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Master Thesis

The Determinants of Cash Holdings: Evidence from Dutch Listed Firms

Chie-May Suen
s0209937

University of Twente
School of Management and Governance
Master Business Administration
Track Financial Management

Under the supervision of:

Ir. Henk Kroon
Prof. Jan Bilderbeek

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Abstract

Cash is an important issue of a firm. It is the blood of a firm. Without cash a firm cannot survive. Cash is king. Each firm has cash hold which is presented at the left side of the balance sheet. Opler, Pinkowitz, Stulz, & Williamson (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Custodio, Ferreira, & Raposo (2005), Bates, Kahle, & Stulz (2009), and Ozkan & Ozkan, (2004) have investigated that the firm characteristics firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment have a significant influence on cash holdings. According to these authors these firm characteristics are important in determining cash holdings. These authors have investigated whether there is a positive or negative relation between those firm characteristics and cash holdings of US firms, UK firms, firms from the EMU countries (Economic and Monetary Union of the European Union: Germany, France, Netherlands, Italy, Spain, Finland, Belgium, Austria, Ireland, Luxemburg, Greece and Portugal), Italian firms, German and Japanese firms. This study aims at providing empirical evidence to examine such influence for non-financial listed firms in the Netherlands. 100 listed firms were examined for the period 31 December 2006, 31 December 2007, 31 December 2008, and 31 December 2009. Univariate tests, the Fama-MacBeth regression, the cross-sectional regression using means, the pooled OLS regression with year dummies, the pooled OLS regression with year and industry dummies, and the Least Square Dummy Variables regression (a type of fixed effects regression) were chosen to test the influence of the firm characteristics on cash holdings.

Two dependent variables are used to measure the results of this study: cash-to-total-assets ratio and cash-to-net-assets ratio. In this study the firm characteristic bank debt is included in one analysis but excluded in the other analysis in order to get the whole sample size since there are missing values in this independent variable. By using both the dependent variables it is concluded that the level of cash holdings is positively affected by cash flow volatility, and negatively affected by bank debt, liquid assets and dividend payment. The relationship between firm size and cash holding is positive, but only after dropped bank debt when using cash-to-net-assets ratio as dependent variable this relationship is negative. By using cash-to-total-assets ratio as dependent variable (also after dropped bank debt) the relationship between cash holding and leverage is negative, but by using cash-to-net-assets ratio as dependent variable (also after dropped bank debt) this relationship is positive. Cash holding is positively affected by cash flow by using cash-to-total-assets ratio as dependent variable and negatively affected by cash flow after dropped bank debt. Both the negative and positive relation between cash flow and cash holding is not supported when using cash-to-net-assets ratio as dependent variable, but both the negative and positive relation is supported after dropping bank debt from the model. By using cash-to-total-assets ratio as dependent variable there is no significant relationship between investment opportunity and cash holding, but after dropped bank debt from the model the relationship between investment opportunity and cash holding is both positive and negative. By using cash-to-net-assets ratio as dependent variable relationship between investment opportunity and cash holding is negative, and after dropped bank debt from the model this relationship became positive.

With the results of the positive or negative influence of firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment on cash holding the firm can see which determinants of cash holding is needed if the firm wants to hold less or more cash. It can be also seen what have caused the firm to hold more or less cash in previous years.

Keywords: *Cash holdings, trade-off model, pecking order theory, free cash flow theory, cash-to-total-assets, cash-to-net-assets, firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, dividend payment.*

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1. Introduction

1.1. Research background

Cash is king. Without cash a firm cannot survive from its operating, financing, and investing activities. It is the blood of a firm's life. Each firm holds a significant amount of cash. Why do firms hold cash? Many studies like the study of Kim, Mauer, & Sherman (1998), Opler et al. (1999), Ferreira & Vilela (2004), and Ozkan & Ozkan (2004) have used three theoretical models to answer this question: the trade-off model (Myers, 1977), the pecking-order theory (Myers and Majluf, 1984), and the free cash flow theory (Jensen, 1986). When cash holding is explained by the trade-off model means that there is an optimal level of holding cash by balancing the marginal costs and marginal benefits of cash holding (Myers, 1977). In the pecking order theory cash is seen as a buffer between retained earnings and investment needs (Myers and Majluf, 1984). In this case there is no optimal level like in the trade-off model. In the free cash flow theory managers holds cash in order to increase their power and control over the investment decision of the firm (Jensen, 1986). Of course firms do not hold cash when there is no advantage over it. By holding cash the firms can reduce the transaction costs, prevent the loss of underinvestment due to shortage of funds, reduce the firm's cash flow uncertainty, and it is less costly to turn excess cash into private benefits (Chen & Chuang, 2009). Such benefits of holding cash make cash holding more valuable for shareholders.

Only few researches have been done in the past of the determinants of cash holdings in different countries of different types of firms. Ferreira & Vilela (2004) investigated the determinants of cash holdings of publicly traded surviving and non-surviving firms from the EMU countries from 1987 to 2000. The study of the determinants of cash holding is mostly done on US firms. Opler et al. (1999), Pinkowitz & Williamson (2001), and Bates et al. (2009) have examined the determinants of cash holdings of publicly traded surviving and non-surviving industrial firms from the US, while Custodio, Ferreira, & Raposo (2005) have done the same research on publicly traded non-financial US firms. Other studies of the determinants of cash holdings are done on non-financial publicly traded UK firms by Ozkan & Ozkan (2004), Italian private firms by Bigelli & Sanchez-Vidal (2010), German and Japanese publicly traded surviving and non-surviving industrial firm by Pinkowitz & Williamson (2001). These authors find that firms with smaller size, less leverage, less liquid assets and no dividend payment hold more cash than other firms. Only German larger firms from the study of Pinkowitz & Williamson (2001) hold more cash. The dividend payment has a positive influence on cash holding of German and Japanese firms from the study of Pinkowitz & Williamson (2001). Firms with more cash flow and cash flow volatility and with greater investment opportunity hold more cash. Only Japanese firms with greater investment opportunity from the study of Pinkowitz & Williamson (2001) hold less cash. The relationship between bank debt and cash holdings of Japanese firms is positive on the study of the effect of the bank power on the cash holdings of industrial US, German, Japanese firms from Pinkowitz & Williamson (2001) comparing to other authors. According to Pinkowitz & Williamson (2001) the large cash holding of Japanese firms can be explained by the monopoly power of large banks. When a firm does not have a main bank for monitor of its financial policies, the main bank will increase its own wealth at the expense of the nonbank firm. The bank encourages the firm to hold more cash to benefit the bank. The banks also support firms to hold more cash to remove rents from firms or decrease their costs of monitoring (Pinkowitz & Williamson, 2001). In contrast, Ferreira & Vilela (2004) and Ozkan & Ozkan (2004) found that bank debt influence cash holdings negatively, because firms that rely on bank loans as major source of financing are less likely to experience agency

and asymmetric information problems associated with other kinds of debt. This is because banks are in a better position to evaluate firm's credit quality and to monitor and control the firm's financial policies. Firms with a closer relationship with banks have less cash holdings for precautionary reasons (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004). However, there has been no research done regarding the influence of firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment on cash holding.

1.2. Research objective

The objective of this study is to find out whether firm size, leverage, bank debt, cash flow, cash flow volatility, investment opportunity, and dividend payment has an impact on cash holdings, and if so, whether it is positively or negatively affected.

The outcome of the research is the results of several tests where I can see whether cash holding is positively or negatively influenced by firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment.

1.3. Research question

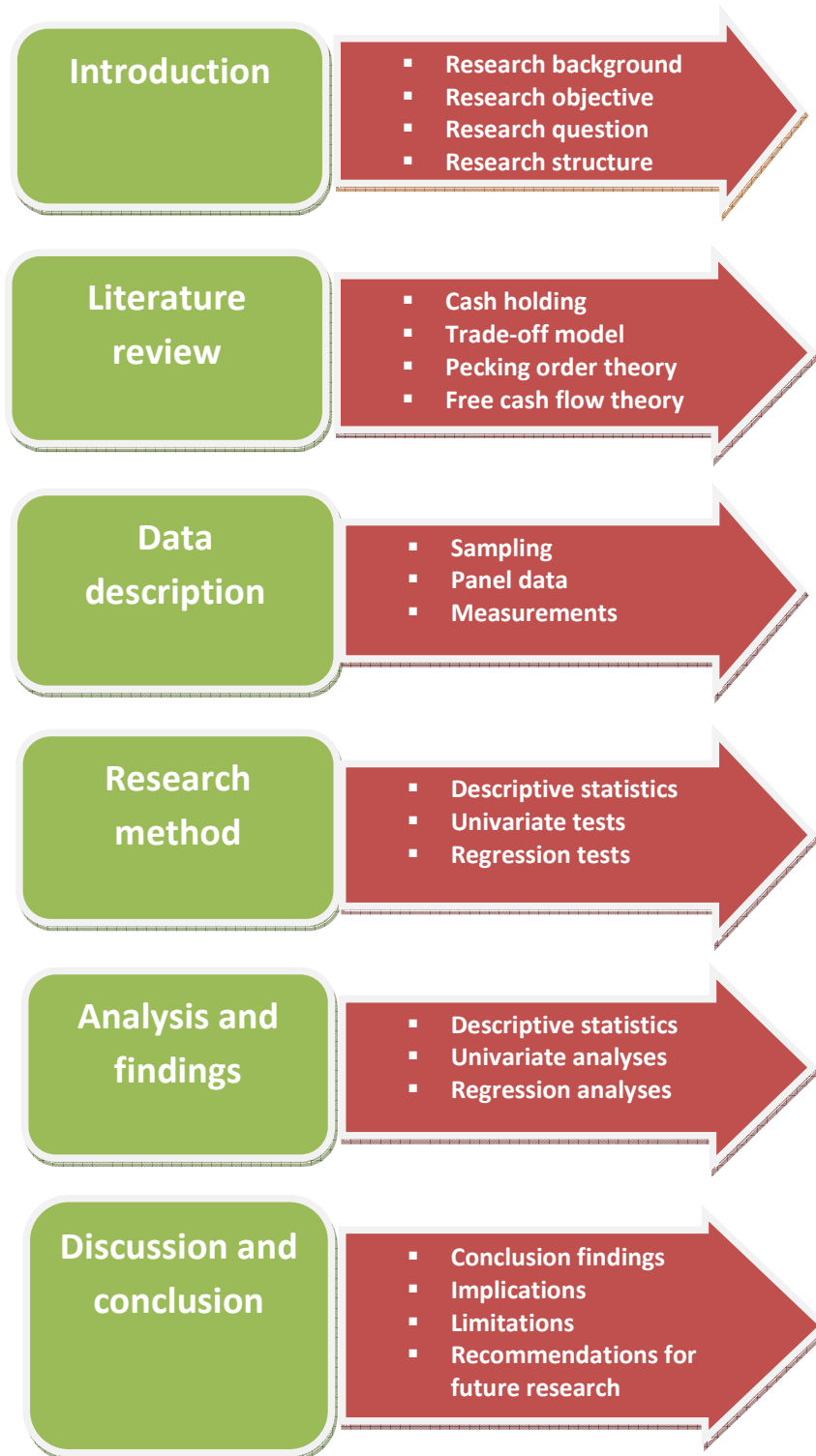
To which extent do firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment has an influence on cash holding of Dutch non-financial listed firms?

