funding needs arise, they do not have to access a capital market which is not fully informed.

According to the precautionary motive, two factors are relevant in deciding how much cash to hold.

- **Value of Investment Opportunities** Firms with better investment opportunities hold more cash, because they have more to lose from not being able to take future investments
- **Information Gap** The larger the information gap⁷ between the firm and the market, the larger the potential undervaluation

The Agency Cost Motive

Some observers, Jensen (1986) being the most prominent, have argued that managers often prefer to grow the firm beyond its optimal size. This may be the case because they have the wrong compensation contract, based on some measure of firm size, or because they derive some private utility from running a large business. If this is the case, then managers may invest in projects that increase firm size, but have a negative impact on shareholder value. The costs borne by shareholders as a result of the manager's behaviour are called agency costs because they are the result of the agency relationship between the manager and the shareholders.

⁵ Note, however, that countries with high levels of financial development tend to have high levels of economic development as well. This implies that they have better investment opportunities and should hold more cash. It is therefore important to consider financial and economic development separately.

⁶ Note that the firm need not be always undervalued or even undervalued on average. If the firm might be undervalued at some point in the future then the precautionary motive applies.

⁷ It is difficult to find good proxies for asymmetric information. However, researchers often use the ratio of Research and Development Expenses to Assets. Firms with more R&D expenses are more opaque and therefore more likely to be misvalued.

We would generally expect firms suffering from such agency costs to hold more cash because managers will want to spend it on size increasing acquisitions and/or investment projects. Whether or not this effect is observable depends on how long managers hold the cash before investing it.

Evidence on the relationship between agency costs and cash holdings is mixed. Opler et al. (1999) find little evidence of a relationship between cash holdings and proxies for the agency conflict between managers and shareholders for U.S. companies. Harford (1999), on the other hand, finds that U.S. firms with more cash are more likely to make acquisitions and to lose value upon announcement of these acquisitions. Mikkelson and Partch (2003) systematically study U.S. firms that have one fourth of their assets in cash and cash equivalents over a five-year period. They do not find that these firms look any different from firms without such extreme levels of cash holdings.⁸ Dittmar, Mahrt-Smith and Servaes (2003) study the cash holdings of more than 11,000 firms over 45 countries. They find that firms in countries where shareholders have fewer rights hold substantially more cash, after controlling for measures of financial and economic development.

Personal Taxes

If the tax rate paid by firms on interest income (the general corporate tax rate) is lower than the rate paid by investors on interest income then it may be tax efficient for firms to hold cash on behalf of investors. Conversely, if the corporate tax rate is higher than the personal tax rate on interest income, investors would prefer to receive cash as soon as possible.

Note that the tax rate on dividend payments is irrelevant here because that rate will be applied either up front (when the cash is paid out) or over time (when the interest income on the cash is paid out).

Control and Shareholder Rights

We know from La Porta, Lopez-de-Silanes and Shleifer (1999) and other articles that ownership is more concentrated in countries where shareholders have fewer rights. This is the case because weak shareholder rights have two related effects:

- Outsiders (i.e., non controlling shareholders) are unwilling to pay a high price for shares because they are likely to be expropriated by controlling shareholders
- Consequently, controlling shareholders are unwilling to sell shares to outside shareholders because they can only obtain a low price

Controlling shareholders may decide to hold cash in the company as a store of wealth for two reasons:

- For tax reasons. This is similar to the argument made above, except that the concern is not for the tax payments of shareholders in general, but only done to minimize the tax bill of controlling shareholders
- As a mechanism to transfer or expropriate funds. Controlling shareholders may use the company to store cash, so that they can subsequently transfer the cash to other companies in which the controlling shareholders have a larger financial interest

⁸ Of course, if the firms are holding on to cash for such a long period of time, they have not spent it on bad projects, by definition.

Asymmetric Information from a Stakeholder Perspective

Different stakeholders in the firm may care about the firm's cash balances. Suppliers and customers may prefer to do business with companies that are cash rich because cash holdings are interpreted as a sign that the company is in good health and will be around in the future. In addition, suppliers will feel confident that the firm has the resources to pay its bills. Similarly, employees may feel more confident that they will get paid when the firm has more money in the bank.

Bargaining Power

Firms that are cash-rich may find it more difficult to bargain with their stakeholders. Suppliers and customers may feel that the company can afford to pay more for supplies and charge less for their products. In addition, cash-rich firms may find it more difficult to resist when employees ask for pay increases.

Summary

The following figure summarizes the factors affecting the level of cash holdings, and in some cases the proxies that can be employed for each factor.

Figure 3: Overview of Factors Affecting Cash Holdings

Factor	Proxy	Effect on Level of Cash Holdings
Cost of carry		↓
Negative Tax Shield		↓
Transaction costs		↑
	- Investment opportunities	↑
	- Size	↓
	- Cash flow volatility	↑
	- Pays a dividend	↓
	- Financial market development	↓
	- Economic development	↓
Precautionary motive		↑
	- Investment opportunities	↑
	- Information gap	↑
	- Cash flow volatility	↑
	- Financial market development	↓
	- Economic development	↓
Agency problems		↑
Controlling shareholders exploiting small shareholders		↑
High personal versus corporate taxes		↑
Signal of quality to stakeholders		↑
Bargaining with stakeholders		↓

Financing Hierarchy/Pecking Order View

According to the financing hierarchy view of corporate liquidity [see Opler et al. (1999)], there is no optimal cash level because companies do not make active liquidity decisions. Under this view, the firm's level of profitability, its dividend policy, and subsequent investment needs lead firms to build up or withdraw from cash balances. Thus, cash balances are a product of other decisions, not an independent decision. In turn, under this view, financing choices are also a response to all of these factors.

Firms that are sufficiently profitable can make all their investments and have funds left to pay out through dividends (and/or repurchases). Because firms smooth their

dividends (see our paper [Corporate Dividend Policy](#)), dividends do not immediately follow earnings. Thus, firms with higher earnings will build up cash. If these earnings are expected to be permanent, the firm will adjust its dividend payout upwards so that over time the firm's cash position declines. In addition, highly profitable firms will use these earnings to pay off their debt.

Firms that are not profitable or firms that have a lot of investment needs will use up most of their cash holdings first. If funds are insufficient to make all investments, they will consider issuing more debt, if their debt capacity is not yet exhausted. If funds are still required after accessing debt markets, these firms may consider cutting their dividend, but this is unlikely. If profitability is expected to remain low in the future, the firm may cut its dividend as a last resort.

While the description may fit well with the actual behaviour of certain companies, does it have a theoretical foundation? It does, if we take the precautionary motive discussed above to the extreme. That is, if we assume that the information gap between the firm and the market is so big that internal financing is always the preferred financing mechanism, then the above scenario emerges. Firms will always employ internal funds first to meet their investment needs, which implies that when profits are low and/or investment needs are high, firms draw down cash balances and issue debt. When profits are high and/or investment needs are low, firms pay off their debt and build up cash balances.

Distinguishing empirically between the financing hierarchy view and the trade-off view is not straightforward, because many variables that can be used to proxy for one view also proxy for the other. For example, the trade-off view suggests that more profitable firms should hold more cash because firms that are very profitable usually also have good investment opportunities. But the positive relationship between profitability and cash holdings is also an implication of the financing hierarchy view. The one distinctive prediction is about the relationship between capital and R&D spending and cash holdings. According to the trade-off view, firms that invest more and have better opportunities should hold more cash, because they have more to lose when they do not have the available funds. The hierarchy view, on the other hand, suggests that these firms will hold less cash because they have drawn down their cash reserves to invest.

Summary

- Under perfect capital market assumptions, the level of cash held by a firm has no impact on the value of that firm (other than the value of the cash itself)
- When we relax imperfections, there are two views on optimal liquidity
- The trade off view suggests that firms trade off various costs and benefits of holding cash. The benefits are:
 - Reduce the frequency of accessing the capital markets and hence the transaction costs of raising funds (transaction costs motive)
 - Ensure that funds are available for investment even when market conditions are unfavorable (precautionary motive)
- The major costs are:
 - **Negative cost of carry:** The cash earns less in interest than the debt used

to fund it

- **Negative tax shield:** The interest income on cash is taxable
- **Investor perception:** Investors do not have full information about the firm and may be wary of management's intentions. In this case they will not attribute full value to the cash on the assumption that it will not be used productively
- In addition, firms must also consider the signals sent to stakeholders and the firm's position in negotiations with stakeholders
- The second view is the financing hierarchy/pecking order view which holds that accessing capital markets is so expensive that the whole capital structure, including the level of cash, is a consequence of its profitability, investment needs and dividend policy
 - In this view, cash is built up when the firm is profitable enough to cover investment needs. If cash builds up considerably and the firm is confident of its future profitability, then dividends are increased to slowly deplete the cash reserves

Practical Considerations

Sentiment

It is always possible that the market values firms that are cash-rich at a premium or discount, relative to their intrinsic value. We call this factor sentiment because it assumes that the premium or discount is not based on rational valuation. Firms may then cater to this sentiment by holding more or less cash than they should. Because the cost to holding 'too much' cash is relatively small (assuming managers have the best interests of shareholders in mind), catering to sentiment for high cash levels may not be very costly. However, if the sentiment is for low cash, this is not the case.

The View of Rating Agencies

Rating Agencies undertake liquidity risk assessments comparing short term liabilities (such as debt maturing) with liquid assets and undrawn committed credit facilities, as part of their overall risk assessment of the firm. A low level of liquidity can result in a ratings downgrade. This may cause some rated firms to hold more cash than they otherwise would.

Conversely, when making judgements about the riskiness of the firm, the Rating Agencies may not consider cash as being totally risk free. They may take the view that the cash is going to be used for acquisitions or that it is not a permanent feature of the balance sheet. In this case, they may not adjust their ratios calculations for cash balances and therefore implicitly treat it as being as risky as the other assets of the firm. This may encourage firms to use cash to repay debt if they are concerned about losing a particular credit rating.

Cash Holdings versus Debt Financing

Should we view cash as a negative debt and should the decision about how much cash to hold be incorporated in the capital structure decision?

The previous discussion suggests that we should not. Cash is not the same as spare borrowing capacity, because the spare borrowing capacity may not be available when the need arises, and if it is available, it may not be available at the right price or may take too long to raise. Firms that cannot raise the required financing at a fair price and within a reasonable amount of time are considered *capital constrained* and holding cash may be very important for them to relieve the constraints.

However, if a firm has enough excess debt capacity, then there is little need to hold cash; the debt market will likely always be available and with little current debt outstanding, the information gap between the firm and the market is usually not important enough to dramatically affect debt pricing. Such firms are not financially constrained and cash should be considered negative debt.

Whether or not we conclude that cash can be considered negative debt and even if the cash holding decision is distinct from the debt level decision, the commonality between the driving factors of cash level and debt level mean that the two decisions should be analysed within the same framework and using consistent methodologies.

Lines of Credit versus Cash Holdings

As an alternative to having excess debt capacity, which may dry up in some circumstances, firms may decide to have committed lines of credit from banks. What factors should companies take into account in their decision between actually holding the cash and having credit lines? There is little academic research on the topic, but there are a number of practical considerations.