1.3.1. Sub-questions

1. What is cash holding?
2. Which firm characteristics have an influence on cash holding of Dutch listed firms?
3. Do the firm characteristics influence cash holding positively or negatively?
4. Why do the firm characteristics have a positive or negative influence on cash holding?

1.4. Research structure

The research is structured in figure 1 below. The chapter starts with a brief introduction. Then in chapter 2 the theory of the determinants of cash holdings is discussed based on three models called the trade-off model, pecking order theory, and free cash flow. In chapter 3, information about the sampling is described and also the measurement of each variable is presented. In chapter 4 the research method is described explaining 5 different (regression) tests called the univariate test, the Fama-MacBeth regression test, the cross-sectional analysis using means, the pooled OLS regression test, and the Least Squares Dummy Variable (fixed effects) regression test. In chapter 5 the descriptive statistics, univariate analyses, and regression analyses are presented. Each regression analysis is first explained separately and at the end of the chapter the results of all the regression tests are compared. Finally in chapter 6 the conclusion is described of the answer of the main research question. In this chapter also the implications, limitations, and recommendations for future research are described.

Figure 1: Research structure

2. Literature review

In this chapter the literature review is described. In paragraph one it is explained what cash holding means, what the reasons are to hold cash and what the advantages are of holding cash. In the second paragraph the firm characteristics firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity and dividend payment are explained by the trade-off model, pecking order theory and free cash flow theory.

2.1. Cash holding

Cash holding is an important subject for any firm, because it provides the firm with liquidity. Having cash is like having an emergency fund, so firms are able to pay off their obligations even if the firm is having a bad time. In financial literature, cash is usually defined as cash and short-term marketable securities or cash equivalents (Ferreira & Vilela, 2004) (Opler, Pinkowitz, Stulz, & Williamson, 1999) (Bates, Kahle, & Stulz, 2009). Cash equivalents have the characteristic that they can be transformed into cash in a very short term. They include certificates of deposit, government treasury bills, repurchase agreements and money market funds. Cash holding can therefore be defined from financial perspective as the holding of cash and cash equivalents by a firm.

There are some advantages of cash holding. According to Chen and Chuang (2009) firms tend to hold cash to reduce transaction costs and to prevent the loss of underinvestment due to shortage of funds. It is good to hold cash because turning excess cash into personal benefits is less costly to managers than transferring other assets to private benefits (Chen & Chuang, 2009). By holding cash it makes firms possible to reduce their cash flow uncertainty.

Many firms hold cash for different reasons and this varies across firms. There are four general reasons for firms to hold cash:

- 1. The transaction motive.** Firms hold cash for their operating activities. They need cash to meet their payment (Opler et al., 1999) (Damodaran, 2008) (Bates et al., 2009) and to raise funds (Custodio, Ferreira, & Raposo, 2005). The need for cash is different for different business. Retail firms for example need to have cash available in the cash registers of the stores to run their business. These kind of firms need access to cash to meet their weekly payrolls and to replace reduced inventory. This is the same for fast food restaurants. In contrast, a computer software firm may be able to get away with a much smaller operating cash balance due to few large transactions (Custodio, Ferreira, & Raposo, 2005).
- 2. The precautionary motive.** Firms need to hold cash to cover unexpected expenses and undetermined contingencies (Damodaran, 2008) (Bates et al., 2009). According to Custodio, Ferreira, and Raposo (2005) firms hold cash to finance activities and investments when other financing resources are not available or are extremely costly. The need for cash is different for different situations. In unstable and volatile economies firms should hold more cash to remain equal. In this kind of economies shocks are likely to appear so a higher level of cash is needed (Damodaran, 2008). Firms should have more cash during recessions, because in that period the costs of having less cash holding is higher and to exchange cash into liquidity is much more difficult. During economic recessions the opportunity cost of liquidity is lower because the marginal attractiveness of other investments, when compared to cash, is greater when the economy is performing well. When the economic conditions improve, it is easier and less costly to liquidate assets or access capital markets. The opportunity cost of cash is

- higher also, because the liquidity premium is higher (Custodio, Ferreira, & Raposo, 2005). Also when a firm has strong competition the firm is expected to hold more cash (Damodaran, 2008). Firms also hold cash for just in case and the firm needs cash. These firms view cash as a strategic weapon that they can use to take advantage of opportunities that may show up (through signs or actions) in the future. But these opportunities may never show up but it would still be rational for firms to hold cash. The advantage of having cash is greatest when cash is a scarce resource and capital markets are difficult to access or closed (Damodaran, 2008). This way of holding cash is called strategic cash holding.
3. **The agency motive.** Managers can decide whether the cash will be paid to the shareholders or held by the firm. To hold the cash the firm can for example expand fund. According to this author the safest way to deal with cash is to first separate it from operating assets and then value it separately in both discounted cash flow and relative valuation (Damodaran, 2008). Entrenched (fixed) managers would rather retain cash than increase payouts to shareholders when the firm has poor investment opportunities. These cash holdings are estimated as the excess cash holdings derived models controlling for the transaction and precautionary motives (Opler et al., 1999). Dittmar, Mahrt-Smith, and Servaes (2003) found evidence that firms hold more cash in countries with greater agency problems. Dittmar and Mahrt-Smith (2007) and Harford, Mansi, and Maxwell (2008) found evidence that entrenched managers are more likely to build excess cash balances, but spend cash quickly (Opler et al., 1999).
 4. **Future capital investment.** Firms hold cash is to increase capital by investing in new projects or investments in the future. This can be done only when the capital markets are efficient and when there is no costs. In the real world firms often face constraints and costs in accessing capital markets. These constraints restrict a firm's capacity to raise fresh capital to fund good investments. In the face of these constraints, firms will set aside cash to cover future investment needs. If they fail to do so, they run the risk of turning away worthwhile investments (Damodaran, 2008).

The first two reasons are mostly mentioned in the literature and are the main reasons to explain the trade-off model and pecking order theory. These two models or theories are explained later in this research.

2.2. Theory and empirical hypothesis

According to previous authors firm size, leverage, cash flow, bank debt, cash flow volatility, liquid assets (net working capital), investment opportunity, and dividend payment (Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004) (Bates et al., 2009) are important in determining cash holdings. There are according to Kim et al. (1998), Opler et al. (1999), Ferreira and Vilela (2004), and Custodio, Ferreira, and Raposo (2005) three theoretical models: trade-off model, pecking order theory and free cash flow theory, of which firms can use to explain which characteristics of the firm influence the cash holding of that firm. In this section the three models are discussed. In each model there are different decisions to hold cash. Each decision may have a different influence on cash holding. So in this study the firm characteristics are described based on these three theoretical models. In section 2.2.4 a table of the relation between cash holding and firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment is showed

2.2.1. Trade-off model

Like debt, cash holding generates costs and benefits, and it is very important to finance a firm to keep growing. With the trade-off model, also called the transaction costs model by Opler et al. (1999), the firm can identify the optimal level of cash holding by balancing the marginal costs of holding liquid assets and marginal benefits of cash holding. Marginal benefits of cash holding are reducing the probability of financial distress, allow the optimal investment policy for the firm, and avoid the costs of increasing external funds or liquidating existing assets. Since firms operate in an imperfect market (because of information asymmetry), they either have difficulties accessing the capital markets or bear a very important external financing cost. The cash holding acts like a buffer between the firm sources and uses of funds. A marginal cost of cash holding is the opportunity cost of capital due to low return on liquid assets relative to other investments of the same risk (Opler et al., 1999) (Ferreira & Vilela, 2004). The trade-off model can be applied to determine the optimal level of cash. This model is also called transaction costs model because this model is explained by the first motive, the transaction motive, of the reasons of holding cash mentioned before. Firms need liquidity to face their current expenses. Thus they have to raise funds in capital markets or liquidate existing assets. But because capital markets are imperfect, so there are transaction costs which can be avoided by holding an optimal cash level. Below a review of the firm characteristics is provided that is according to the trade-off theory relevant to firm cash holdings decisions.

Firm size

According to Faulkender (2002), if a firm is larger, the demand of cashing holding is lower because of the economy of scale (Faulkender, 2002). A similar result also presents by Bover and Watson (2005) that larger firms tend to have lower demand of cash holding, which is stemmed from more financial innovation. According to Kim et al. (1998) large firms are less likely to face borrowing constraints than small firms. The cost of external financing is smaller for larger firms because of scale economies resulting from a substantial fixed cost component of security issuance costs (Kim et al., 1998). Moreover, according to Ferreira and Vilela (2004), small firms with high business risks and strong growth opportunities tend to hold more cash because it will be more expensive for small firms to raise funds in the borrowing market. Usually, the transaction fees accompanying with raised funds are fixed, and thus, the marginal cost is higher for small firms. Besides, larger firms are more likely to be diversified do they have less probability of financial distress so larger firms hold less cash (Ferreira & Vilela, 2004). These arguments suggest a negative relation between the size of a firm and the demand of cash holding.

In the study of Pinkowitz and Williamson (2001) the determinants of cash holding for the United States, Japan, and Germany is investigated. A regression for all the three countries stated that there is a negative relation between firm size and cash holding. But when they tested the three countries separately, evidence shows that Japan and the US have a negative relation whereas Germany has a positive relation between firm size and cash holding.

Bates et al. (2009) investigated why the cash holding for US industrial firms doubled from the 1980s to the 2000s, and which factors could have affect this. They found evidence that there is a negative relation between firm size and cash holding in the 1980s and 1990s which is consistent with models of a transaction demand for cash. However, in the 2000s they concluded that there is a positive relation between firm size and cash holding due to agency problems.

Ozkan and Ozkan (2004) found a positive but insignificant relation between firm size and cash holding. This positive coefficient suggests that there may be other factors affecting the way in which size of firms exerts influence on their cash holding decisions. An example of that is that it may be that large firms are more successful in generating cash flows and profit so that they can accumulate more cash. Also large firms have greater growth opportunities and smaller liquid assets besides cash. In this cash they may choose to hold more cash (Ozkan & Ozkan, 2004). However, these arguments are not supported.

Leverage

Leverage ratio acts as a proxy for the ability of the firms to issue debt. In this way the firm has a higher ability to increase debt (Ferreira & Vilela, 2004) so that firm will hold less cash. On the other hand a firm with less ability to increase debt holds more cash. Also firms with high leverage have lower cash holdings in order to lower the cost of cash holding (Ozkan and Ozkan, 2004). This means that leverage has a negative relation on cash holding.