- **Commitment Fee** The firm has to pay a commitment fee to the bank and may have to pay a drawing fee when the line is used. The commitment fee compares directly to the negative cost of carry of holding cash, while the cost of the drawing fee is a function of the probability that the line is drawn
- **Positive Signalling** A bank that has extended a credit line will closely monitor the firm's credit risk. The fact that a bank is willing to extend a line of credit is often a positive signal to capital markets [see Mikkelson and Partch (1986) and James (1987)]
- **Negative Signalling** Actually drawing lines of credit may provide a negative signal to the market and may discourage firms from drawing on the line even if it would otherwise be optimal to do so
- **Covenants** There may be covenants associated with credit lines, which may make it difficult for firms to actually obtain the cash when needed, especially when the firm is facing adverse conditions

Summary

- In the real world, firms need to consider:
 - The market's view of cash holdings
 - The Rating Agencies' view of cash holdings and lines of credit
- Firms need to consider cash holdings, lines of credit and debt levels within the same framework
 - Cash holdings and lines of credit are very closely related and should be compared on:
 - Relative cost
 - The positive signalling effect of having a line of credit
 - The negative signalling effect of drawing on a line of credit
 - Possible covenants in the line of credit
 - Cash holdings and debt levels should be considered within the same framework but decisions should respect the fact that cash is available with certainty whereas spare debt capacity may diminish precisely when it is most needed

Survey Results

In this section we present the results of the survey pertaining to corporate liquidity policy but first broadly review the types of questions we asked.

Survey Questions

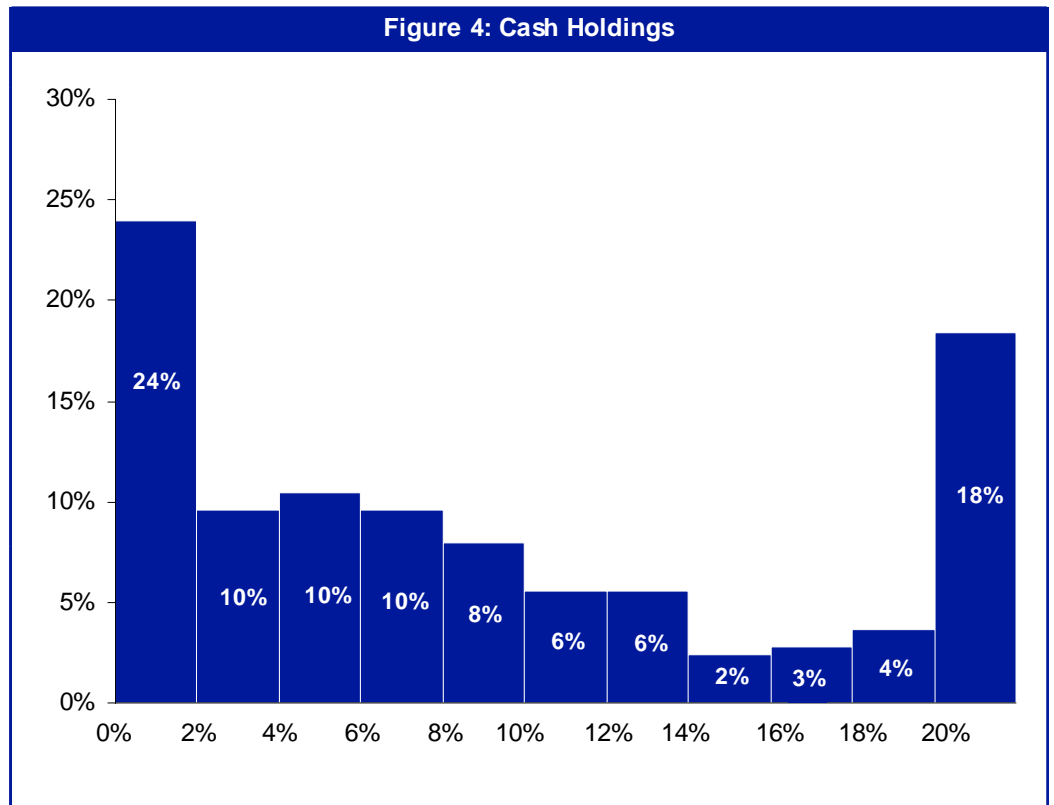
We ask questions to try to understand:

- How much strategic cash firms are holding and how large their lines of credit are relative to their assets
- How firms decide on the level of cash holdings and size of the credit lines, the questions being motivated by the discussion in the previous section
- Whether companies see cash holdings and lines of credit as complements or substitutes

Previous research in this area, which was based on publicly available data, had to contend with the problem of determining whether the cash is being held for day-to-day purposes or as strategic cash. By asking companies directly, we can overcome this shortcoming.

The Level of Cash Holdings

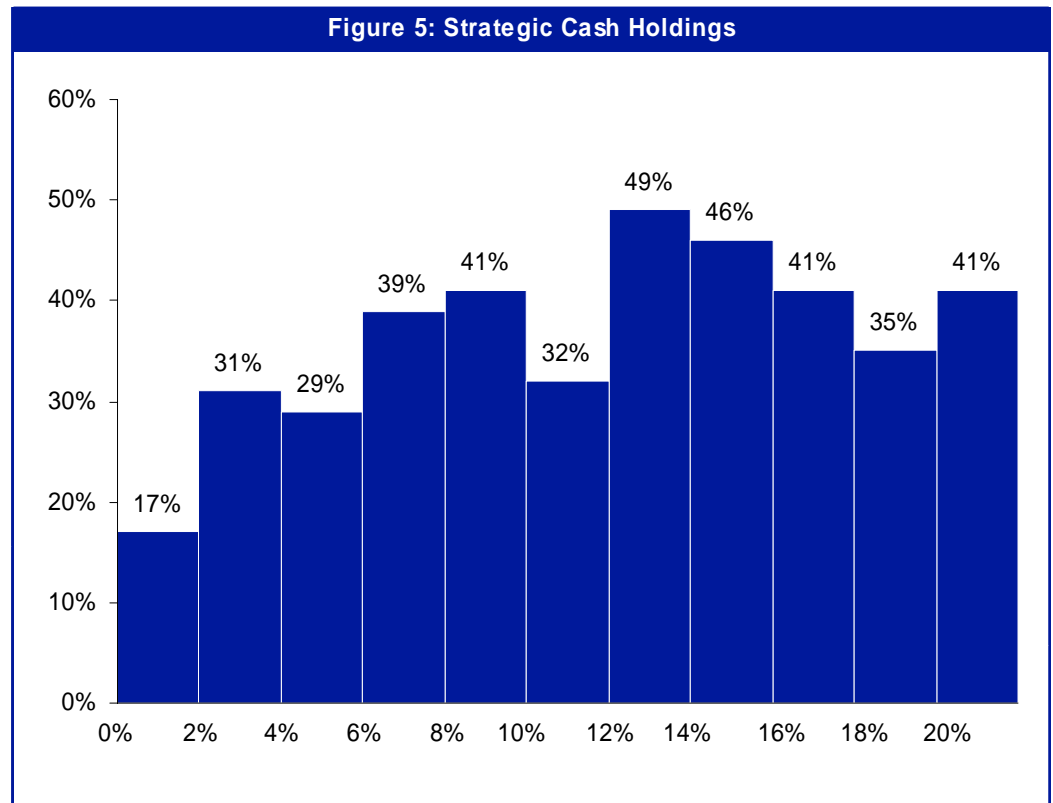
We start by documenting how much cash companies hold. The following figure shows the histogram of the distribution of cash holdings as a fraction of book assets for the respondents in the survey.



Q6.1: "What is your company's current holding of Cash and Marketable Securities as a proportion of the book value of your company's assets?" N=250

24% of all respondents hold relatively little cash, between 0% and 2% of assets. The second most important subset, however, consists of the firms with cash to assets above 20%; 18% of all companies fall into this category. 10% of the companies fall into the 2–4% cash holdings, and the same fraction fall into the 4–6% and 6–8% groups. These findings indicate that most companies are holding substantial amounts of liquid assets.

We then ask companies to indicate what fraction of their cash holdings are strategic cash holdings, and what fraction are core cash holdings. Core cash holdings are defined as cash required for day-to-day transaction purposes, cash held as compensating balances, or cash trapped in a foreign jurisdiction. The remainder is considered strategic cash. The following figure shows the fraction of cash that is strategic cash for the different levels of cash holdings.



The data in the histogram above is derived from:

Q6.1: "What is your company's current holding of Cash and Marketable Securities as a proportion of the book value of your company's assets?" N=250

Q6.2: "What proportion of your Cash and Marketable Securities is Excess Cash?" N = 217

Not surprisingly, for firms that hold little cash (between 0 and 2% of assets), most of the cash is core cash: 83%. However, when we focus on firms with 2% cash holdings or more, we do not find much difference in the fraction of cash that is core versus the fraction that is strategic. For example, firms that hold between 2% and 4% cash consider 69% of those cash holdings to be core. Compare this to firms that hold between 18% and 20% cash; those firms consider 65% of their cash holdings to be core. Thus, while these firms hold very different levels of cash, the fraction that is core and the fraction that is considered strategic are very similar.

Determining the Level of Strategic Cash

In this section, we examine the factors that lead firms to have larger strategic cash holdings. In other words, we want to understand how firms decide to hold more cash than needed on a day-to-day basis.

We specified 23 factors based on the Theoretical Considerations section of the paper, and on a number of Practical Considerations. Firms were asked to rank these on a six-point scale from 0 to 5, where a zero indicates that the factor is not important, and a 5 indicates that the factor is very important.

The following figure lists the factors and the fraction of firms ranking each factor as a 4 or a 5 (i.e., "Important"):

Figure 6: Important Factors

Factors	% 4 or 5	N
Buffer against cashflow shortfalls	47%	200
Low cash => efficient management	35%	192
Return on cash v interest rate on debt	35%	196
Time to raise funds	33%	198
Debt pricing	31%	198
Uncertainty about future opportunities	30%	196
Return on cash v cost of capital	25%	195
Size of undrawn credit facility	25%	193
The transaction costs of raising funds	24%	195
Return on cash v return on other projects	20%	193
Equity pricing	19%	192
Target debt level	17%	192
Preference of controlling shareholders	12%	193
Rating agency requirements	12%	191
Investor taxes on cash payout	12%	194
Signals when using credit facilities	11%	183
Other lender requirements	10%	192
Regulatory requirements	9%	190
Contingent liabilities	8%	190
Ability to take on NPV negative projects	8%	192
Accounting charges on debt retirement	8%	186
Other companies in industry	4%	192

Q6.3: "In deciding how much Excess Cash to hold, how important are the following factors?"
Scale is Not Important (0) to Very Important (5).

No single factor receives overwhelming support—different companies hold cash for different reasons. When considering the answers as a whole, we find some support for both the transaction costs and precautionary motive for cash holdings. The factor with the most support—47% of the respondents selecting 4 or 5—is that cash is employed as a buffer against future cash flow shortfalls. To explain their strategic cash holdings, many respondents identified the long lead time, unattractive pricing, and high transaction costs of future fund raising as important factors, ranked very important (top two) by 33%, 31% and 24% respectively. Our survey respondents view their external funding prospects as being uncertain or unattractive, versus the certainty of cash in the bank. The value of certainty is even more important given that 30% see their needs for funds (i.e., their future opportunities) as being uncertain.

The factor considered to be the most important, which is that cash acts as a buffer against cash flow shortfalls is also more general than the specific areas that are usually referred to in the theory of optimal cash levels. It suggests that firms often view cash holdings as a general risk management tool, not necessarily related to future investment opportunities.

Two other factors are also relatively important. First, 35% of the firms argue that a low level of cash assures the efficient running of the company. This provides strong support for the view that firms with too much cash may not always make the best use of it. However, when asked whether firms hold cash because this allows them to take projects that do not add value to the firm, only 8% of the respondents argue that this is important. Thus, there is mixed support for the agency cost motives for strategic cash holding. This may also be the case because the concern does not originate from the firm, but from the investor community. That is, firms are not worried about misusing strategic funds, but they believe that investors *are* worried about this. To commit to investors that strategic funds will not be misused, firms simply avoid having strategic funds in the first place.

Second, the cost of carry (the difference between the interest rate on the debt and the cash) is important for about a third of the firms: 35% of the respondents indicate that this factor is important.

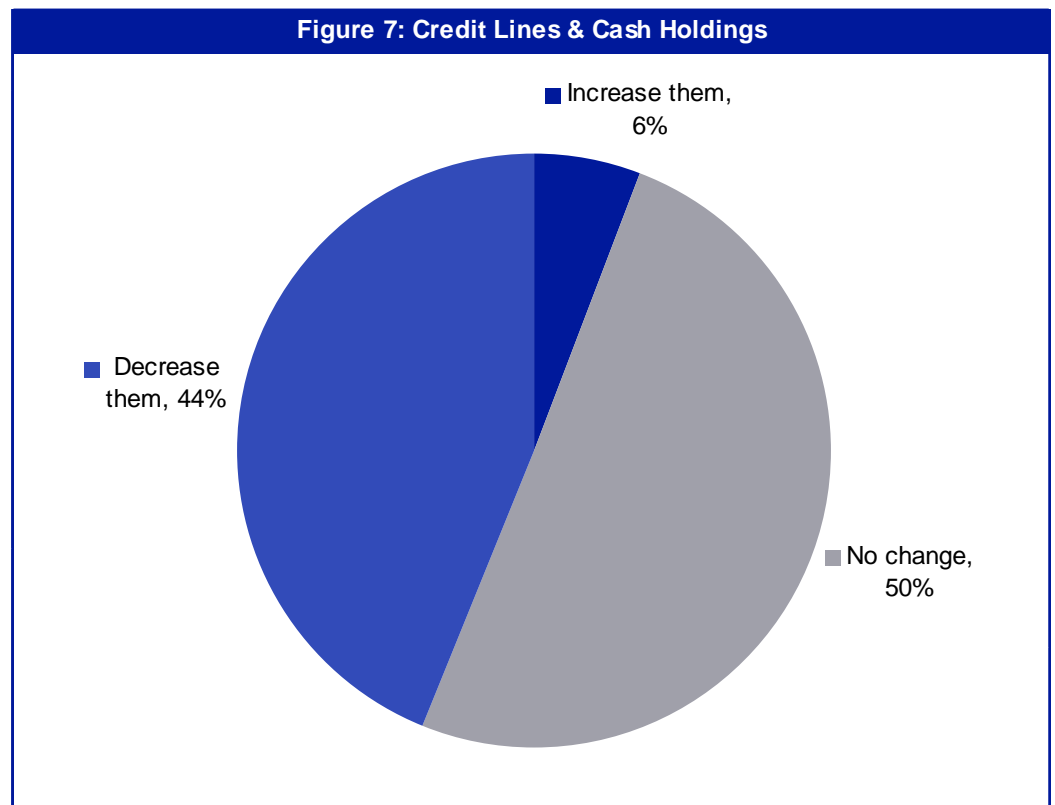
One quarter of the firms mention that they consider the size of their undrawn credit facility when considering the level of cash holdings, but this factor is unimportant (assigned a 0 or a 1) for 40% of the respondents. Thus, a large majority of companies do not consider lines of credit and cash holdings as substitutes. We discuss this particular aspect of liquidity policy in further detail below.

None of the other factors receive much support. Firms do not hold more cash because of regulatory, ratings, or lender requirements, nor are they worried about shareholder taxes or the desires of controlling shareholders. Somewhat surprisingly, firms do not pay attention to other firms in their industry when they consider cash holdings.

We also study whether the factors that are important in determining the level of strategic cash are similar across different regions. Generally, differences around the world are minor. Holding strategic cash as a buffer against cash flow shortages is the most important factor in determining strategic cash in all regions, except for Japan and North America, where it ranks second. In Japan, the time required to raise the funds is considered to be more important, while firms in North America rank the cost of carry first. There is also strong worldwide support for the view that holding low strategic cash balances is a sign of efficient management. This factor ranks in the top 4 in all regions of the world. Detailed regional results can be found in Appendix III, Question 6.3.

Change in Cash Holdings

To shed further light on the relationship between cash holdings and investment opportunities, we also asked companies how they would change the level of liquidity (including both cash levels and credit lines) if future investment opportunities were to decrease. If the liquidity serves as an insurance policy to cover future investment needs in case cash flows happen to be insufficient, we would expect firms to reduce their cash balances when opportunities decline. The following figure illustrates the responses.



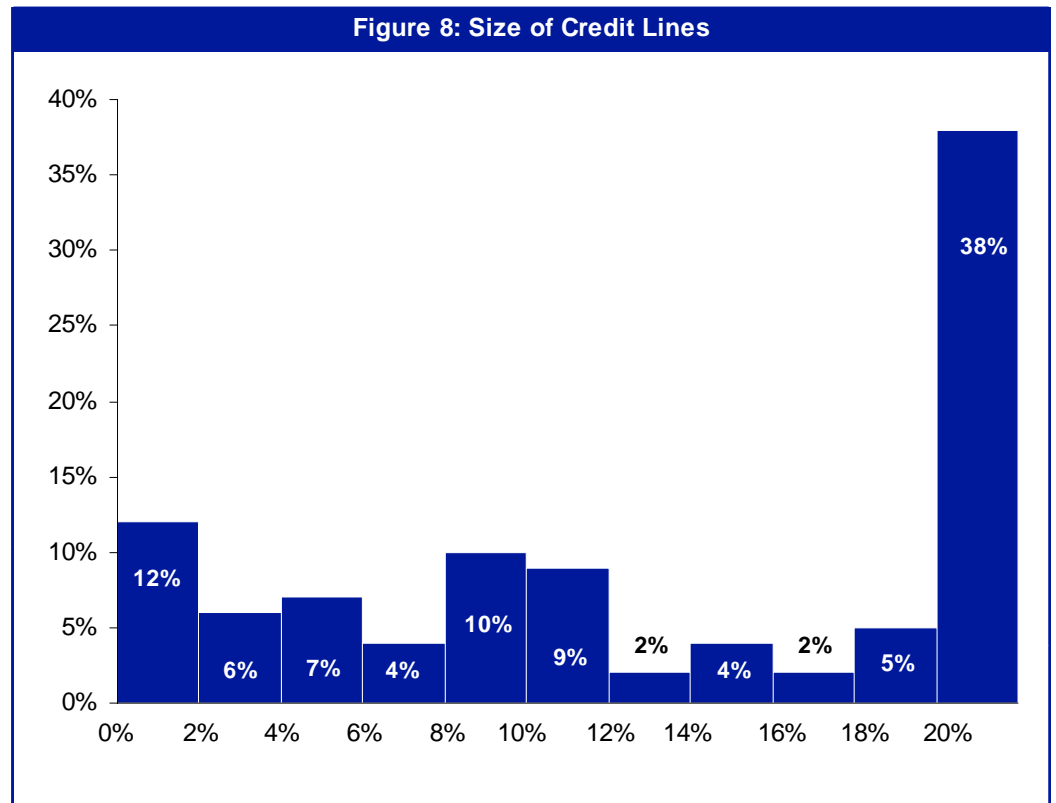
Q6.7: "If you had fewer investment prospects than expected, what would you do with your holdings of cash and/or allocated lines of credit?" N = 244

The behaviour of 44% of the respondents is indeed consistent with our expectation—these firms would in fact reduce their level of liquidity when opportunities dwindle. However, 6% of the firms said they would actually become more liquid. This may be the case because these companies ascribe to the financing hierarchy view of cash holdings, where cash holdings are the outcome of the firm's investment needs. As such, firms that invest less build up more cash. This interpretation is subject to one caveat however. According to this view, the increase in the cash level is not due to an active decision on the company's part, while the response to the survey question suggests that these firms actively decide to become more liquid.

What is perhaps the most surprising part of the response is that 50% of the firms say that they would not change their liquidity if investment opportunities decline. We can only conclude that these firms hold cash and lines of credit for reasons other than to take on new opportunities when they arise. In general, it is thought optimal to coordinate various firm decisions. This apparent failure to coordinate across interrelated programs could potentially lead to needless duplication, excess costs including taxes, and missed opportunities.

The Size of Credit Lines

Cash holdings are only one element of a firm's liquidity—as we alluded to in the previous section, lines of credit are another. We therefore also asked companies about the size of their credit lines. The following figure shows the histogram of the distribution of credit lines as a percentage of book assets across the respondents.



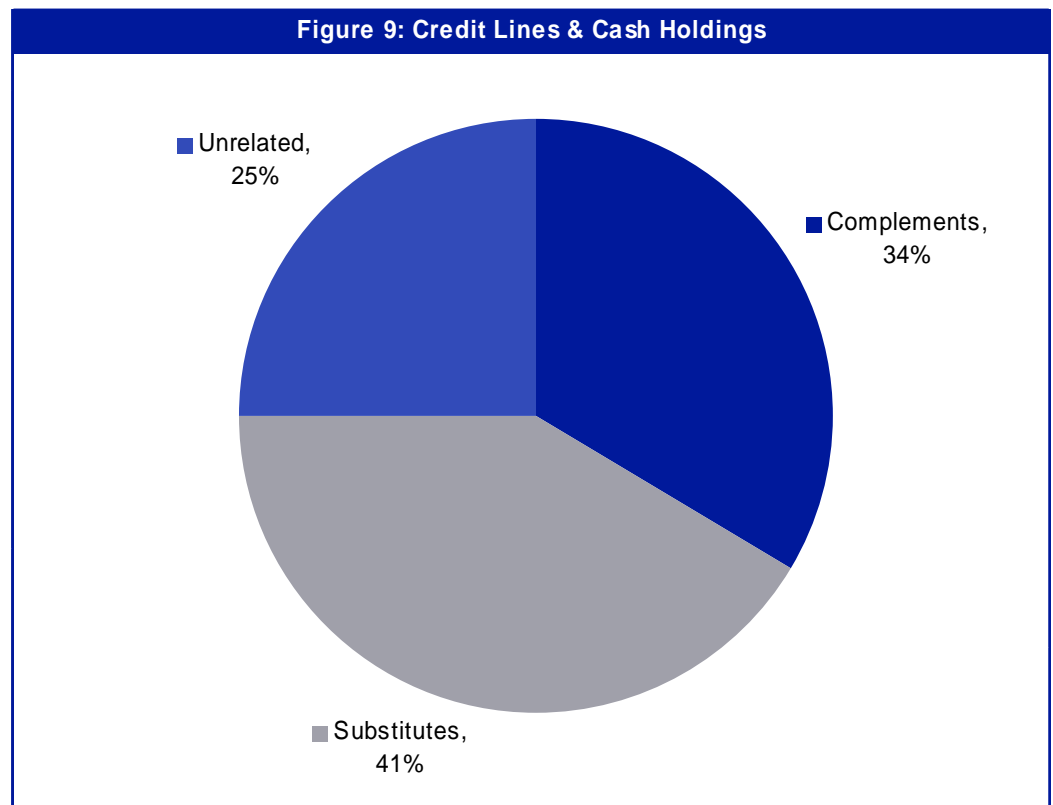
Q6.4: "How large is your Line of Credit as a proportion of the book value of your assets?" N=241

Note the large fraction of observations in the over 20% category: 38% of the respondents to the survey hold credit lines in excess of 20% of their assets. Such credit lines would more than cover the annual investment budget of most corporations, which suggests that they are held for more strategic purposes, such as mergers and acquisitions. An additional 10% of the companies in the survey have credit lines between 8% and 10% of assets, and another 9% have lines between 10% and 12% of assets.