In general it is accepted that leverage increases the probability of bankruptcy due to the pressure that amortization plans put on the firm treasury management. To reduce the chance of experiencing financial distress, firms with higher leverage are expected to hold more cash. However, Ferreira & Vilela (2004) found no evidence for this positive relation between leverage and cash holding.

These arguments suggest that leverage may have an unknown (positive and negative) relation between leverage and cash holding.

Bank debt

According to Ferreira and Vilela (2004) EMU firms have a closer relationship with banks. In EMU countries banks own a significant proportion of firm's stock (Ferreira & Vilela, 2004). Also according to Krivogorsky, Grudnitski, and Dick (2009) firms in Continental Europe often rely more on bank debt than bonds for their external funds (Krivogorsky, Grudnitski & Dick, 2009). It is expected that firms that rely on bank loans as major source of financing are less likely to experience agency and asymmetric information problems associated with other kinds of debt. This is because banks are in a better position to evaluate the firm's credit quality and to monitor and control the firm's financial policies (Ferreira & Vilela, 2004). According to Ozkan and Ozkan (2004) banks can minimize the information costs and can get access to information not otherwise publicly available. Banks can monitor borrower's private information more effectively than other lenders. When a bank provide a loan or renew a loan to a firm means that there is positive information about that firm (Ozkan & Ozkan, 2004). So when a firm has bank debt means that it decreases the probability of experiencing financial distress. In this case firms with bank debt should hold less cash.

Cash flow

Another very practical reason for a company to hold cash are cash flows. Cash flow is defined as published after tax profit plus depreciation (Ferreira & Vilela, 2004). According to the trade-off model cash flow provides a ready source of liquidity. This means that cash flow can be seen as cash substitutes (cash itself) (Kim et al., 1998). Thus it is expected that there is a negative relation between cash flow and cash holdings.

Opler et al. (1999) and Pinkowitz and Williamson (2001) has found evidence in the determination of firm's cash holdings and of a positive influence of cash flow and cash holdings. Ozkan and Ozkan (2004) found evidence at the cross-sectional regression that cash flow and cash holding is negatively related. On the other hand, with the dynamic panel data estimation results, Ozkan and Ozkan (2004) found evidence that there is a positive relation between cash flow and cash holding. Ferreira and Vilela (2004) has predicted that there is a negative relation between cash flow and cash holdings because already provides a ready source of liquidity. If there is large cash flow means that there is enough liquidity so the firm holds less cash. However, Ferreira and Vilela (2004) have found no evidence to support this relation.

Cash flow volatility

Cash holding can be very important for a company when it is suffering because of lower cash flows or worse business conditions. Literature therefore expects a positive relation between volatility of cash flows and cash holding (Bigelli & Sanchez-Vidal, 2010) (Ozkan & Ozkan, 2004). This relation is found significant for private firms in Italy. Firms with many volatility of cash flow hold more cash as a buffer in order to increase the probability of surviving during periods when there is poor business conditions (Bigelli & Sanchez-Vidal, 2010). There is a positive relation between volatility of cash flows and cash holding for firms in the UK. The greater the volatility of cash flow, the greater the possibility that the firm will be short of liquid assets. If the firm has to pass up some valuable growth opportunities it will be costly to be short of cash. So firms with high cash flow volatility will hold more cash in order to avoid the expected costs of liquidity constraints (Ozkan & Ozkan, 2004). Ferreira & Vilela (2004) also found evidence that there is a positive relation between cash flow volatility and cash holding in the EMU countries. Firms with more cash flow volatility face a higher probability of experiencing cash shortages due to unexpected bad cash flows (Ferreira & Vilela, 2004). Opler et al. (1999) also has found evidence that US firms with more cash flow volatility hold larger amount of cash.

Liquid assets

Firms may also have liquid assets. These assets can be converted into cash easily and with low costs. These include accounts receivable and inventories and this is in fact the net working capital minus cash. They are substitutes for cash and therefore theory predicts a negative relationship between liquid assets and cash holding (Bigelli & Sanchez-Vidal, 2010) (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004). Opler et al. (1999) found evidence that large firms hold liquid assets so that they will be able to keep investing when cash flow is too low and when outside funds are expensive (Opler et al., 1999).

Investment opportunity

According to Ferreira and Vilela (2004) when a firm has greater investment opportunity the firm will have greater bankruptcy cost, because the positive NPV of these investments disappear in case of bankruptcy. The firm will hold more cash in order to avoid financial distress (Ferreira & Vilela, 2004). This argument suggests that there is a positive relation between investment opportunity and cash holding.

Dividend payment

According to Ferreira & Vilela (2004), Ozkan & Ozkan (2004) and Pinkowitz and Williamson (2001) there is a negative relationship between dividend payment and cash holdings. A firm that pays dividends can afford to hold less cash when they are more capable of raising funds when needed by cutting dividends (Ozkan & Ozkan, 2004). On the other hand a firm that does not pay dividends has to use the capital markets to raise funds (Opler et al., 1999) (Ferreira & Vilela, 2004).

2.2.2. Pecking order theory

By using the pecking order theory of Myers (1984), also called the financing hierarchy theory by Opler et al. (1999), the firm will use retained earnings (a form of equity) to finance their investment as a buffer in order to lower asymmetric information costs. According to this theory issuing new equities for firms is very costly because of information asymmetries. That is why firms finance their investments primarily with retained earnings (internal funds), then with debt and finally with equities because issuing new equities is very costly for firms because of information asymmetries. When the firm goes bankrupt, the debt holders are the first one who will get their money back, the shareholders will get the remaining money. Information asymmetry occurs when one party in a transaction does not have the information compared to another. It causes markets to become inefficient since all the markets participants do not have access to the information they need for the decision making process. The purpose of the pecking order theory is to minimize the asymmetric information costs and other financing costs. (Custodio, Ferreira, & Raposo, 2005)(Ferreira & Vilela, 2004). According to Opler et al. (1999) and Bigelli and Sanchez-Vidal (2010) the pecking order theory is also called financing hierarchy theory and is totally opposite of the trade-off model. It does not assume an optimal level and expects higher levels of cash reserves in more profitable firms as financial slack (Bigelli & Sanchez-Vidal, 2010). Cash is seen as a buffer between retained earnings and investment needs (Ferreira & Vilela, 2004). When retained earnings are not sufficient to finance new investments, firms use their cash holdings, and then issue new debt. Below a review of the firm characteristics is provided that is according to the pecking order theory relevant to firm cash holdings decisions.

Firm size

Firms that can presume more, have been more successful, and should have more cash after controlling for investment. So there is a positive relation between firm size and cash holding. However, Ferreira and Vilela (2004) and Opler et al. (1999) found no evidence to support this positive relation.

Leverage

According to Ferreira & Vilela (2004) debt grows when investment exceeds retained earnings and falls when investment is less than retained earnings. Cash holding fall when investment exceeds retained earnings and grow when investment is less than retained earnings. This relationship between cash holdings, debt and investments suggests that there is a negative relation between leverage and cash holdings (Ferreira & Vilela, 2004).

According to Opler et al. (1999) a firm's debt reacts to changes in the internal funds of the firm. When the firm's internal funds increase, its leverage falls. Most of the time firms obtain internal funds instead of issuing equity because it is expensive due to adverse selection (bad results to a

market process when buyers and sellers have access to different information). Because with internal funds the firm often spent more money than receiving money, the firm decreases cash holdings and raises debt. This means that changes in internal resources are the driving force for changes in cash holdings (Opler et al., 1999). This relationship between cash holdings, debt and internal resources suggests that there is a negative relation between leverage and cash holdings.

Bank debt

According to Ferreira and Vilela (2004) bank debt is negative related to cash holding of a firm for precautionary reasons. It is expected that firms that rely on bank loans as major source of financing are less likely to experience agency and asymmetric information problems associated with other kinds of debt. This is because banks are in a better position to evaluate the firm's credit quality and to monitor and control the firm's financial policies. Because agency and asymmetric information problems are a source of significant indirect financing costs, which may limit the access to capital markets, one would expect that firms with a greater proportion of bank debt, have less cash holdings for precautionary motives (Ferreira & Vilela, 2004). According to Ozkan and Ozkan (2004) UK firms that have much bank debt has a lower cash holding. It is often argued that bank financing is more effective than public debt in reducing problems associated with agency conflicts and information asymmetry, because of the advantage of banks in monitoring firm's activities and in collecting and processing information. Banks can minimize the information costs and can get access to information not otherwise publicly available. In other words, banks can monitor borrower's private information more effectively than other lenders. When a bank provide a loan or renew a loan to a firm means that there is positive information about that firm. So firms with more bank debt in their capital structures are expected to have easier access to external finance. In this case the firm should hold less cash (Ozkan & Ozkan, 2004).

Cash flow

When the cash flow is high means that the operating activities are going well so the firm can invest more in order to grow, so the firm has to hold more cash (Ferreira & Vilela, 2004). Also when there is high cash flow are expected to hold more cash because the firm prefer internal finance more than external finance (Ozkan & Ozkan, 2004). These arguments points out that there is a positive relation between cash flow and cash holding.

Investment opportunity

Ozkan and Ozkan (2004) found evidence that there is a positive relation between investment opportunity and cash holding. There can be an increase of the firm value when the investment is taken. The firm finds itself being short of cash so the firm may have to pass up some investments. In order to avoid this, the firm will hold more cash (Ozkan & Ozkan, 2004). Also Ferreira & Vilela (2004) found evidence of a positive relation between investment opportunity and cash holding. A large investment opportunity creates a demand for a large stock of cash, because cash shortfalls imply that unless a firm engages in costly external financing it must force itself to have profitable investment opportunities (Ferreira & Vilela, 2004).

2.2.3. Free cash flow theory

By using the free cash flow theory of Jensen (1986) the firm can raise the amount of assets and increase the power of investment decisions by building up cash. Free cash flow is cash flow in excess of that required to fund all projects that have positive net present value when discounted at the relevant cost of capital (Jensen, 1986). When the firm has enough cash available to invest, the manager does not need to raise external funds and to provide capital markets detailed information about the firm's investment projects. In this way the firm can lower the pressure of well performance and better invest in projects that fit manager's interests (Custodio, Ferreira, & Raposo, 2005) (Ferreira & Vilela, 2004).

Firm size

Larger firms are more likely to have more shareholders, which will increase the management's freedom of making (investment) decisions. Also larger firms are not likely to be the target of a takeover. A larger target requires more resources to be husbanded by the bidder. Thus it is expected that managers of large firms have more discretionary power over the investment and financial policies of the firm which leads to a greater amount of cash holding (Ferreira and Vilela, 2004). So there is a positive relation between firm size and cash holding. However, Ferreira and Vilela (2004) and Opler et al. (1999) found no evidence to support this positive relation.

Leverage

According to Ferreira and Vilela (2004) low leverage firms are less subject to monitoring, allowing for superior managerial discretion (Ferreira & Vilela, 2004). This means that firms with less leverage hold more cash which is a negative relation between leverage and cash holding.