When we consider both credit lines and the level of cash holdings discussed earlier, it is clear that the amount of liquidity available to the survey respondents is very high indeed.

Credit Lines and Cash Holdings

When firms consider the optimal amount of cash to hold, do they also consider available credit lines or not, and if so, do they consider credit lines and cash holdings to be complements or substitutes? The following figure illustrates how firms responded to this question.



Q6.6: "Do you see credit lines and cash holdings as complements, substitutes or as unrelated decisions?"
N = 243

The surprising result is that 25% of the companies indicate that credit lines and cash holdings are unrelated. This implies that these firms make separate decisions on both of these elements of liquidity. We do not believe that such a policy is optimal and we encourage firms to consider cash holdings and lines of credit jointly, whether as substitutes or complements. This is what 75% of the firms do, with 34% indicating that cash holdings and credit lines are complements while 41% of the firms consider them to be substitutes.

Deciding on Credit Lines

In the final part of the liquidity section of the survey, we ask companies which factors are important in deciding on the size of their credit lines. We propose three sets of answers:








- Price-related factors
 - The fee charged on the credit line
 - The commitment fee relative to the costs of obtaining other funds
 - The cost of the line is certain if it is drawn
- Non-price related factors
 - The fact that the credit line is a flexible financing instrument, given that the firm has the option to draw on it when it is needed
 - The fact that the line of credit provides funding certainty
 - The time it would take to raise funds if the credit line were not available

- Credit line employed as a backstop facility for a commercial paper (CP) programme

According to the last explanation, the decision on the credit line is just the consequence of having decided to access the commercial paper market.

The following figure shows the fraction of companies ranking each of these factors as important or very important, with pricing-related factors in blue, non-price related factors in green and the CP reason in grey.

Figure 10: Factors in Deciding Line of Credit

Factors		% 4 or 5	N
The credit facility is flexible		68%	222
Funding certainty		60%	214
The fee charged on the credit line		39%	217
Time to raise other funds		35%	213
The cost of the credit facility is certain		31%	214
Commitment fee v costs of other funds		31%	210
Backstop facility on CP programme		26%	210

Q6.5: "How important are the following factors in deciding on the size of your Line of Credit?"
Scale is Not Important (0) to Very Important (5).

In general, the non-price factors are more important than pricing. 68% of the respondents mention that the flexibility associated with the credit lines is important or very important in their choice of the size of credit line. Another 60% mention funding certainty. The fee charged on the line is a distant third, with only 39% of the respondents saying that this element ranks high on the scale. A further 35% mention the time to raise funds as an important consideration, while 31% refer to the commitment fee relative to the cost of other funds. Finally, only 27% of the firms indicate that they choose the size of their credit line as a function of their commercial paper programme.

When broken out by region, only minor differences appear. The non-price factors generally dominate the choice of the size of the credit line in most regions. They are always first in importance, albeit in some regions (Australia & New Zealand and Japan) funding certainty is considered more important than flexibility. In Latin America, the time it takes to raise the funds is the most important criterion, but these firms rank the fee charged on the credit line to be equally important. This is the only region where fees are considered to be as important as non-price factors.

Summary

This paper provides an overview of the theory and practice of the determinants of corporate liquidity. There is only a small body of literature on the subject and, until now, we had little evidence on how companies act and decide on liquidity. This paper provides that evidence. Several points stand out:

- The level of corporate liquidity worldwide is very high: 18% of firms hold cash in excess of 20% of their assets, while 38% have credit lines in excess of 20% of their assets
- When we split the holdings of cash into core cash, held for day-to-day operations,

and strategic cash, we find that strategic cash holdings are between 30% and 50% of total cash holdings. Only firms with less than 2% cash to assets have mostly core cash

- Firms hold strategic cash as a general buffer against cash flow shortfalls, but also indicate that low cash levels are a sign of efficient management. There is also evidence in support of the transaction costs and precautionary motives for cash holdings
- Two findings raise questions about whether firms are failing to coordinate related financing activities, and hence missing opportunities for better managing their financial resources. First, 25% of all companies do not consider credit lines and cash holdings in the same framework. Second, 56% of all companies would not reduce their level of liquidity when future investment opportunities decline and hence may not be optimizing their liquidity with respect to their needs
- Regarding the size of their credit lines, companies are more concerned about the flexibility provided by the line and the certainty of funding than about the associated cost

Appendices

Appendix I: References

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Appendix II: Formula Derivations

The value of a perpetual cashflow

We follow the logic outlined by Brealey and Myers (2005).

Start with the general formula for the present value of a cashflow:

$$V = \sum_{i=1}^{\infty} \frac{C}{1+r} = \frac{C}{1+r} + \frac{C}{(1+r)^2} + \frac{C}{(1+r)^3} + \dots$$

Define: $x := \frac{1}{1+r}$ and $a := Cx$ to give (1) $V = a(1+x+x^2+x^3+\dots)$. Multiply both sides by x to give (2) $Vx = a(x+x^2+x^3+\dots)$. Subtract (2) from (1) to give $V(1-x) = a$ which expands to:

$$V\left(1 - \frac{1}{1+r}\right) = \frac{C}{1+r}$$

Multiply both sides by $1+r$ and rearrange to give:

$$V = \frac{C}{r}$$

Appendix III: Detailed Results

In this Appendix we present the results of the questions asked in the Liquidity section of the survey with full segmental breakdowns.

As before, the symbol \bar{x} denotes the mean of a dataset, while \tilde{x} denotes the median. N denotes the size of the dataset. All questions in the survey were optional and some questions were not asked directly, depending on the answers to previous questions. Therefore, the number of responses, N , to different questions varies and is shown for each question.

This was an anonymous survey and to further protect the confidentiality of participants, results are shown on an aggregated basis and the statistics are only displayed if there are at least 5 datapoints in the sub-sample. Sub-samples without five datapoints are marked "<5" and the statistics are shown as "na".

6.1: Cash Holdings by Region, Ratings and Listing

Question: What is the company's current holding of Cash and Marketable Securities as a proportion of the book value of your company's assets?

Results of Question 6.1: Cash Holdings by Region, Ratings and Listing															
Range offered	None held	0% - 2%	2.1% - 4%	4.1% - 6%	6.1% - 8%	8.1% - 10%	10.1% - 12%	12.1% - 14%	14.1% - 16%	16.1% - 18%	18.1% - 20%	Over 20%			
<i>Midpoint used for mean & median</i>	<i>0%</i>	<i>1%</i>	<i>3%</i>	<i>5%</i>	<i>7%</i>	<i>9%</i>	<i>11%</i>	<i>13%</i>	<i>15%</i>	<i>17%</i>	<i>19%</i>	<i>21%</i>	\bar{x}	\tilde{x}	<i>N</i>
All	9%	15%	10%	10%	10%	8%	6%	6%	2%	3%	4%	18%	9%	7%	250
Region															
Asia excluding Japan	3%	8%	5%	14%	14%	5%	8%	5%	3%	11%	0%	24%	11%	11%	37
Australia & New Zealand	33%	17%	33%	0%	0%	0%	0%	17%	0%	0%	0%	0%	3%	2%	6
Eastern Europe, Middle East & Africa	20%	0%	0%	0%	20%	0%	0%	20%	0%	0%	0%	40%	12%	13%	5
Germany	2%	11%	17%	13%	8%	9%	8%	6%	0%	4%	2%	21%	10%	7%	53
Japan	4%	15%	4%	8%	19%	0%	4%	8%	8%	4%	4%	23%	11%	9%	26
Latin America	10%	10%	30%	20%	0%	20%	0%	0%	10%	0%	0%	0%	5%	4%	10
North America	4%	38%	13%	8%	8%	0%	4%	4%	4%	4%	0%	13%	7%	3%	24
Western Europe excluding Germany	16%	15%	5%	9%	8%	12%	6%	5%	1%	2%	3%	17%	9%	7%	86
Undisclosed	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Ratings															
Investment Grade	4%	17%	12%	12%	12%	6%	5%	6%	5%	2%	2%	16%	9%	7%	82
Non-investment Grade	4%	19%	12%	0%	12%	23%	12%	4%	8%	4%	0%	4%	8%	9%	26
Not Rated	0%	0%	20%	0%	0%	0%	20%	0%	0%	0%	40%	20%	15%	19%	5
Undisclosed	13%	14%	7%	12%	8%	7%	4%	6%	3%	4%	0%	23%	9%	7%	137
Listing															
Listed	5%	16%	7%	11%	13%	5%	7%	5%	3%	4%	3%	21%	10%	7%	164
Not Listed	15%	15%	16%	9%	4%	12%	4%	6%	1%	1%	5%	13%	8%	5%	82
Undisclosed	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<5

6.1: Cash Holdings by Industry

Question: What is the company's current holding of Cash and Marketable Securities as a proportion of the book value of your company's assets?

Results of Question 6.1: Cash Holdings by Industry															
Range offered	None held	0% - 2%	2.1% - 4%	4.1% - 6%	6.1% - 8%	8.1% - 10%	10.1% - 12%	12.1% - 14%	14.1% - 16%	16.1% - 18%	18.1% - 20%	Over 20%	\bar{x}	\tilde{x}	N
<i>Midpoint used for mean & median</i>	0%	1%	3%	5%	7%	9%	11%	13%	15%	17%	19%	21%	\bar{x}	\tilde{x}	N
All	9%	15%	10%	10%	10%	8%	6%	6%	2%	3%	4%	18%	9%	7%	250
Industry															
Automobiles	11%	0%	11%	22%	11%	11%	11%	0%	0%	0%	11%	11%	9%	7%	9
Business Services	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Chemicals	13%	44%	6%	13%	13%	6%	0%	0%	6%	0%	0%	0%	4%	1%	16
Consumer	15%	13%	15%	13%	5%	18%	3%	5%	0%	0%	3%	13%	7%	5%	40
Consumer Finance	0%	14%	29%	14%	14%	0%	0%	0%	0%	0%	14%	14%	8%	5%	7
Diversified & Conglomerates	20%	0%	0%	0%	0%	0%	20%	20%	0%	0%	0%	40%	13%	13%	5
Health Care & Pharmaceuticals	0%	10%	0%	10%	10%	0%	0%	0%	10%	10%	0%	50%	15%	19%	10
Industrials and Materials	8%	16%	6%	12%	12%	4%	4%	6%	4%	4%	0%	22%	9%	7%	49
Media	0%	27%	27%	9%	18%	0%	0%	0%	0%	0%	0%	18%	7%	3%	11
Metals & Mining	18%	18%	9%	0%	27%	0%	9%	9%	0%	0%	0%	9%	6%	7%	11
Oil & Gas	8%	8%	33%	8%	8%	0%	17%	8%	8%	0%	0%	0%	6%	4%	12
Technology	0%	0%	6%	6%	0%	0%	6%	19%	6%	0%	6%	50%	16%	20%	16
Telecommunications	0%	0%	13%	0%	13%	25%	13%	0%	0%	0%	0%	38%	13%	10%	8
Transportation Services	0%	11%	0%	11%	6%	11%	6%	17%	0%	17%	11%	11%	12%	13%	18
Utilities	15%	38%	0%	0%	8%	8%	15%	0%	0%	0%	8%	8%	6%	1%	13
Undisclosed & Other	10%	14%	0%	19%	10%	10%	5%	5%	5%	5%	0%	19%	9%	7%	21

6.2: Excess Cash by Region Ratings and Listing

Question: What proportion of your Cash and Marketable Securities is Excess Cash?

Results of Question 6.2: Excess Cash by Region Ratings and Listing														
Range offered	0	1% - 10%	11% - 20%	21% - 30%	31% - 40%	41% - 50%	51% - 60%	61% - 70%	71% - 80%	81% - 90%	91% - 100%			
<i>Midpoint used for mean & median</i>	<i>0%</i>	<i>5%</i>	<i>15%</i>	<i>25%</i>	<i>35%</i>	<i>45%</i>	<i>55%</i>	<i>65%</i>	<i>75%</i>	<i>85%</i>	<i>95%</i>	\bar{x}	\tilde{x}	<i>N</i>
All	17%	20%	8%	8%	4%	6%	4%	6%	7%	7%	13%	38%	25%	217
Region														
Asia excluding Japan	9%	34%	9%	6%	6%	9%	3%	9%	3%	9%	0%	29%	15%	32
Australia & New Zealand	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Eastern Europe, Middle East & Africa	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Germany	8%	20%	8%	16%	2%	6%	4%	6%	6%	6%	20%	43%	25%	51
Japan	22%	22%	9%	4%	4%	4%	13%	0%	13%	9%	0%	31%	15%	23
Latin America	33%	0%	0%	11%	11%	22%	0%	11%	0%	11%	0%	33%	35%	9
North America	14%	5%		5%	5%	5%	5%	10%	14%	14%	24%	60%	75%	21
Western Europe excluding Germany	26%	21%	7%	4%	3%	4%	3%	4%	9%	9%	10%	34%	15%	70
Undisclosed	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Ratings														
Investment Grade	17%	21%	5%	5%	4%	5%	3%	9%	8%	9%	14%	41%	35%	77
Non-investment Grade	12%	8%	8%	12%	4%	8%	4%	8%	20%	8%	8%	46%	45%	25
Not Rated	20%	0%	0%	40%	0%	20%	20%	0%	0%	0%	0%	30%	25%	5
Undisclosed	18%	24%	10%	7%	4%	5%	5%	4%	4%	6%	14%	34%	15%	110
Listing														
Listed	18%	19%	7%	9%	4%	6%	5%	5%	7%	9%	11%	38%	25%	148
Not Listed	16%	22%	10%	4%	3%	6%	3%	7%	6%	4%	16%	38%	25%	67
Undisclosed	na	na	na	na	na	na	na	na	na	na	na	na	na	<5

6.2: Excess Cash by Industry

Question: What proportion of your Cash and Marketable Securities is Excess Cash?

Results of Question 6.2: Excess Cash by Industry														
Range offered	0%	1% - 10%	11% - 20%	21% - 30%	31% - 40%	41% - 50%	51% - 60%	61% - 70%	71% - 80%	81% - 90%	91% - 100%			
<i>Midpoint used for mean & median</i>	<i>0%</i>	<i>5%</i>	<i>15%</i>	<i>25%</i>	<i>35%</i>	<i>45%</i>	<i>55%</i>	<i>65%</i>	<i>75%</i>	<i>85%</i>	<i>95%</i>	\bar{x}	\tilde{x}	<i>N</i>
All	17%	20%	8%	8%	4%	6%	4%	6%	7%	7%	13%	38%	25%	217
Industry														
Automobiles	13%	13%	0%	0%	0%	13%	0%	13%	25%	25%	0%	54%	70%	8
Business Services	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Chemicals	14%	29%	7%	7%	0%	0%	7%	0%	7%	0%	29%	41%	20%	14
Consumer	12%	26%	12%	9%	3%	3%	3%	0%	15%	12%	6%	36%	20%	34
Consumer Finance	17%	17%	0%	0%	0%	17%	33%	17%	0%	0%	0%	38%	50%	6
Diversified & Conglomerates	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Health Care & Pharmaceuticals	10%	20%	10%	0%	10%	0%	10%	10%	0%	20%	10%	45%	45%	10
Industrials and Materials	24%	15%	7%	10%	5%	7%	2%	5%	5%	5%	15%	35%	25%	41
Media	40%	10%	0%	0%	10%	10%	10%	0%	0%	0%	20%	33%	20%	10
Metals & Mining	11%	11%	0%	22%	0%	0%	0%	0%	0%	22%	33%	57%	85%	9
Oil & Gas	36%	18%	0%	9%	0%	0%	0%	9%	9%	18%	0%	31%	5%	11
Technology	13%	13%	7%	0%	13%	27%	0%	7%	7%	7%	7%	40%	45%	15
Telecommunications	25%	25%	13%	0%	0%	0%	0%	13%	13%	13%	0%	31%	10%	8
Transportation Services	13%	6%	13%	0%	0%	13%	6%	19%	0%	0%	31%	53%	60%	16
Utilities	27%	55%	0%	9%	0%	0%	0%	0%	0%	0%	9%	14%	5%	11
Undisclosed & Other	0%	33%	22%	6%	0%	0%	6%	11%	6%	0%	17%	37%	15%	18

6.3: Factors Determining Excess Cash

Question: In deciding how much Excess Cash to hold, how important are the following factors?

Results of Question 6.3: Factors Determining Excess Cash									
	Not Important					Very Important			
	0	1	2	3	4	5	\bar{x}	\tilde{x}	<i>N</i>
The transaction costs of raising funds	25%	21%	13%	18%	16%	7%	2.0	2.0	195
Time to raise funds	19%	14%	13%	22%	20%	13%	2.5	3.0	198
Debt pricing	23%	14%	13%	20%	21%	10%	2.3	3.0	198
Equity pricing	33%	16%	13%	20%	14%	5%	1.8	2.0	192
Buffer against cashflow shortfalls	11%	10%	12%	22%	26%	21%	3.1	3.0	200
The ability to take on projects even if they do not add value	48%	22%	14%	7%	4%	4%	1.1	1.0	192
Return on cash v cost of capital	21%	16%	13%	26%	19%	6%	2.2	3.0	195
Return on cash v return on other projects	24%	17%	20%	20%	16%	4%	2.0	2.0	193
Return on cash v interest rate on debt	16%	14%	15%	20%	24%	10%	2.5	3.0	196
Investor taxes on cash payout	31%	28%	17%	12%	8%	4%	1.5	1.0	194
Preference of controlling shareholders	39%	21%	15%	12%	9%	3%	1.4	1.0	193
Target debt level	30%	25%	15%	13%	12%	5%	1.7	1.0	192
Accounting charges on using cash for debt retirement	34%	25%	16%	17%	5%	3%	1.4	1.0	186
Size of undrawn credit facility	25%	15%	15%	20%	18%	7%	2.1	2.0	193
Signals when using credit facilities	34%	21%	17%	17%	8%	3%	1.5	1.0	183
Low cash => efficient management	16%	11%	18%	20%	23%	12%	2.6	3.0	192
Uncertainty about future opportunities	17%	18%	14%	20%	21%	9%	2.4	3.0	196
Contingent liabilities	34%	27%	13%	17%	6%	3%	1.4	1.0	190
Cash holdings of other companies in my industry	45%	27%	14%	10%	3%	2%	1.0	1.0	192
Rating agency requirements	38%	18%	17%	15%	7%	5%	1.5	1.0	191
Other lender requirements	43%	21%	16%	10%	8%	2%	1.3	1.0	192
Regulatory requirements	46%	20%	17%	8%	5%	4%	1.2	1.0	190

6.3: Factors Determining Excess Cash by Region

Question: In deciding how much Excess Cash to hold, how important are the following factors?

Results of Question 6.3: Factors Determining Excess Cash by Region																														
	All			Asia excluding Japan			Australia & New Zealand			Eastern Europe, Middle East & Africa			Germany			Japan			Latin America			North America			Western Europe excluding Germany			Undisclosed		
	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N			
The transaction costs of raising funds	2.0	2.0	195	3.0	3.0	31	na	na	<5	na	na	<5	1.7	1.0	46	3.2	4.0	21	1.7	2.0	9	1.0	1.0	19	1.9	2.0	59	na	na	<5
Time to raise funds	2.5	3.0	198	3.3	4.0	32	na	na	<5	na	na	<5	2.2	2.0	47	3.4	3.0	21	2.1	3.0	9	1.7	1.0	20	2.3	2.0	59	na	na	<5
Debt pricing	2.3	3.0	198	3.2	3.0	33	na	na	<5	na	na	<5	1.9	2.0	45	2.9	3.0	21	2.0	2.0	9	2.0	1.0	20	2.2	2.0	60	na	na	<5
Equity pricing	1.8	2.0	192	2.8	3.0	32	na	na	<5	na	na	<5	1.4	1.0	45	2.7	3.0	21	1.4	1.0	8	1.3	1.0	19	1.5	1.0	58	na	na	<5
Buffer against cashflow shortfalls	3.1	3.0	200	3.8	4.0	33	na	na	<5	na	na	<5	2.9	3.0	46	3.3	3.0	21	3.2	3.0	9	2.8	3.0	19	2.8	3.0	62	na	na	<5
The ability to take on projects even if they do not add value	1.1	1.0	192	1.9	2.0	32	na	na	<5	na	na	<5	1.0	0.0	45	1.6	2.0	21	0.6	0.0	9	0.3	0.0	18	0.9	0.0	57	na	na	<5
Return on cash v cost of capital	2.2	3.0	195	3.1	4.0	33	na	na	<5	na	na	<5	1.5	1.0	46	2.4	3.0	21	1.8	1.0	9	2.7	3.0	18	2.3	3.0	58	na	na	<5
Return on cash v return on other projects	2.0	2.0	193	3.0	3.0	32	na	na	<5	na	na	<5	1.3	1.0	46	2.3	2.0	21	1.4	1.0	9	2.5	3.0	19	1.8	2.0	56	na	na	<5
Return on cash v interest rate on debt	2.5	3.0	196	3.2	4.0	33	na	na	<5	na	na	<5	1.8	2.0	46	2.5	3.0	21	1.8	1.0	9	3.1	4.0	20	2.6	3.0	57	na	na	<5
Investor taxes on cash payout	1.5	1.0	194	2.3	3.0	33	na	na	<5	na	na	<5	0.9	1.0	45	1.7	2.0	21	1.4	1.0	9	1.8	1.0	20	1.5	1.0	56	na	na	<5
Preference of controlling shareholders	1.4	1.0	193	2.4	3.0	32	na	na	<5	na	na	<5	1.1	0.5	46	1.5	1.0	21	2.0	1.0	9	0.8	0.0	19	1.2	1.0	57	na	na	<5
Target debt level	1.7	1.0	192	2.6	3.0	34	na	na	<5	na	na	<5	1.1	1.0	45	2.7	3.0	20	1.3	1.0	9	1.5	1.0	19	1.4	1.0	56	na	na	<5
Accounting charges on using cash for debt retirement	1.4	1.0	186	2.1	3.0	32	na	na	<5	na	na	<5	0.9	1.0	43	1.8	2.0	20	0.9	1.0	9	1.6	1.0	17	1.4	1.0	56	na	na	<5
Size of undrawn credit facility	2.1	2.0	193	2.6	3.0	32	na	na	<5	na	na	<5	1.6	1.0	45	2.6	3.0	20	1.4	1.0	8	2.2	2.5	20	2.3	2.5	58	na	na	<5
Signals when using credit facilities	1.5	1.0	183	2.4	2.0	31	na	na	<5	na	na	<5	1.3	1.0	41	2.1	2.0	20	1.1	1.0	8	1.3	1.0	18	1.3	1.0	55	na	na	<5
Low cash => efficient management	2.6	3.0	192	3.1	3.0	32	na	na	<5	na	na	<5	2.1	2.0	45	3.0	3.0	21	2.5	2.0	8	2.3	2.0	18	2.6	3.0	58	na	na	<5
Uncertainty about future opportunities	2.4	3.0	196	3.0	3.0	32	na	na	<5	na	na	<5	1.9	1.5	46	2.8	3.0	21	2.4	3.0	9	2.2	2.0	19	2.3	2.0	60	na	na	<5
Contingent liabilities	1.4	1.0	190	2.3	3.0	33	na	na	<5	na	na	<5	1.0	1.0	45	1.7	1.0	21	0.9	1.0	9	1.1	1.0	18	1.5	1.0	55	na	na	<5
Cash holdings of other companies in my industry	1.0	1.0	192	1.9	2.0	32	na	na	<5	na	na	<5	0.7	0.0	45	1.5	1.0	21	0.9	1.0	9	0.7	0.0	18	0.8	1.0	57	na	na	<5
Rating agency requirements	1.5	1.0	191	1.7	1.0	33	na	na	<5	na	na	<5	1.3	1.0	44	2.4	3.0	21	1.1	1.0	9	1.3	1.0	19	1.3	1.0	56	na	na	<5
Other lender requirements	1.3	1.0	192	2.3	2.0	33	na	na	<5	na	na	<5	0.7	0.0	45	2.0	2.0	21	0.8	1.0	9	0.8	0.0	19	1.2	1.0	56	na	na	<5
Regulatory requirements	1.2	1.0	190	2.2	2.0	33	na	na	<5	na	na	<5	0.6	0.0	44	1.6	1.0	21	0.6	0.0	9	0.9	0.0	19	1.0	1.0	55	na	na	<5

6.3: Factors Determining Excess Cash by Industry

Question: In deciding how much Excess Cash to hold, how important are the following factors?