Bank debt

Same as leverage, firms with a good relation with banks are more subject to monitoring, which can decrease superior managerial discretion. This means that firms with bank debt hold less cash.

Investment opportunity

Managers of firms with poor investment opportunities are expected to hold more cash because they have to ensure that there is funds to invest in growth projects, even if the NVP of these projects is negative. This will destroy the value of shareholders. Even the firm has a large investment opportunity this can lead to a low market-to-book ratio (Ferreira & Vilela, 2004). That means that there is a negative relationship between investment opportunity (using market-to-book ratio as a proxy) and cash holdings.

2.2.4. Summary relation between the firm characteristics and cash holding

Table 1 and 2 shows a summary of the relation between cash holding and firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment according to the theory and the findings of the authors. The results of this research are compared with the predictions of the theory and the findings of previous authors later in the chapter of the results and the conclusion. It is also compared whether the results are consistent or in contrast to the trade-off model, pecking order theory and free cash flow theory of the theory and also the findings of previous authors. In the tables are explained whether there is a positive or negative relation between cash holding and the firm characteristics. Unknown relation means that the relation is both positive and negative. Not supported in parentheses means that the previous authors have not found evidence of the relation between cash holding and the firm characteristic of that theory/ model.

Table 1: Summary of model predictions according to the theory

Variable	Trade-off Model	Pecking Order Theory	Free Cash Flow Theory
Firm size	Negative	Positive	Positive
Leverage	Unknown	Negative	Negative
Bank debt	Negative	Negative	Negative
Cash flow	Negative	Positive	
Cash flow volatility	Positive		
Liquid assets	Negative		
Investment opportunity	Positive	Positive	Negative
Dividend payment	Negative		

Table 2: Summary model predictions according to the findings of the authors

Variable	Trade-off Model	Pecking Order Theory	Free Cash Flow Theory
Firm size	Negative	Positive (not supported)	Positive (not supported)
Leverage	Negative	Negative	Negative
Bank debt	Negative	Negative	Negative
Cash flow	Negative (not supported)	Positive	
Cash flow volatility	Positive		
Liquid assets	Negative		
Investment opportunity	Positive	Positive	Negative (not supported)
Dividend payment	Negative		

2.2.5. A different issue of bank debt from Japanese firms

As mentioned before firms with a closer relationship with banks hold less cash for precautionary reasons, because firms that rely on bank loans as major source of financing are less likely to experience agency and asymmetric information problems associated with other kinds of debt (Ferreira & Vilela, 2004). According to Ozkan and Ozkan (2004) UK firms that have much bank debt has a lower cash holding. It is often argued that bank financing is more effective than public debt in reducing problems associated with agency conflicts and information asymmetry, because of the advantage of banks in monitoring firm's activities and in collecting and processing information. Banks can minimize the information costs and can get access to information not otherwise publicly available. When a bank provide a loan or renew a loan to a firm means that there is positive information about that firm (Ozkan & Ozkan, 2004). In this case the firm should hold less cash.

However, Pinkowitz and Williamson (2001) think that Japanese firms hold more cash when there is a good relation with banks. The authors have investigated the effect of bank power on cash holdings of the United States, Germany and Japan. In Japan there is less need to hold cash for precautionary reasons comparing to US firms. The reason for this is because Japan and the United States have different corporate governance. In US capital markets are the main monitor while in Japan the main bank is the main monitor of the firm. A decrease in agency costs is expected because the main bank relation should lower both the asymmetric information and wasteful behavior by management. Japanese firms hold significantly more cash than US firms. The German system is characterized as being bank-centered (so similar to Japan) but the cash holdings are similar to those in the United States. The large cash holding in Japan can be explained by the monopoly power from the large banks. If there is no monitor of the main bank, then the bank can take actions to increase its own wealth at the expense of the nonbank firm. In this way the main bank, that act as principal monitor, encourage the firms to hold relatively high levels of cash to benefit the bank. Banks support firms to have large cash balances in order to remove rents from firms or decrease their costs of monitoring. The authors has found evidence that firms that have access to nonbank financing hold significantly less cash than firms that are bank dependent. They also found evidence that there may be difficulties with a bank-centered governance system (Japan and Germany) if no other monitoring forces exist such as large nonbank block holders or an active market for corporate control (Pinkowitz and Williamson, 2001). So in the case of Japanese firms there is a positive relation between bank debt and cash holding. All the arguments suggest that there is an unknown relation between bank debt and cash holding. But Ferreira and Vilela (2004) have found evidence that there is a significant negative relationship between bank debt and cash holdings. Their result is consistent with the view that banks are in a better position to make the firm's credit quality more certain and to monitor and control the firm financial policies, cutting down the asymmetry and agency problems usually associated to other kinds of debt (Ferreira & Vilela, 2004).

3. Data description

In this chapter the data collection is described. In the first paragraph the sampling is described. Information about the firms of which the data is collected and the type of data collected is explained in that paragraph. In the second paragraph some theories of panel data are described, because the type of data is called panel data since all observations are repeated for several times. At last in paragraph three the measurement of the dependent and independent variables are described.

3.1. Sampling

For the empirical investigation a fixed sample of listed firms from the Netherlands of 31 December 2006, 31 December 2007, 31 December 2008, and 31 December 2009 are used, that are obtained from the annual reports (financial statements) of these listed firms. Firms from the AEX (Amsterdam Exchange Index), AMX (Amsterdam Midkap Index), AScX (Amsterdam Smallcap Index) stock exchange list, and local funds list are investigated, which is in total 100 firms. This gives a 400 firm-year observation ($N \times T$ observation). Firms from the financial sector are excluded because these firms may carry cash to meet capital requirements rather than for the reasons of cash holding (Bates et al., 2009) and also because their business involves inventories of marketable securities that are included in cash (Opler et al., 1999). Liquidity in this sector is hard to assess (Dittmar & Mahrt-Smith, 2007). The financial sector includes banks, investment funds, insurance companies, and real estate.

Data for the variables cash ratio, firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity (market-to-book ratio), and dividend payment are collected. The measurement of these variables is found in chapter 3.3. Data of cash and cash equivalents (included bank overdrafts), total equity, total current assets, total assets, total current liabilities, bank loans, total long term and short term debt (current and non-current liabilities), net income, depreciation and amortization, dividends paid, and outstanding shares are collected from the annual report. Bank overdrafts are included in cash and cash equivalents, because bank overdrafts are repayable on demand and form an integral part of a firm's cash management. In appendix 1 all the collected data of each firm are showed.

A difficulty of collecting the data is that from some small firms the annual reports cannot be found. The firms of which the annual reports cannot be found are excluded. There are also annual reports where there is no information of the bank debt showed. In this case it is presented as missing data. For bank debt there are in total 24 data missed for 31 December 2006 and 31 December 2007, and in total 38 data missed for 31 December 2008 and 31 December 2009.

Data of the closing share price of 31 December 2006, 31 December 2007, 31 December 2008, and 31 December 2009 are collected from some stock exchange website where historical share prices are showed. The websites used to collect the closing share price for this research are the website of Beursgorilla and Binck Bank. When the closing share price is not found because the firm is not listed anymore, this data is collected on the website of the firm itself.

The financial figures for this research are collected from listed firms in the Netherlands. The list of the Dutch listed firms is collected from the IEX site (www.iex.nl). Some of the annual reports are collected from the website <http://www.analist.nl/jaarverslagen> and some of the annual reports are collected from the website of the firm itself.

The AEX listed firms includes the following 20 large firms: Koninklijke Ahold, Air-France KLM, Akzo Nobel, ArcelorMittal, ASML Holding, Koninklijke BAM Groep, Koninklijke Boskalis Westminster, Koninklijke DSM, Fugro, Heineken, Koninklijke KPN, Koninklijke Philips, Randstad, Reed Elsevier, Royal Dutch Shell A, SBM Offshore, TomTom, TNT, Unilever cert., and Wolters Kluwer. The AMX listed firms includes the following 20 firms: Aalberts Industries, AMG, Arcadis, ASM International, Brunel International, Crucell, CSM, Draka Holding, Heijmans, Imtech, Logica, Mediq, Ordina, Koninklijke Ten Cate, Unit 4, USG People, Koninklijke Vopak, Wavin, and Koninklijke Wessanen. The AScX listed firms includes the following 18 small firms: Accell Group, Antonov, Arseus, Ballast Nedam, Beter Bed, Dockwise, Exact Holding, Fornix BioSciences, Gamma Holding, Grontmij, InnoConcepts, Macintosh Retail Group, Pharming Group, Qurius, Sligro Food Group, Spyker Cars, Telegraaf Media Group, and TKH Group. Firms from the local funds includes the following 42 firms: Ajax, Alanheri, AmsterdamCommodities, AMT Holding, AND Intl Publishers, Batenburg Beheer, BE Semiconductor Industries, Koninklijke Brill, Crown Van Gelder, Cryo Save Group, Ctac, DOCdata, DPA Group, Galapagos, HES Beheer, HITT, Holand Colours, Hunter Douglas, Hydratec Industries, ICT Automatisering, Kendrion, LBI International, Nedap, Nedsense Enterprise, Neways Electronics, Océ, Octoplus, Oranjewoud, Porceleyn Fles, Punch Graphix NV, RoodMicro Tec, Roto Smeets, Royal Dutch Shell B, Simac Techniek, Sopheon Plc, Stern Groep, Thunderbird, Tie Holding, TMC, Value8, Vivenda Media Group, and Wegener.

The industry groups that are used to divide these firms for the industry dummy variables are: consumer services, basic materials, technology, industrials, oil and gas, consumer goods, telecommunications, biopharmaceutical, health care, and tourism and recreation. In appendix 3 a list of the industry is showed of which firm belongs to which industry.

Of the 100 firms there are 88 firms of which the annual report is in Euros. There are 12 firms of which the annual reports are not in Euros. The annual reports of ArcelorMittal, Royal Dutch Shell A, SBM Offshore, AMG, Dockwise, Hunter Douglas, Royal Dutch Shell B, and Thunderbird are in US Dollars. The annual reports of Logica, Antonov, and Sopheon Plc are in UK Pounds. And the annual reports of LBI International is in Norwegian Crowns. The closing share prices of those firms are collected from the New York Stock Exchange (NYSE) from the United States, the Financial Times Stock Exchange (FTSE) from London, and the Oslo Børs from Norway.

Data from the financial statements from the fiscal year (like from Air-France KLM, Holland Colours) for the year sample are collected from 31 March 2007, 31 March 2008, 31 March 2009, and 31 March 2010. There are some data that are not collected from 31 December 2006 – 31 December 2009 because there is another date at the annual report. For example the date of financial statements of Koninklijke Ahold for the year sample is 31 December 2006, 30 December 2007, 28 December 2008, and 3 January 2010. This is because Ahold's financial year is a 52 - or 53-week period ending on the Sunday nearest to 31 December. For example the comparative financial year 2009 consisted of 53 weeks and ended on 3 January 2010. Data from the financial statements of Ajax are collected from 30 June 2007, 30 June 2008, 30 June 2009, 30 June 2010 because there is another date on the annual report. The reason for this is because the soccer season is from 1 July to 30 June.