Results of Question 6.3: Factors Determining Excess Cash by Industry																																																			
	All			Automobiles			Business Services			Chemicals			Consumer			Consumer Finance			Diversified/Conglomerates			Health Care & Pharmaceuticals			Industrials and Materials			Media			Metals and Mining			Oil and Gas			Technology			Telecommunications			Transportation Services			Utilities			Undisclosed & Other		
	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N	\bar{x}	\bar{x}	N												
The transaction costs of raising funds	2.0	2.0	195	2.0	1.0	7	na	na	<5	1.5	1.0	13	1.5	1.0	29	3.4	3.0	5	na	na	<5	1.4	1.0	10	1.9	2.0	40	2.0	2.5	8	3.3	4.0	7	1.4	1.0	9	2.1	3.0	15	2.4	2.0	7	2.3	2.0	15	3.0	3.0	8	2.1	1.5	16
Time to raise funds	2.5	3.0	198	3.1	3.0	7	na	na	<5	1.8	2.0	13	2.0	2.0	29	3.8	4.0	5	na	na	<5	2.0	2.0	10	2.5	3.0	40	2.4	3.0	9	3.3	3.0	7	2.2	3.0	9	2.9	3.0	15	2.7	2.0	7	2.6	2.0	16	3.3	4.0	9	2.4	2.0	16
Debt pricing	2.3	3.0	198	2.7	4.0	7	na	na	<5	1.8	1.5	14	2.0	2.0	29	2.6	3.0	5	na	na	<5	2.1	2.5	10	2.2	2.0	39	1.5	1.5	8	2.9	3.0	7	2.4	2.0	9	3.1	3.0	15	2.3	3.0	7	2.6	3.0	17	2.8	3.0	9	2.3	2.5	16
Equity pricing	1.8	2.0	192	1.9	2.0	7	na	na	<5	0.6	0.0	13	1.8	1.5	28	2.4	3.0	5	na	na	<5	2.0	2.0	10	1.9	2.0	39	1.0	1.0	8	2.1	2.0	7	1.6	2.0	7	2.8	3.0	15	2.4	3.0	7	1.5	1.5	16	1.6	1.0	8	1.4	0.5	16
Buffer against cashflow shortfalls	3.1	3.0	200	3.7	5.0	7	na	na	<5	2.4	3.0	14	2.7	3.0	30	3.5	3.5	6	na	na	<5	2.5	3.0	10	3.1	3.5	40	1.3	1.0	8	2.9	3.0	7	3.0	3.0	8	3.8	4.0	15	4.0	4.0	7	3.9	5.0	17	3.3	3.0	9	2.8	3.0	16
The ability to take on projects even if they do not add value	1.1	1.0	192	1.9	1.0	7	na	na	<5	0.6	0.0	13	1.0	1.0	28	1.0	1.0	5	na	na	<5	0.7	0.0	10	1.2	0.0	40	0.4	0.0	8	1.0	0.0	7	1.4	1.0	8	1.9	1.5	14	2.1	2.0	7	0.8	0.5	16	1.0	0.5	8	0.5	0.0	15
Return on cash v cost of capital	2.2	3.0	195	3.3	4.0	7	na	na	<5	1.9	2.0	14	1.9	1.5	28	2.8	3.0	6	na	na	<5	1.1	1.0	10	2.2	2.0	40	2.3	3.0	9	2.0	2.5	6	2.4	3.0	8	2.9	3.0	15	2.9	3.0	7	2.2	2.0	15	2.5	2.5	8	2.3	3.0	16
Return on cash v return on other projects	2.0	2.0	193	1.6	1.0	7	na	na	<5	1.5	2.0	13	1.9	2.0	28	3.0	3.0	5	na	na	<5	1.5	1.5	10	2.0	2.0	39	2.1	2.0	9	1.5	1.0	6	2.7	3.0	9	2.7	3.0	15	2.3	3.0	7	1.8	2.0	15	2.1	2.0	8	1.8	1.5	16
Return on cash v interest rate on debt	2.5	3.0	196	2.9	3.0	7	na	na	<5	2.7	3.0	13	2.5	3.0	27	3.0	3.0	5	na	na	<5	2.1	2.5	10	2.3	2.0	40	2.3	2.0	9	1.8	2.0	6	2.7	3.0	9	2.9	4.0	15	3.0	3.0	7	2.6	2.5	16	2.6	2.5	10	3.0	3.5	16
Investor taxes on cash payout	1.5	1.0	194	0.7	0.5	6	na	na	<5	1.3	1.0	14	1.6	1.0	30	2.0	2.0	5	na	na	<5	1.6	1.5	10	1.2	1.0	38	1.3	1.5	8	1.0	1.0	6	2.2	2.0	9	2.3	2.0	15	2.4	3.0	7	1.3	1.0	16	1.5	1.0	8	1.3	1.0	16
Preference of controlling shareholders	1.4	1.0	193	0.6	0.0	7	na	na	<5	1.4	0.0	13	1.4	1.0	29	1.8	2.0	5	na	na	<5	1.1	1.0	10	1.5	1.0	40	1.4	1.0	8	0.2	0.0	5	1.1	1.0	8	1.7	2.0	15	2.4	2.0	7	1.7	1.0	16	1.5	1.0	8	1.1	1.0	16
Target debt level	1.7	1.0	192	1.3	1.0	7	na	na	<5	1.1	1.0	14	1.3	1.0	29	2.2	3.0	5	na	na	<5	1.4	1.0	10	2.0	2.0	37	0.8	0.0	9	1.4	1.0	5	1.1	1.0	8	1.9	2.0	15	3.1	3.0	7	2.2	2.0	16	2.4	3.0	8	1.6	1.0	16
Accounting charges on using cash for debt retirement	1.4	1.0	186	0.9	0.0	7	na	na	<5	1.1	1.0	13	1.0	1.0	28	1.8	2.0	5	na	na	<5	1.3	1.0	10	1.7	1.0	37	1.7	1.0	9	0.6	0.0	5	1.4	1.5	8	1.9	1.5	14	1.9	2.0	7	1.4	1.0	14	1.9	1.5	8	0.9	1.0	16
Size of undrawn credit facility	2.1	2.0	193	2.3	2.0	7	na	na	<5	2.2	2.0	13	1.6	1.0	28	4.0	4.0	6	na	na	<5	2.5	3.0	10	2.1	2.0	38	1.5	1.5	8	2.8	3.0	6	2.8	3.0	8	2.1	3.0	15	3.0	3.0	7	1.9	2.0	16	3.2	4.0	9	1.3	1.0	16
Signals when using credit facilities	1.5	1.0	183	1.5	0.5	6	na	na	<5	1.0	1.0	12	1.0	1.0	27	2.8	3.0	5	na	na	<5	1.2	1.0	10	1.6	2.0	38	1.3	1.0	8	2.2	2.0	6	1.7	1.0	7	2.0	2.0	14	2.0	2.0	7	1.4	1.0	16	2.0	2.0	7	1.7	2.0	15
Low cash => efficient management	2.6	3.0	192	2.4	3.0	7	na	na	<5	3.0	3.0	13	2.8	3.0	29	3.0	3.0	5	na	na	<5	1.4	1.5	10	2.8	3.0	39	1.5	1.0	8	3.1	4.0	7	2.0	2.0	8	1.9	2.0	14	3.7	4.0	7	3.1	4.0	15	3.3	3.5	8	2.1	2.0	16
Uncertainty about future opportunities	2.4	3.0	196	2.7	3.0	7	na	na	<5	1.2	1.0	13	2.0	2.0	30	2.2	2.0	5	na	na	<5	2.5	2.0	10	2.6	3.0	41	2.0	1.5	8	2.6	4.0	5	3.2	4.0	9	2.8	2.5	14	3.1	3.0	7	3.1	4.0	17	2.8	3.0	8	1.5	1.0	16
Contingent liabilities	1.4	1.0	190	0.7	1.0	7	na	na	<5	0.8	0.0	12	1.3	1.0	27	2.2	3.0	5	na	na	<5	2.6	3.0	10	1.5	1.0	39	0.9	1.0	9	1.8	3.0	5	1.1	1.0	8	1.9	1.5	14	2.3	2.0	7	1.6	2.0	16	1.8	1.0	9	0.7	0.0	16
Cash holdings of other companies in my industry	1.0	1.0	192	0.7	0.0	7	na	na	<5	0.8	0.0	13	0.6	0.0	29	1.8	2.0	5	na	na	<5	1.7	2.0	10	0.8	0.0	39	0.6	1.0	8	0.5	0.5	6	0.8	0.5	8	2.2	3.0	14	2.0	2.0	7	1.5	1.0	16	1.3	1.0	8	0.6	0.0	16
Rating agency requirements	1.5	1.0	191	2.4	3.0	7	na	na	<5	1.3	1.0	13	1.0	0.0	29	2.8	3.0	5	na	na	<5	1.4	1.0	10	1.4	1.0	37	0.3	0.0	8	1.5	0.5	6	1.5	1.0	8	1.9	1.0	15	2.3	2.0	7	1.9	2.0	16	2.3	2.5	8	1.3	0.0	16
Other lender requirements	1.3	1.0	192	0.6	1.0	7	na	na	<5	0.9	1.0	13	1.0	1.0	28	2.4	3.0	5	na	na	<5	1.1	1.0	10	1.2	1.0	39	0.5	0.0	8	0.4	0.0	5	1.3	1.0	8	1.7	2.0	15	2.1	2.0	7	2.1	3.0	17	2.1	2.5	8	1.1	0.0	16
Regulatory requirements	1.2	1.0	190	0.7	0.0	7	na	na	<5	0.8	0.0	12	0.9	0.0	29	1.8	2.0	5	na	na	<5	1.1	1.0	9	1.4	1.0	39	0.5	0.0	8	0.4	0.0	5	1.1	0.0	8	1.4	1.0	15	1.9	2.0	7	1.6	1.0	16	2.4	2.0	8	0.9	0.0	16

6.3: Factors Determining Excess Cash by Ratings and Listing

Question: In deciding how much Excess Cash to hold, how important are the following factors?

Results of Question 6.3: Factors Determining Excess Cash by Ratings and Listing																								
	Ratings									Listing														
	All			Investment Grade			Non-Investment Grade			Not Rated			Undisclosed			Listed			Not Listed			Undisclosed		
	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N
The transaction costs of raising funds	2.0	2.0	195	1.9	2.0	67	2.4	3.0	24	2.0	2.0	5	2.0	2.0	99	2.2	2.0	135	1.7	1.0	59	na	na	<5
Time to raise funds	2.5	3.0	198	2.3	2.0	70	2.6	3.0	24	4.0	4.0	5	2.5	3.0	99	2.5	3.0	138	2.5	3.0	59	na	na	<5
Debt pricing	2.3	3.0	198	2.4	2.5	70	2.5	3.0	24	3.2	4.0	5	2.2	2.0	99	2.5	3.0	138	1.8	1.0	59	na	na	<5
Equity pricing	1.8	2.0	192	1.5	1.0	66	2.3	3.0	24	3.2	4.0	5	1.8	2.0	97	2.0	2.0	135	1.3	0.0	56	na	na	<5
Buffer against cashflow shortfalls	3.1	3.0	200	3.1	3.0	70	3.6	4.0	24	4.0	4.0	5	2.8	3.0	101	3.0	3.0	138	3.1	3.0	61	na	na	<5
The ability to take on projects even if they do not add value	1.1	1.0	192	0.7	0.0	68	1.5	1.5	24	2.6	2.0	5	1.2	1.0	95	1.0	1.0	135	1.2	1.0	57	na	na	<5
Return on cash v cost of capital	2.2	3.0	195	2.2	3.0	67	2.8	3.0	24	2.2	2.0	5	2.1	2.0	99	2.4	3.0	133	1.9	2.0	61	na	na	<5
Return on cash v return on other projects	2.0	2.0	193	1.9	2.0	67	2.3	3.0	24	2.8	3.0	5	1.9	2.0	97	2.2	2.0	133	1.5	1.0	59	na	na	<5
Return on cash v interest rate on debt	2.5	3.0	196	2.5	3.0	69	2.7	3.5	24	2.6	3.0	5	2.5	3.0	98	2.8	3.0	136	2.1	2.0	59	na	na	<5
Investor taxes on cash payout	1.5	1.0	194	1.3	1.0	68	1.5	1.0	24	1.4	1.0	5	1.6	1.0	97	1.5	1.0	135	1.4	1.0	58	na	na	<5
Preference of controlling shareholders	1.4	1.0	193	1.2	1.0	67	1.7	1.0	24	1.6	2.0	5	1.5	1.0	97	1.3	1.0	134	1.6	1.0	58	na	na	<5
Target debt level	1.7	1.0	192	1.5	1.0	66	2.6	3.0	23	2.0	2.0	5	1.6	1.0	98	1.8	2.0	131	1.3	1.0	60	na	na	<5
Accounting charges on using cash for debt retirement	1.4	1.0	186	1.4	1.0	65	2.3	2.0	23	1.8	2.0	5	1.2	1.0	93	1.6	1.0	126	0.9	0.0	59	na	na	<5
Size of undrawn credit facility	2.1	2.0	193	2.1	2.0	69	2.7	3.0	23	2.8	3.0	5	2.0	2.0	96	2.4	3.0	135	1.5	1.0	57	na	na	<5
Signals when using credit facilities	1.5	1.0	183	1.5	1.0	64	2.0	2.0	23	3.0	3.0	5	1.4	1.0	91	1.7	2.0	126	1.1	1.0	56	na	na	<5
Low cash => efficient management	2.6	3.0	192	2.5	2.0	67	3.5	4.0	24	2.8	3.0	5	2.4	3.0	96	2.8	3.0	134	2.2	2.0	57	na	na	<5
Uncertainty about future opportunities	2.4	3.0	196	2.5	3.0	68	2.7	3.0	24	2.4	3.0	5	2.2	2.0	99	2.5	3.0	136	2.1	2.0	59	na	na	<5
Contingent liabilities	1.4	1.0	190	1.0	1.0	67	2.0	2.0	24	2.2	3.0	5	1.5	1.0	94	1.6	1.0	132	1.1	1.0	57	na	na	<5
Cash holdings of other companies in my industry	1.0	1.0	192	1.0	1.0	67	1.4	1.0	24	1.2	1.0	5	0.9	1.0	96	1.2	1.0	133	0.6	0.0	58	na	na	<5
Rating agency requirements	1.5	1.0	191	2.0	2.0	68	2.4	3.0	24	1.8	3.0	5	0.9	0.0	94	1.7	2.0	132	0.9	0.0	58	na	na	<5
Other lender requirements	1.3	1.0	192	1.0	1.0	67	2.2	2.0	24	1.6	1.0	5	1.2	1.0	96	1.4	1.0	132	0.9	0.0	59	na	na	<5
Regulatory requirements	1.2	1.0	190	1.1	0.5	66	1.6	1.0	24	1.4	1.0	5	1.1	1.0	95	1.4	1.0	130	0.7	0.0	59	na	na	<5

Means and Medians in Percent

6.4: Lines of Credit by Region, Ratings and Listing

Question: How large is your Line of Credit as a proportion of the book value of your assets?

Results of Question 6.4: Lines of Credit by Region, Ratings and Listing															
Range offered	No Line of Credit	0% - 2%	2.1% - 4%	4.1% - 6%	6.1% - 8%	8.1% - 10%	10.1% - 12%	12.1% - 14%	14.1% - 16%	16.1% - 18%	18.1% - 20%	Over 20%	\bar{x}	\tilde{x}	N
<i>Midpoint used for mean & median</i>	0%	1%	3%	5%	7%	9%	11%	13%	15%	17%	19%	21%	\bar{x}	\tilde{x}	N
All	6%	6%	6%	7%	4%	10%	9%	2%	4%	2%	5%	38%	13%	13%	241
Region															
Asia excluding Japan	11%	3%	5%	8%	3%	5%	8%	0%	3%	3%	5%	46%	14%	19%	37
Australia & New Zealand	0%	0%	0%	0%	0%	17%	33%	0%	0%	0%	0%	50%	16%	16%	6
Eastern Europe, Middle East & Africa	20%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	60%	15%	21%	5
Germany	4%	6%	2%	4%	4%	4%	8%	4%	6%	6%	8%	45%	15%	19%	51
Japan	4%	25%	17%	13%	4%	8%	8%	0%	4%	0%	0%	17%	7%	5%	24
Latin America	10%	10%	20%	0%	10%	0%	0%	0%	0%	10%	0%	40%	12%	12%	10
North America	4%	9%	4%	4%	4%	30%	22%	4%	0%	4%	4%	9%	10%	9%	23
Western Europe excluding Germany	5%	1%	5%	10%	5%	12%	5%	4%	6%	0%	5%	43%	14%	15%	83
Undisclosed	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Ratings															
Investment Grade	4%	11%	7%	10%	5%	14%	16%	2%	7%	5%	2%	16%	10%	9%	81
Non-investment Grade	4%	4%	15%	12%	4%	19%	12%	4%	0%	0%	4%	23%	10%	9%	26
Not Rated	0%	0%	0%	20%	0%	0%	0%	0%	0%	20%	0%	60%	17%	21%	5
Undisclosed	8%	3%	3%	5%	4%	6%	5%	2%	3%	1%	6%	54%	15%	21%	129
Listing															
Listed	3%	6%	7%	9%	6%	13%	10%	2%	5%	3%	4%	32%	12%	11%	157
Not Listed	10%	5%	4%	4%	1%	5%	7%	4%	2%	1%	5%	52%	15%	21%	81
Undisclosed	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<5

6.4: Lines of Credit by Industry

Question: How large is your Line of Credit as a proportion of the book value of your assets?

Results of Question 6.4: Lines of Credit by Industry															
Range offered	No Line of Credit	0% - 2%	2.1% - 4%	4.1% - 6%	6.1% - 8%	8.1% - 10%	10.1% - 12%	12.1% - 14%	14.1% - 16%	16.1% - 18%	18.1% - 20%	Over 20%			
<i>Midpoint used for mean & median</i>	0%	1%	3%	5%	7%	9%	11%	13%	15%	17%	19%	21%	\bar{x}	\tilde{x}	<i>N</i>
All	6%	6%	6%	7%	4%	10%	9%	2%	4%	2%	5%	38%	13%	13%	241
Industry															
Automobiles	13%	25%	13%	0%	13%	0%	0%	0%	0%	25%	0%	13%	8%	5%	8
Business Services	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<5
Chemicals	6%	6%	6%	0%	13%	6%	6%	6%	6%	0%	0%	44%	13%	14%	16
Consumer	5%	3%	3%	0%	0%	13%	10%	5%	0%	5%	5%	51%	16%	21%	39
Consumer Finance	0%	0%	0%	17%	0%	0%	33%	17%	17%	0%	0%	17%	13%	12%	6
Diversified & Conglomerates	0%	20%	0%	0%	0%	20%	0%	0%	20%	0%	20%	20%	13%	15%	5
Health Care & Pharmaceuticals	0%	10%	0%	10%	10%	20%	20%	0%	0%	0%	10%	20%	11%	10%	10
Industrials and Materials	6%	8%	4%	8%	2%	15%	6%	0%	6%	2%	2%	40%	13%	13%	48
Media	8%	8%	0%	0%	8%	8%	8%	0%	0%	0%	8%	50%	14%	20%	12
Metals & Mining	0%	0%	0%	10%	0%	0%	20%	0%	10%	0%	0%	60%	17%	21%	10
Oil & Gas	8%	8%	8%	25%	8%	0%	8%	0%	8%	0%	0%	25%	10%	6%	12
Technology	7%	0%	7%	7%	7%	0%	7%	7%	0%	0%	13%	47%	15%	19%	15
Telecommunications	13%	0%	13%	0%	13%	25%	25%	0%	0%	0%	0%	13%	9%	9%	8
Transportation Services	12%	6%	12%	12%	0%	18%	6%	6%	6%	6%	0%	18%	10%	9%	17
Utilities	0%	8%	15%	23%	8%	8%	0%	0%	8%	0%	8%	23%	10%	7%	13
Undisclosed & Other	5%	0%	11%	11%	0%	0%	5%	0%	0%	0%	11%	58%	16%	21%	19

6.5: Factors Determining Size of Lines of Credit

Question: How important are the following factors in deciding on the size of your Line of Credit?

Results of Question 6.5: Factors Determining Size of Lines of Credit									
	Not Important						Very Important		
	0	1	2	3	4	5	\bar{x}	\tilde{x}	<i>N</i>
Backstop facility on CP programme	44%	12%	9%	9%	10%	17%	1.8	1.0	210
Commitment fee v costs of other funds	18%	16%	15%	20%	23%	8%	2.4	3.0	210
Funding certainty	5%	6%	9%	21%	36%	24%	3.5	4.0	214
Time to raise other funds	8%	9%	21%	27%	27%	8%	2.8	3.0	213
The cost of the credit facility is certain	7%	14%	18%	29%	21%	10%	2.7	3.0	214
The credit facility is flexible	3%	6%	7%	16%	41%	27%	3.7	4.0	222
The fee charged on the credit line	8%	10%	18%	25%	26%	13%	2.9	3.0	217

6.5: Factors Determining Size of Lines of Credit by Region

Question: How important are the following factors in deciding on the size of your Line of Credit?