Data from the financial statements of Océ are collected on 30 November 2006, 30 November 2007, 30 November 2008, and 30 November 2009 because there is another date on the annual report. The reason for this is because Océ preferred to have this book year in order to be among the first of listed firms in the Netherlands to publish their annual results.

3.2. Panel data

The collected data is called panel data (longitudinal data). Panel data have both time-series and cross-sectional dimension. The data has a cross-sectional dimension because data units are collected for a single point of time. The data also has a time-series dimension because the units are explained over a period of time. The data is a panel data because the same units are collected over a time period (Frees, 2004) (Menard, 2008) (Wooldridge, 2009). Panel data allow for unobserved effect to be correlated with the independent variables. The table below describes the advantages and disadvantages of panel data from Verbeek (2008) and Gujarati & Porter (2009).

Table 3: Advantages and disadvantages of panel data

Advantages	Disadvantages
1. The combination of time series and cross-section data gives more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency.	1. This type of data may complicate the analysis because you can no longer assume that different observations are independent.
2. Because of the repeated cross section of observations, panel data are better suited to study the dynamics of change.	2. This kind of data often suffers from missing observations which leads to adjustment of the standard analysis.
3. Since panel data relate to individuals (firms) over time, there is bound to be heterogeneity in these units.	3. Problems that exist in cross-sectional data (e.g. heteroskedasticity) and time series data (e.g. autocorrelation) need to be addressed.
4. Panel data can better detect and measure effects that cannot be observed in pure cross-section or pure time series data.	
5. This type of data are able to model why individual units behave differently also at different time periods. It allows us to study more complicated behavioral models.	
6. When there is large units, panel data can minimize the bias.	

3.3. Measurements

In order to analyze the effects of firm size, leverage, bank debt, cash flow, cash flow volatility, investment opportunity, and dividend payment on cash holding, dependent variables and independent variables are chosen and described in the following subparagraphs. In these subparagraphs it is described how the dependent and independent variables are measured. With the outcome of the measurements it will be tested whether the firm characteristic influence cash holding negatively or positively. To measure the cash holding, cash ratio is chosen as dependent variable. To measure the determinants of cash holding of a firm, in this study the firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment are chosen as the independent variables. Table 4 summarizes the measurement of the variables used in this study. In appendix 2 the ratio's of the dependent and independent variables are showed.

3.3.1. The dependent variables

Cash ratio

To measure the cash holding, cash ratio is chosen as dependent variable. The literature employs several alternative definitions of the cash ratio of which two of them are the most used:

1. Cash and cash equivalents to total assets (Bates et al., 1999) (Ozkan & Ozkan, 2004). This measure the portion of a company's assets held in cash. I think it is logical because it measures the ratio of cash to cash equivalents to what the firm owns. This is the most traditional measure used in research.
2. Cash and cash equivalents to net assets, where net assets is total assets minus cash and cash equivalents (Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004). Net assets are also called non-cash assets. With this measure you can see the ratio of how much firms has assets in cash.

In this research both of the cash ratios are used. The difference between these two cash ratios is that with cash and cash equivalents to net assets you can see how much the firm's assets are in cash.

It is not very convenient to measure cash holding for one day because the cash, cash flow, accounts receivable, inventories and more accounts on the balance sheet changes every day. But I am interested in seeing the changes in cash holding and the factors that are influencing the cash holding at the end of the year.

Cash and cash equivalents are collected from cash flow statement. The cash and cash equivalents are not collected from the balance sheet, because bank overdrafts are not included in the cash and cash equivalents. Bank overdrafts on the balance sheet are on the right side because it is a debt from the firm. I think that bank overdraft is a type of cash and should be included in the cash and cash equivalents. In the cash flow statement mostly the bank overdrafts are included. When cash and cash equivalents are negative on the cash flow statement means that the firm has a (bank) debt.

3.3.2. The independent variables

To measure the determinants of cash holding of a firm, in this study the firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment are chosen as the independent variables. According to Bates et al. (1999), Opler et al. (1999), Pinkowitz & Williamson (2001), Ozkan & Ozkan (2004), Ferreira & Vilela (2004) these firm characteristics are important in determining the cash holding of a firm. The independent variables leverage, cash flow, cash flow volatility, and non-cash liquid assets are measured using two different formulas based on which cash ratio is used. When the cash-to-total assets ratio is the used as the measure, then these variables are also divided by the total assets. When the cash-to-net assets ratio is used as the measure, then these variables are also divided by the net assets.

Firm size

Firm size is defined as the natural logarithm of the book value of the firm's total assets (Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004). The natural logarithm is used to measure the growth factor of the firm.

By using logarithm the differences of the size between the firms and the years will become smaller. The idea of logarithm is to undo the operation of raising a fixed number to a certain power. The size

of a firm can be also measured by looking at the total assets of the firm. By using the natural logarithm of the total assets you can see the growth of the total assets of the firm for each year.

Leverage

Using cash-to-total-assets ratio: Total leverage is defined as the ratio of total debt to total assets (Bates et. al, 1999) (Ozkan & Ozkan, 2004). This firm characteristic is defined as $(\text{long-term debt} + \text{short-term debt})/\text{total assets}$.

Using cash-to-net-assets ratio: Total leverage is defined as the ratio of total debt to net assets (Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004). This firm characteristic is defined as $(\text{long-term debt} + \text{short-term debt})/\text{net assets}$.

Bank debt

Bank debt is defined as total bank borrowings to total debt. This is calculated by $\text{total bank debt}/\text{total debt}$ (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004).

Cash flow

Using cash-to-total-assets ratio: Cash flow is measured by using the cash flow to total assets ratio (Bates et. al, 1999) (Ozkan & Ozkan, 2004). Cash flow is defined as earnings before interest and taxes, but before depreciation and amortization, less interest, taxes and common dividends. This is calculated by $[(\text{EBITDA} - \text{interest expenses} - \text{tax expenses} - \text{dividends paid})/\text{total assets}]$.

Using cash-to-net-assets ratio: Cash flow is measured by using the cash flow to net assets ratio (Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004). This is calculated by $[(\text{EBITDA} - \text{interest expenses} - \text{tax expenses} - \text{dividends paid})/\text{net assets}]$.

In the calculation in the excel sheet the cash flow is calculated by $\text{Net Income} + \text{depreciation} + \text{amortization} - \text{dividends paid}$.

Cash flow volatility

Using cash-to-total-assets ratio: Cash flow volatility is measured by using the standard deviation of cash flow divided by the total assets (Ozkan & Ozkan, 2004). The standard deviation for each firm is calculated over the 4 year period.

Using cash-to-net-assets-ratio: Cash flow volatility is measured by using the standard deviation of cash flow divided by the net assets (Opler et al., 1999)(Pinkowitz & Williamson, 2001)(Ferreira & Vilela, 2004).

Liquid assets

Using cash-to-total-assets ratio: The net working capital is used as a proxy for liquid assets as these assets can be seen as substitutes for cash holding (Ferreira & Vilela, 2004). Net working capital is calculated without cash (Opler et al., 1999). The net working capital to total assets ratio is used to calculate the liquid assets. This is calculated by $\text{current assets} - \text{current liabilities} - \text{total cash and cash equivalents}/\text{total assets}$ (Bates et. al, 1999) (Ozkan & Ozkan, 2004).

Using cash-to-net-assets ratio: The net working capital to net assets ratio will be used to calculate the liquid assets (Ferreira & Vilela, 2004). This is calculated by current assets – current liabilities – total cash and cash equivalents/net assets (Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004).

Market-to-book ratio (investment opportunity)

The market-to-book ratio is used as a proxy for the firm's investment opportunity. This because the balance sheet of the firm does not include intangible assets like growth options. More growth options increase the firm's market value to its book value (Ozkan & Ozkan, 2004) (Ferreira & Vilela, 2004).

The market-to-book ratio is calculated by (book value of total assets – book value of equity +market value of equity)/total assets (Ferreira & Vilela, 2004) (Opler et al., 1999). The book value of assets and equity are the values that are showed in the balance sheet. The market value of equity is calculated by multiplying the outstanding shares with the closing share price of the last share price day of the sample year.

When collecting the data of the closing share price for the fiscal year (for Air-France KLM, Holland Colours) the closing share price of 31 March 2007, 31 March 2008, 31 March 2009, and 31 March 2010 are collected. For Koninklijke Ahold the closing share price for 31 December 2006, 30 December 2007, 28 December 2008, and 3 January 2010. The closing share price for Ajax is collected on 30 June 2007, 30 June 2008, 30 June 2009, and 30 June 2010. The closing share price for Océ is collected on 30 November 2006, 30 November 2007, 30 November 2008, and 30 November 2009.

Some data is collected in US dollars or UK pounds, because the numbers in the financial statement are stated in US dollars or UK pounds. The closing share price are first collected at the Euronext in euros and then converted into US dollars or UK pounds by looking at the exchange rate of the date. Only for Logica and Dockwise the closing share price is collected at the London stock exchange "FTSE" (for Logica) and at the Oslo stock exchange "Oslo Børs" (for Dockwise). For Logica the closing share price is collected at the London stock exchange because when I collect the closing share price from Euronext (in euros) and then convert it into UK pounds, the market value of equity differs too much from the book value of equity. If I collect the closing share price from the London stock exchange this is not the case, so that is why I use the closing share price from the London stock exchange. For Dockwise the closing share price is collected at the Oslo stock exchange because this firm was listed at the Oslo stock exchange since 2007 because of fusion with a Norway firm called Sealift. Only since 2009 Dockwise was listed at the Euronext, so there is too less information if I collect the closing share price from the Euronext.

Dividend dummy (dividend payment)

I want to see whether a firm holds more or less cash when the firm pays or do not pay out dividend. Some of the firms pay out cash dividend and some of the firms pay out stock dividends. It can be that the firm has less cash because the cash is used to pay out the dividend.

To estimate the effects of dividend payments a dummy variable is constructed. The dividend dummy is set to one if the firm paid out a dividend each year and zero if not (Ferreira & Vilela, 2004). Firms that pay dividends are likely to be less risky and have greater access to capital markets, so the precautionary motive for cash holding is weaker for them (Opler et al., 1999).

Table 4: Summary of the measurements used in this study

	Cash-to-total-assets ratio	Cash-to-net-assets ratio
Dependent variable		
Cash ratio	$\frac{\text{Cash and cash equivalents}}{\text{Total assets}}$	$\frac{\text{Cash and cash equivalents}}{\text{Net assets}^*}$
Independent variables		
Firm size	Natural logarithm total assets	
Leverage	$\frac{\text{Total debt}}{\text{Total assets}}$	$\frac{\text{Total debt}}{\text{Net assets}^*}$
Bank debt	$\frac{\text{Bank debt}}{\text{Total debt}}$	
Cash flow	$\frac{\text{EBITDA} - \text{Interest expenses} - \text{Tax expenses} - \text{Dividends paid}}{\text{Total assets}}$	$\frac{\text{EBITDA} - \text{Interest expenses} - \text{Tax expenses} - \text{Dividends paid}}{\text{Net assets}^*}$
Cash flow volatility	$\frac{\text{Standard deviation of cash flow}}{\text{Total assets}}$	$\frac{\text{Standard deviation of cash flow}}{\text{Net assets}^*}$
Liquid assets	$\frac{\text{Current assets} - \text{Current liabilities} - \text{Cash and cash equivalents}}{\text{Total assets}}$	$\frac{\text{Current assets} - \text{Current liabilities} - \text{Cash and cash equivalents}}{\text{Net assets}^*}$
Investment opportunity	$\frac{\text{Book value total assets} - \text{Book value equity} + \text{Market value equity}}{\text{Total assets}}$	
Dividend dummy	1 if firm paid out dividend, 0 if the firm did not paid out dividend	

* Net assets = Total assets – Cash and cash equivalents

4. Research method

In this chapter the research method is described. In this research method the techniques are described to examine the data. The definition of cash holding and the firm characteristics that can influence the cash holding of a firm are explained in the literature review. To investigate whether the firm characteristics have a positive or negative relation on cash holding some methodologies, some tests are used which are described below. In paragraph one the use of descriptive statistics are explained. In paragraph two the use of the univariate tests are described. In paragraph three, four different regression tests are presented of this research: Fama-MacBeth regression, cross-sectional regression using means, pooled OLS regression with year dummies, pooled OLS regression with year and industry dummies, and Least Square Dummy Variable (LSDV) regression (fixed effects regression). In this paragraph each regression are described separately. In appendix 4 the advantages and disadvantages of each regression test is described. Different regression tests are run to make the results more reliable. These four regression tests are chosen because the same tests are also used by previous authors, so the results of this study can be easier compared with the findings of previous authors. In the Fama-MacBeth regression and the cross-sectional regression using means, the average of each year is used to calculate the results of the relation between cash holding and the firm characteristics, but both are run in different ways. In the pooled OLS regressions some dummy variables like annual dummies and industry dummies are added, because the year and industry classification may affect the cash holding. The LSDV regression is almost the same regression as the pooled OLS regression with year dummies. Only the Least Square Dummy Variable regression is tested using panel data and the pooled OLS regression is tested as a long cross-sectional data. In the results, the two-tailed significance is reported. One-tailed significance is used only when you want to test whether there is or there is no relation between the dependent and independent variable. Two-tailed significance is used when you want to investigate whether there is a positive or negative relation between the dependent variable and independent variable.

4.1 Descriptive statistics

Descriptive statistics are used to describe and discuss the basic features of the data set more generally and orderly. Descriptive statistics are more clarify to describe many quantitative data. It is simply describing what the data shows. In the descriptive statistics mostly the mean, 25th percentile, median, 75th percentile, the standard deviation and the N are described. For the central tendency I have chosen the mean and the median. Mean is the average value of the data. It is the mostly used method of describing central tendency. The mean is calculated by adding up all the values and divide by the number of values. Median is the middle value of the data. A way to find out the median of the data is to list all the values in numerical order and then locate the score in the sample of the order. But these values are showed automatically using when using SPSS.

4.2. Univariate tests

Univariate analysis is the simplest way of quantitative analysis. In the univariate analysis the measures of central tendency is used. In this case the mean and the median are used as central tendency for the univariate analysis. The way to measure the univariate analysis is the statistical dispersion. This means that the data is spread in probability distribution. Those measurements look at how the values are distributed around values of central tendency. The dispersion in this case is

studying the cash-to-assets range (Babbie, 2009). The univariate analysis is measured based on the quartiles of cash-to-assets. The cash-to-assets range is divided in four quartiles. The first quartile is firms that hold the lowest cash balance and the fourth quartile is firms that hold the highest cash balance among the sample. The quartiles are constructed each year, which explains why the ranges if the cash-to-assets ratio overlap across quartiles. For each year (date), for example for the first quartile, 25% of the firms with the lowest cash balance and the related independent variables are selected and put together to calculate the mean and the median of the first quartile. Each quartile contains 100 firm-years. The univariate test is just to order the dependent variable “cash ratio” from less to more together with the numbers of the independent variables to see when cash ratio drop or increase whether each independent variable drop or increase. This test is just a simple way to observe the relation between the dependent variable and the independent variables. You can also see if the firm characteristic is increasing monotonically with cash holding. The t-statistics (F-ratio) is used to test the hypothesis that the fourth quartile firms differ significantly from the first quartile firms (Ferreira & Vilela, 2004) (Opler et al., 1999). P-values are reported for the two-tailed test for equality of means.

4.3. Regression tests

To investigate the influence of firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity and dividend on cash holding different regression analysis are employed that are suggested by Opler et al. (1999), Pinkowitz & Williamson (2001), and Ferreira & Vilela (2004). These four regression methodologies are the Fama-MacBeth (1973) model, the cross-sectional regression using means, the pooled OLS regression using first year dummies and then using year and industry dummies, and the Least Squares Dummy Variables (LSDV). All four different methodologies have different ways to measure the relationship between cash holding and the firm characteristics. By using all the four different methodologies the results may be more reliable to conclude whether there is a positive or negative relationship between cash holding and the firm characteristics. The Fama-MacBeth model first estimates each cross section independently while the pooled OLS regression and the LSDV pool all the cross-sections together in one large cross-section. The pooled OLS regression and LSDV effects regression include the year and industry dummies because the year and industry classification may affect the cash holding. The Fama-MacBeth regression, the cross-sectional regression using means, and the pooled OLS regression using first only year dummies, and then using year and industry dummies, are run using SPSS. Since at the LSDV the data must be declared as panel data, which is not possible in SPSS, this regression is run using STATA.

Each regression is run two times. One is the normal model with all the independent variables and the other is the regression without the independent variable “bank debt”. Bank debt is the only variable with missing values. In total there are 62 missing values of the total sample of 400 for all the 4 years. When running the regressions in SPSS, the software excludes all the cases with missing values list wise. So that means that the whole sample is only 338 out of 400.

For all the four regression tests it is tested if the data is normally distributed and whether heteroskedasticity is present. When the data is normally distributed it means that most of the examples of the data set are close to the average of the data. Heteroskedasticity means that the error variance in the regression model is not constant across units (firms). When the data is not normal and heteroskedasticity is also present, then the results can be biased. The data is tested on

normality by running the Shapiro-Wilk test (when the sample size is smaller than 50) and Kolmogorov-Smirnov test (when the sample size is bigger than 50). The presence of heteroskedasticity is tested by running the White's test (1980). Both the normality and heteroskedasticity are corrected using White's correction. In SPSS the General Linear Model of Complex Samples is used to correct for the non-normality of the data and to correct for heteroskedasticity. This General Linear Model of Complex Samples is the robust estimator in SPSS. In STATA these are corrected by running the robust regression (robust standard errors). After corrected for heteroskedasticity only the standard errors are corrected. The beta coefficient of the independent variables is not changed.

For the regression tests it is tested whether there is presence of collinearity. When collinearity between two independent variables is present means that these two variables are highly correlated and can bias the results. The solution for this problem is to drop one of these highly correlated variables.

4.3.1. Fama-MacBeth regression

The Fama-MacBeth (1973) model has two stages. In the first stage, for every year, for every variable, a cross-sectional OLS regression is estimated. The Fama-MacBeth model treats each year as an independent cross-section. In this case heteroskedasticity is formally tested each year (for each variable) using the White test (1980). In this cross-sectional OLS analysis the beta's (parameters of interests) of the model for 31 December 2006, 31 December 2007, 31 December 2008 and 31 December 2009 are estimated. In the second stage, the time-series of regression coefficients are used on the cross-sectional regressions to obtain the final estimation for the parameters and standard errors (Skoulakis, 2006). To do this final estimation the average cross-sectional beta is calculated first. Then the time series standard deviation of the four betas is used to estimate the standard error of the average beta. By dividing the standard error by the average beta the t-statistics for each variable is calculated (Cochrane, 1998). The second stage is done in this way because SPSS cannot run a Fama-MacBeth regression automatically.

So both the cross-sectional analysis and time-series analysis are used separately in this methodology. With a cross-sectional analysis the value of all the firms in a single point of time is estimated. With a time-series analysis it can be seen that the value of a variable increases or decreases within a single unit over time (Lewis-Beck, 1993). The Fama-MacBeth model avoids the issue of serial correlation in the residuals of the time-series cross-sectional regression (Opler et. al, 1999). Under the assumption that the independent variables do not vary with time, the Fama-MacBeth procedure is essentially equivalent to the OLS regression.

The cross-sectional analysis equation is:

$$\begin{aligned} \text{CASH}_i = & \beta_0 + \beta_1 \text{SIZE}_i + \beta_2 \text{LEV}_i + \beta_3 \text{BANKDEBT}_i + \beta_4 \text{CFLOW}_i + \beta_5 \text{CFVOLAT}_i \\ & + \beta_6 \text{LIQ}_i + \beta_7 \text{MKTBOOK}_i + \beta_8 \text{DIVIDEND}_i + u_i \\ & i = 1, 2, \dots, N; \end{aligned}$$

Where CASH_i is cash holdings of firm i , SIZE_i is the natural logarithm of the book value of the firm's total assets, LEV_i is the ratio of total debt to total assets (net assets), BANKDEBT_i is the ratio of total bank borrowings to total debt, CFLOW_i is the ratio of cash flow to total assets (net assets), CFVOLAT_i

is the ratio of the variance of cash flow divided by total assets (net assets), LIQ_i is the ratio of net working capital to total assets (net assets), $MKTBOOK_i$ is the ratio of book value of total assets minus book value of equity plus market value of equity to total assets, $DIVIDEND_i$ is the dividend dummy where one is that the firm has paid dividend that year and zero if not, and u_i is the error term.

The time-series analysis equation is:

$$\begin{aligned} CASH_t = & \beta_0 + \beta_1 SIZE_t + \beta_2 LEV_t + \beta_3 BANKDEBT_t + \beta_4 CFLOW_t + \beta_5 CFVOLAT_t \\ & + \beta_6 LIQ_t + \beta_7 MKTBOOK_t + \beta_8 DIVIDEND_t + u_t \\ & t = 1, 2, \dots, T_i \end{aligned}$$

Where $CASH_t$ is cash holdings in year t , $SIZE_t$ is the natural logarithm of the book value of the firm's total assets in year t , LEV_t is the ratio of total debt to total assets (net assets) in year t , $BANKDEBT_t$ is the ratio of total bank borrowings to total debt in year t , $CFLOW_t$ is the ratio of cash flow to total assets (net assets) in year t , $CFVOLAT_t$ is the ratio of the variance of cash flow divided by total assets (net assets) in year t , LIQ_t is the ratio of net working capital to total assets (net assets) in year t , $MKTBOOK_t$ is the ratio of book value of total assets minus book value of equity plus market value of equity to total assets in year t , and $DIVIDEND_t$ is the dividend dummy in year t where one is that the firm has paid dividend that year and zero if not, and u_t is the error term in year t .