Results of Question 6.5: Factors Determining Size of Lines of Credit by Region																														
	All			Asia excluding Japan			Australia & New Zealand			Eastern Europe, Middle East & Africa			Germany			Japan			Latin America			North America			Western Europe excluding Germany			Undisclosed		
	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N			
Backstop facility on CP programme	1.8	1.0	210	2.2	2.0	31	2.6	4.0	5	na	na	<5	1.6	0.0	46	2.2	2.0	20	0.4	0.0	7	3.0	3.5	22	1.3	0.0	74	na	na	<5
Commitment fee v costs of other funds	2.4	3.0	210	3.2	4.0	33	2.7	3.0	6	na	na	<5	1.8	2.0	45	3.3	4.0	21	2.0	1.5	8	2.3	2.0	20	2.1	2.0	72	na	na	<5
Funding certainty	3.5	4.0	214	3.7	4.0	31	3.8	4.0	6	na	na	<5	3.4	4.0	47	3.6	4.0	20	2.9	3.0	8	3.7	4.0	21	3.4	4.0	75	na	na	<5
Time to raise other funds	2.8	3.0	213	3.5	4.0	31	2.3	2.0	6	na	na	<5	2.4	3.0	47	3.3	4.0	21	3.0	3.5	8	2.7	3.0	20	2.6	3.0	74	na	na	<5
The cost of the credit facility is certain	2.7	3.0	214	3.5	4.0	31	2.0	2.0	6	na	na	<5	2.3	2.0	46	2.8	3.0	21	2.4	3.0	8	2.4	2.0	20	2.8	3.0	76	na	na	<5
The credit facility is flexible	3.7	4.0	222	3.9	4.0	33	3.5	4.0	6	na	na	<5	3.7	4.0	48	3.3	4.0	23	2.8	3.5	8	3.7	4.0	21	3.7	4.0	77	na	na	<5
The fee charged on the credit line	2.9	3.0	217	3.3	3.0	33	3.2	3.5	6	na	na	<5	2.8	3.0	48	3.2	4.0	21	3.0	3.5	8	2.5	2.0	20	2.8	3.0	76	na	na	<5

Means and Medians in Percent

6.5: Factors Determining Size of Lines of Credit by Industry

Question: How important are the following factors in deciding on the size of your Line of Credit?

Results of Question 6.5: Factors Determining Size of Lines of Credit by Industry																																																			
	All			Automobiles			Business Services			Chemicals			Consumer			Consumer Finance			Diversified/Conglomerates			Health Care & Pharmaceuticals			Industrials and Materials			Media			Metals and Mining			Oil and Gas			Technology			Telecommunications			Transportation Services			Utilities			Undisclosed & Other		
	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N	\bar{x}	\tilde{x}	N												
Backstop facility on CP programme	1.8	1.0	210	4.4	5.0	7	na	na	<5	2.4	2.0	14	1.5	1.0	33	2.4	3.0	5	2.0	1.0	5	1.4	0.5	10	1.6	0.0	41	1.0	0.0	11	1.9	0.5	8	1.7	1.5	10	1.4	0.5	14	2.3	3.0	7	1.9	0.5	14	2.0	1.0	11	1.7	1.0	17
Commitment fee v costs of other funds	2.4	3.0	210	2.7	3.0	7	na	na	<5	1.9	2.0	15	2.3	2.5	32	3.8	4.0	6	2.6	3.0	5	2.2	2.5	10	2.2	3.0	41	2.2	3.0	11	2.4	1.0	7	1.9	2.0	11	2.4	2.5	14	3.1	4.0	7	2.5	2.0	15	3.1	3.0	9	2.5	2.0	17
Funding certainty	3.5	4.0	214	3.7	4.0	7	na	na	<5	3.9	4.0	14	3.5	4.0	34	4.2	4.0	5	3.6	3.0	5	3.8	4.0	10	2.9	3.0	42	3.4	3.5	10	4.5	4.5	8	3.1	4.0	11	3.7	4.0	14	3.4	4.0	7	3.8	4.0	15	3.4	4.0	11	3.6	3.5	18
Time to raise other funds	2.8	3.0	213	2.4	2.0	7	na	na	<5	2.2	2.0	14	2.6	3.0	33	3.8	4.0	6	3.0	3.0	5	2.5	3.0	10	2.6	3.0	42	2.9	3.0	10	3.8	4.0	8	2.9	3.0	11	2.8	3.0	14	3.0	3.0	7	3.0	3.0	15	3.6	4.0	11	2.8	3.0	17
The cost of the credit facility is certain	2.7	3.0	214	2.7	2.0	7	na	na	<5	2.4	2.0	14	2.6	3.0	35	2.8	3.0	6	3.0	3.0	5	2.2	3.0	10	2.7	3.0	42	3.0	3.0	10	3.6	4.0	8	2.3	2.0	11	3.0	3.0	14	2.7	3.0	7	2.9	3.0	15	2.8	3.0	10	3.4	4.0	17
The credit facility is flexible	3.7	4.0	222	2.7	2.0	7	na	na	<5	3.5	4.0	15	3.6	4.0	35	4.2	4.5	6	3.8	4.0	5	3.6	4.0	10	3.6	4.0	43	3.6	4.0	11	4.1	4.0	10	3.1	4.0	11	3.7	4.0	14	3.7	3.0	7	4.4	4.5	14	3.7	4.0	13	3.8	4.0	18
The fee charged on the credit line	2.9	3.0	217	3.3	4.0	7	na	na	<5	2.5	3.0	15	3.1	3.0	35	3.8	4.0	6	3.0	3.0	5	2.4	2.5	10	2.6	3.0	41	2.3	3.0	11	3.6	4.0	8	2.9	3.0	11	3.1	3.5	14	3.1	3.0	7	2.9	3.0	15	3.0	3.0	12	3.5	4.0	17

Means and Medians in Percent

6.5: Factors Determining Size of Lines of Credit by Ratings and Listing

Question: How important are the following factors in deciding on the size of your Line of Credit?

Results of Question 6.5: Factors Determining Size of Lines of Credit by Ratings and Listing																								
	Ratings									Listing														
	All			Investment Grade			Non-investment Grade			Not Rated			Undisclosed			Listed			Not Listed			Undisclosed		
	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>	\bar{x}	\tilde{x}	<i>N</i>
Backstop facility on CP programme	1.8	1.0	210	2.9	3.0	75	1.8	0.5	24	na	na	<5	1.1	0.0	107	2.1	1.0	141	1.2	0.0	67	na	na	<5
Commitment fee v costs of other funds	2.4	3.0	210	2.7	3.0	72	3.0	4.0	25	2.8	3.0	5	2.0	2.0	108	2.7	3.0	141	1.8	1.5	68	na	na	<5
Funding certainty	3.5	4.0	214	3.7	4.0	74	3.8	4.0	25	na	na	<5	3.3	4.0	111	3.7	4.0	146	3.0	3.0	66	na	na	<5
Time to raise other funds	2.8	3.0	213	2.8	3.0	73	3.0	3.0	25	3.6	4.0	5	2.7	3.0	110	3.0	3.0	144	2.4	3.0	68	na	na	<5
The cost of the credit facility is certain	2.7	3.0	214	2.4	2.0	72	2.9	3.0	25	3.0	3.0	5	2.9	3.0	112	2.8	3.0	145	2.6	3.0	68	na	na	<5
The credit facility is flexible	3.7	4.0	222	3.3	4.0	76	4.2	4.0	25	4.0	4.0	5	3.8	4.0	116	3.7	4.0	148	3.7	4.0	72	na	na	<5
The fee charged on the credit line	2.9	3.0	217	2.9	3.0	74	3.2	3.0	25	3.4	3.0	5	2.8	3.0	113	3.0	3.0	145	2.7	3.0	71	na	na	<5

Means and Medians in Percent

6.6: Relationship Between Cash and Lines of Credit by Region, Ratings and Listing

Question: Do you see credit lines and cash holdings as complements, substitutes or as unrelated decisions?

6.6 by Region, Ratings and Listing				
	Complements	Substitutes	Unrelated	N
All	34%	41%	25%	243
Region				
Asia excluding Japan	37%	45%	18%	38
Australia & New Zealand	17%	33%	50%	6
Eastern Europe, Middle East & Africa	20%	20%	60%	5
Germany	42%	37%	21%	52
Japan	29%	50%	21%	24
Latin America	44%	33%	22%	9
North America	9%	52%	39%	23
Western Europe excluding Germany	37%	37%	25%	83
Undisclosed	na	na	na	<5
Ratings				
Investment Grade	26%	48%	26%	80
Non-investment Grade	31%	62%	8%	26
Not Rated	31%	62%	8%	26
Undisclosed	39%	33%	28%	132
Listing				
Listed	32%	44%	24%	160
Not Listed	38%	35%	28%	80
Undisclosed	na	na	na	<5

6.6: Relationship Between Cash and Lines of Credit by Industry

Question: Do you see credit lines and cash holdings as complements, substitutes or as unrelated decisions?

6.6 by Industry				
	Complements	Substitutes	Unrelated	N
All	34%	41%	25%	243
Industry				
Automobiles	56%	22%	22%	9
Business Services	na	na	na	<5
Chemicals	25%	50%	25%	16
Consumer	24%	37%	39%	38
Consumer Finance	20%	80%	0%	5
Diversified & Conglomerates	33%	33%	33%	6
Health Care & Pharmaceuticals	33%	44%	22%	9
Industrials and Materials	33%	37%	29%	51
Media	17%	67%	17%	12
Metals & Mining	44%	11%	44%	9
Oil & Gas	33%	25%	42%	12
Technology	69%	25%	6%	16
Telecommunications	25%	63%	13%	8
Transportation Services	47%	35%	18%	17
Utilities	38%	46%	15%	13
Undisclosed & Other	21%	63%	16%	19

6.7: Relationship Between Investment Prospects and Cash Holdings by Region, Ratings and Listing

Question: If you had fewer investment prospects than expected, what would you do with your holdings of cash and/ or allocated line of credit?

6.7 by Region, Ratings and Listing				
	Increase them	No change	Decrease them	N
All	6%	50%	44%	244
Region				
Asia excluding Japan	14%	31%	56%	36
Australia & New Zealand	0%	0%	100%	6
Eastern Europe, Middle East & Africa	20%	20%	60%	5
Germany	6%	54%	40%	52
Japan	0%	68%	32%	25
Latin America	0%	40%	60%	10
North America	0%	52%	48%	23
Western Europe excluding Germany	6%	58%	36%	85
Undisclosed	na	na	na	<5
Ratings				
Investment Grade	1%	46%	53%	81
Non-investment Grade	4%	50%	46%	26
Not Rated	0%	20%	80%	5
Undisclosed	9%	55%	36%	132
Listing				
Listed	5%	52%	43%	162
Not Listed	6%	46%	48%	80
Undisclosed	na	na	na	<5

6.7: Relationship Between Investment Prospects and Cash Holdings by Industry

Question: If you had fewer investment prospects than expected, what would you do with your holdings of cash and/ or allocated line of credit?

6.7 by Industry				
	Increase them	No change	Decrease them	N
All	6%	50%	44%	244
Industry				
Automobiles	0%	33%	67%	9
Business Services	na	na	na	<5
Chemicals	6%	69%	25%	16
Consumer	11%	58%	32%	38
Consumer Finance	17%	33%	50%	6
Diversified & Conglomerates	0%	83%	17%	6
Health Care & Pharmaceuticals	10%	70%	20%	10
Industrials and Materials	4%	61%	35%	51
Media	0%	55%	45%	11
Metals & Mining	0%	60%	40%	10
Oil & Gas	0%	42%	58%	12
Technology	19%	38%	44%	16
Telecommunications	0%	38%	63%	8
Transportation Services	6%	29%	65%	17
Utilities	0%	38%	62%	13
Undisclosed & Other	6%	28%	67%	18

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