4.3.2. Cross-sectional regression using means

In this cross-sectional regression, the means of variables for each firm across time is used (Ferreira & Vilela, 2004). After calculating the value of each variable for each firm in four years, an OLS regression is run to estimate the parameters.

The cross-sectional analysis equation is:

$$\begin{aligned} CASH_i = & \beta_0 + \beta_1 SIZE_i + \beta_2 LEV_i + \beta_3 BANKDEBT_i + \beta_4 CFLOW_i + \beta_5 CFVOLAT_i \\ & + \beta_6 LIQ_i + \beta_7 MKTBOOK_i + \beta_8 DIVIDEND_i + u_i \\ & i = 1, 2, \dots, N; \end{aligned}$$

Where $CASH_i$ is cash holdings of firm i , $SIZE_i$ is the natural logarithm of the book value of the firm's total assets, LEV_i is the ratio of total debt to total assets (net assets), $BANKDEBT_i$ is the ratio of total bank borrowings to total debt, $CFLOW_i$ is the ratio of cash flow to total assets (net assets), $CFVOLAT_i$ is the ratio of the variance of cash flow divided by total assets (net assets), LIQ_i is the ratio of net working capital to total assets (net assets), $MKTBOOK_i$ is the ratio of book value of total assets minus book value of equity plus market value of equity to total assets, $DIVIDEND_i$ is the dividend dummy where one is that the firm has paid dividend that year and zero if not, and u_i is the error term.

4.3.3. Pooled OLS regression with year dummies

The pooled OLS regression is also called pooled time-series cross-sectional regression. In this regression all the cross-section data are pooled into one large cross-section data, which is called panel data, and the standard OLS regression is used to estimate this pooled data. One reason to pool data is to increase the sample size. By pooling data from the same population but at different points in time, you can get more precise estimators and test statistics with more power.

Using pooled OLS does not solve the omitted variables problem. Omitted variables are variables that are not in a model or an analysis that influence both the cause and effect and so may cause bias (Shadish, Cook, & Campbell, 2002). Because of the time series dimension, different time intercept is allowed. Using time dummy variables can allow the intercept to differ across periods. Dummy variables are variables that take on the value zero or one to indicate the absence or presence of some categorical effect that may be expected to shift the outcome (Wooldridge, 2009, pp. 225). For annual dummies the dummy variable gets the value one if for example the year is 2006 and zero if not. In total four annual dummies are created to control for any macroeconomic events (Ferreira & Vilela, 2004), in this case the financial crisis in 2008 that has also affected 2009, and also inflation. Normally when a regression is run with dummy variables, always one dummy variable is dropped, which is chosen as the base to estimate the intercept (Wooldridge, 2009). In able to include all the dummy variables, the intercept must be excluded.

The pooled OLS regression equation with year dummies is:

$$\begin{aligned} \text{CASH}_{it} = & \beta_0 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{BANKDEBT}_{it} + \beta_4 \text{CFLOW}_{it} + \beta_5 \text{CFVOLAT}_{it} + \beta_6 \text{LIQ}_{it} \\ & + \beta_7 \text{MKTBOOK}_{it} + \beta_8 \text{DIVIDEND}_{it} + \beta_9 2006_{it} + \beta_{10} 2007_{it} + \beta_{11} 2008_{it} + \beta_{12} 2009_{it} + u_{it} \\ & i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T_i \end{aligned}$$

Where CASH_{it} is cash holdings of firm i in year t , SIZE_{it} is the natural logarithm of the book value of the firm's total assets, LEV_{it} is the ratio of total debt to total assets (net assets), BANKDEBT_{it} is the ratio of total bank borrowings to total debt, CFLOW_{it} is the ratio of cash flow to total assets (net assets), CFVOLAT_{it} is the ratio of the variance of cash flow divided by total assets (net assets), LIQ_{it} is the ratio of net working capital to total assets (net assets), MKTBOOK_{it} is the ratio of book value of total assets minus book value of equity plus market value of equity to total assets, DIVIDEND_{it} is the dividend dummy where one is that the firm has paid dividend that year and zero if not, $\beta_9 2006_{it}$ is the annual dummy for 2006 where one is when year is 2006 and zero if not, $\beta_{10} 2007_{it}$ is the annual dummy for 2007 where one is when year is 2007 and zero if not, $\beta_{11} 2008_{it}$ is the annual dummy for 2008 where one is when year is 2008 and zero if not, $\beta_{12} 2009_{it}$ is the annual dummy for 2009 where one is when year is 2009 and zero if not, and u_{it} is the error term.

Pooled OLS regression is just a simple OLS regression that is applied to the whole panel data set. It does not matter that there are different individuals across time periods. That means this regression does not consider the data set to be panel data. But annual dummies are included to see how the results behave in different time periods. Also industry dummies are included to see how the results behave in different industries.

4.3.4. Pooled OLS regression with year and industry dummies

The regression is the same as the pooled OLS regression with year dummies. Only in this regression industry dummies are included. Industry dummies are included to stand for industry specific factors that affect cash holdings (Ferreira & Vilela, 2004). In total nine industry dummies are created for the industries: Consumer services, basic materials, technology, industrials, oil and gas, consumer goods, telecommunications, health care and tourism and recreation. Normally when a regression is run with dummy variables, always one dummy variable is dropped, which is chosen as the base to estimate the intercept (Wooldridge, 2009). In able to include all the dummy variables, the intercept must be excluded. Dummy variables for both the cross-section and time-series are added in this regression analysis. For the cross-sections the industry dummies are created and for the time-series the annual dummies are created.

The pooled OLS regression equation with year and industry dummies is:

$$\begin{aligned} \text{CASH}_{it} = & \beta_0 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{BANKDEBT}_{it} + \beta_4 \text{CFLOW}_{it} + \beta_5 \text{CFVOLAT}_{it} + \beta_6 \text{LIQ}_{it} + \beta_7 \text{MKTBOOK}_{it} \\ & + \beta_8 \text{DIVIDEND}_{it} + \beta_9 2006_{it} + \beta_{10} 2007_{it} + \beta_{11} 2008_{it} + \beta_{12} 2009_{it} + \beta_{13} \text{CONSSERV}_{it} + \beta_{14} \text{BASICMAT}_{it} \\ & + \beta_{15} \text{TECHNO}_{it} + \beta_{16} \text{INDUSTR}_{it} + \beta_{17} \text{OIL\&GAS}_{it} + \beta_{18} \text{CONSGOODS}_{it} + \beta_{19} \text{TELECOMM}_{it} \\ & + \beta_{20} \text{HEALTHCARE}_{it} + \beta_{21} \text{TOUR\&RECR}_{it} + u_{it} \\ & i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T_i \end{aligned}$$

Where CASH_{it} is cash holdings of firm i in year t , SIZE_{it} is the natural logarithm of the book value of the firm's total assets, LEV_{it} is the ratio of total debt to total assets (net assets), BANKDEBT_{it} is the ratio of total bank borrowings to total debt, CFLOW_{it} is the ratio of cash flow to total assets (net assets), CFVOLAT_{it} is the ratio of the variance of cash flow divided by total assets (net assets), LIQ_{it} is the ratio of net working capital to total assets (net assets), MKTBOOK_{it} is the ratio of book value of total assets minus book value of equity plus market value of equity to total assets, DIVIDEND_{it} is the dividend dummy where one is that the firm has paid dividend that year and zero if not, $\beta_9 2006_{it}$ is the annual dummy for 2006 where one is when year is 2006 and zero if not, $\beta_{10} 2007_{it}$ is the annual dummy for 2007 where one is when year is 2007 and zero if not, $\beta_{11} 2008_{it}$ is the annual dummy for 2008 where one is when year is 2008 and zero if not, $\beta_{12} 2009_{it}$ is the annual dummy for 2009 where one is when year is 2009 and zero if not, $\beta_{13} \text{CONSSERV}_{it}$ is the industry dummy for the industry Consumer Services where one is when the industry is Consumer Services and zero if not, $\beta_{14} \text{BASICMAT}_{it}$ is the industry dummy for the industry Basic Materials where one is when the industry is Basic Materials and zero if not, $\beta_{15} \text{TECHNO}_{it}$ is the industry dummy for the industry Technology where one is when the industry is Technology and zero if not, $\beta_{16} \text{INDUSTR}_{it}$ is the industry dummy for the industry Industrials where one is when the industry is Industrials and zero if not, $\beta_{17} \text{OIL\&GAS}_{it}$ is the industry dummy for the industry Oil & Gas where one is when the industry is Oil & Gas and zero if not, $\beta_{18} \text{CONSGOODS}_{it}$ is the industry dummy for the industry Consumer Goods where one is when the industry is Consumer Goods and zero if not, $\beta_{19} \text{TELECOMM}_{it}$ is the industry dummy for the industry Telecommunication where one is when the industry is Telecommunication and zero if not, $\beta_{20} \text{HEALTHCARE}_{it}$ is the industry dummy for the industry Health Care where one is when the industry is Health Care and zero if not, $\beta_{21} \text{TOUR\&RECR}_{it}$ is the

industry dummy for the industry Tourism & Recreation where one is when the industry is Tourism & Recreation and zero if not, and u_{it} is the error term.

4.3.5. Least Square Dummy Variables (LSDV)

The Least Square Dummy Variables (LSDV) is a type of fixed effects regression. The only difference between the LSDV and fixed effects regression is that there is no intercept at the LSDV. This regression is the basic regression of panel data regression, also called the unobserved effects model. The fixed effects estimator is obtained by applying pooled OLS to a time-demeaned (to cause something to become less respected) equation (Wooldridge, 2009). This model is the main tool for regression analysis panel data. It is an extension of the multiple regressions that exploits panel data to control for variables that differ across firms but are constant over time (time-invariant). It is essential to allow for unobserved firm-specific effects since different firm may differ in cash holdings due to these unobservable factors. These unobservable factors are related to preferences, management idea, firm conditions, competition for other firms, etc. In this regression model the dummy variables are included for each firm as well as annual dummies. The annual dummies are included to control for year-specific effects that may affect the cash holding of firms.

The LSDV (fixed effects regression) model equation is:

$$\begin{aligned} \text{CASH}_{it} = & \beta_0 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{BANKDEBT}_{it} + \beta_4 \text{CFLOW}_{it} + \beta_5 \text{CFVOLAT}_{it} + \beta_6 \text{LIQ}_{it} \\ & + \beta_7 \text{MKTBOOK}_{it} + \beta_8 \text{DIVIDEND}_{it} + \alpha_i + u_{it} \\ & i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T_i \end{aligned}$$

Where CASH_{it} is cash holdings of firm i in year t , SIZE_{it} is the natural logarithm of the book value of the firm's total assets, LEV_{it} is the ratio of total debt to total assets (net assets), CFLOW_{it} is the ratio of cash flow to total assets (net assets), CFVOLAT_{it} is the ratio of the variance of cash flow divided by total assets (net assets), LIQ_{it} is the ratio of net working capital to total assets (net assets), MKTBOOK_{it} is the ratio of book value of total assets minus book value of equity plus market value of equity to total assets, DIVIDEND_{it} is the dividend dummy, and BANKDEBT_{it} is the ratio of total bank borrowings to total debt. α_i is the fixed effects transformation, u_{it} is the error term.

Normally when a regression is run with dummy variables, always one dummy variable will be dropped, which is chosen as the base to estimate the intercept (Wooldridge, 2009). In able to include all the dummy variables, the intercept must be excluded.

5. Analysis and findings

In this chapter the analysis and findings are described of what is mentioned about in the research method part. The statistic software's SPSS and STATA are used to measure and test the influence of firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment on cash holding. SPSS is chosen to be used in this research because according to many researchers it seems to be easiest to use for quantitative research. Also because I have learned how to use SPSS during my pre-master study at the University of Twente it is easier to use already known software for this research. STATA is only used for the Least Square Dummy Variables (LSDV) regression because a panel data analysis has to be run in this regression and SPSS it is not able to run panel data analysis. In paragraph one the descriptive statistics of the data is described. Then in paragraph two the univariate analyses are showed. In paragraph three all the four regression analysis are presented separately. At last in paragraph four all the regression analysis are compared with each other.

5.1. Descriptive statistics

Table 5 shows the descriptive statistics of the cash-to-total-assets ratio by date, and table 6 shows the cash-to-net-assets ratio by date. In the tables the mean, 25th percentile, median, 75th percentile, the standard deviation, and number of firms are showed for each the date from 31 December 2006 to 31 December 2009. The dates show similar cash-to-assets ratio averages, but comparing to the cash-to-total-assets ratio the cash-to-net-assets ratio has almost the double of averages. This means that most of the assets of Dutch listed firms are covered by cash and cash equivalents. The average cash-to-net-assets ratio of 31 December 2006 to 31 December 2009 (cash ratio = 0.209) comparing to the same ratio of the Netherlands in 1987 to 2000 (cash ratio = 0.129) of the research of EMU countries Ferreira & Vilela (2004) has almost doubled. The reason for this may be that Dutch firms have held more cash between 31 December 2006 and 31 December 2009.

Table 5: Cash-to-total-assets ratio by date

Date	Mean	25th Percentile	Median	75th Percentile	Standard deviation	N
31 Dec-2006	0.110	0.012	0.057	0.136	0.160	100
31-Dec-2007	0.108	0.013	0.053	0.142	0.173	100
31-Dec-2008	0.097	0.017	0.055	0.126	0.163	100
31-Dec-2009	0.102	0.029	0.070	0.137	0.138	100
Average	0.104	0.018	0.058	0.137	0.159	400

Table 6: Cash-to-net-assets ratio by date

Year	Mean	25th Percentile	Median	75th Percentile	Standard deviation	N
31-Dec-2006	0.194	0.013	0.060	0.157	0.438	100
31-Dec-2007	0.247	0.014	0.056	0.166	0.833	100
31-Dec-2008	0.225	0.017	0.058	0.144	0.781	100
31-Dec-2009	0.171	0.030	0.076	0.159	0.444	100
Average	0.209	0.018	0.062	0.158	0.649	400

Figure 2 plots the evolution of the average cash-to-total assets ratio and cash-to-net assets ratio throughout 31 December 2006 to 31 December 2009 in the sample. The average of cash-to-total assets ratio has decreased from 31 December 2006 to 31 December 2008. This means that Dutch listed firms hold less cash in that period. The reason for this may be the financial crisis of 2008. Since 31 December 2008 the cash-to-net-assets ratio has increased a little. The average of cash-to-net-assets ratio has increased from 31 December 2006 to 31 December 2007. This means that Dutch listed firms has more cash and cash equivalents covered in assets in that period. But since 31 December 2007 the cash-to-net assets ratio has decreased dramatically. This means that Dutch listed firms start hold less cash since that period partly because of the financial crisis.

Figure 2: Average cash ratio, 31 December 2006 – 31 December 2009

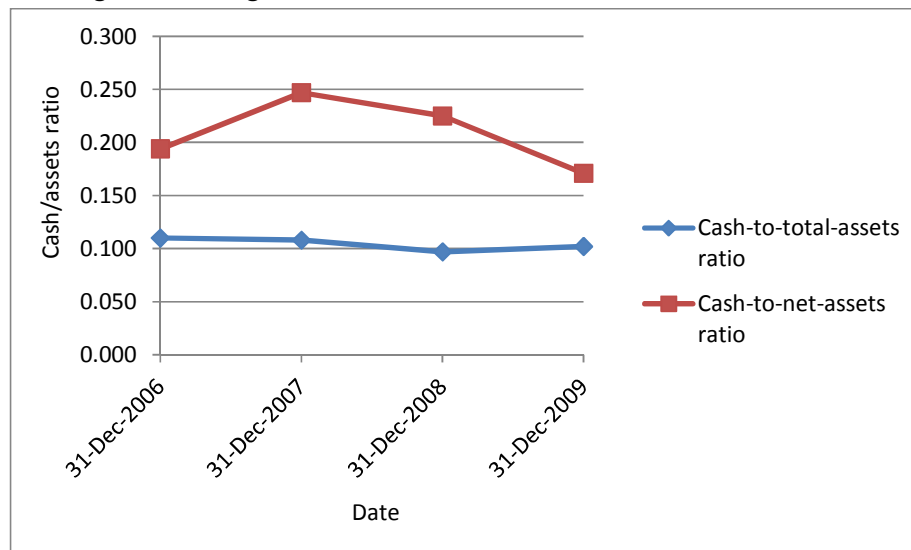


Table 7 shows summary statistics for the independent variables for all the sample years using cash-to-total-assets ratio as dependent variable, and table 8 shows the same statistics using cash-to-net-assets ratio as dependent variable. For each independent variable the mean, 25th percentile, median, 75th percentile, the standard deviation, and number of firms are showed. The cash flow to total assets has a much higher mean comparing to the cash flow to net assets. The average cash flow to net assets is even a negative ratio. The standard deviation of the cash flow to net assets ratio and the cash flow volatility to net assets ratio are five times much higher than the standard deviation of the cash flow to total assets ratio and the cash flow volatility to total assets ratio. The 25th percentile, median, 75th percentile, and the standard deviation of the net working capital to total assets ratio is almost similar to the net working capital to net assets ratio, but the mean of the net working capital to net assets is almost double. 62 firm-years are missing at the bank debt to total debt ratio because there are firms that don't have bank debt or there are firms that don't have bank debt on a specific date.

Table 7: Description of the independent variables using cash-to-total assets ratio as dependent variable

Variable	Mean	25th Percentile	Median	75th Percentile	Standard deviation	N
Firm size	13.010	11.100	13.087	14.571	2.447	400
Total debt/total assets	0.246	0.143	0.240	0.330	0.139	400
Bank debt/total debt	0.610	0.325	0.669	0.930	0.330	338
Cash flow/total assets	0.025	0.027	0.068	0.112	0.367	400
σ cash flow/total assets	0.103	0.023	0.048	0.099	0.226	400
NWC/total assets	0.027	-0.077	0.025	0.121	0.167	400
Market-to-book ratio	2.669	1.015	1.280	1.710	16.177	400
Dividend dummy	0.690	0.000	1.000	1.000	0.462	400

Table 8: Description of the independent variables using cash-to-net-assets ratio as dependent variable

Variable	Mean	25th Percentile	Median	75th Percentile	Standard deviation	N
Firm size	13.010	11.100	13.087	14.571	2.447	400
Total debt/net assets	0.282	0.165	0.270	0.366	0.184	400
Bank debt/total debt	0.610	0.325	0.669	0.930	0.330	338
Cash flow/net assets	-0.064	0.030	0.075	0.121	1.933	400
σ cash flow/net assets	0.174	0.023	0.054	0.133	1.153	400
NWC/net assets	0.025	-0.089	0.027	0.136	0.200	400
Market-to-book ratio	2.669	1.015	1.280	1.710	16.177	400
Dividend dummy	0.690	0.000	1.000	1.000	0.462	400

Table 9 shows the average of the independent variables using cash-to-total-assets ratio as dependent variable per date, and table 10 shows the average of the independent variable using cash-to-net-assets ratio as dependent variable per date of the research sample. For the firm size, leverage and bank debt the mean on 31 December 2006 and 31 December 2007 is lower than the overall mean and higher on 31 December 2008 and 31 December 2009 on both the cash-to-total assets and cash-to-net-assets ratio as dependent variable. On the other hand the mean of the net working capital to total assets, net working capital to net assets and market-to-book ratio on 31 December 2006 and 31 December 2007 is higher than the overall mean and lower on 31 December 2008 and 31 December 2009. The mean of cash flow to total assets and cash flow to net assets is both on 31 December 2008 lower than the overall mean, but on 31 December 2006, 2007, and 2009 are the means higher than the overall mean. The mean of the cash flow volatility to total assets is lower than the overall mean on 31 December 2007 and 31 December 2009 and higher on 31 December 2006 and 31 December 2008. The mean of the cash flow volatility to net assets is lower than the overall mean on 31 December 2006, 31 December 2007 and 31 December 2009 and higher on 31 December 2008. The mean of the dividend dummy is lower than the overall mean on 31 December 2006 and 31 December 2009 and higher than the overall mean on 31 December 2008 and 31 December 2009.

Table 9: Independent variables averages by date using cash-to-total assets ratio as dependent variable

Date	Firm size	Total debt/ total assets	Bank debt/ total debt	Cash flow/ total assets	σ cash flow/ total assets	NWC/ total assets	Market -to- book ratio	Dividend dummy
31-Dec-2006	12.884	0.230	0.585	0.070	0.104	0.058	3.272	0.680
31-Dec-2007	13.046	0.231	0.612	0.060	0.091	0.049	4.646	0.700
31-Dec-2008	13.066	0.271	0.627	-0.065	0.124	0.008	1.432	0.730
31-Dec-2009	13.044	0.252	0.617	0.036	0.094	-0.006	1.326	0.660
Average	13.010	0.246	0.610	0.025	0.103	0.027	2.669	0.690

Table 10: Independent variables averages by date using cash-to-net-assets ratio as dependent variable

Date	Firm size	Total debt/ net assets	Bank debt/ total debt	Cash flow/ net assets	σ cash flow/ net assets	NWC/ net assets	Market -to- book ratio	Dividend dummy
31-Dec-2006	12.884	0.261	0.585	0.068	0.138	0.063	3.272	0.680
31-Dec-2007	13.046	0.267	0.612	0.057	0.115	0.049	4.646	0.700
31-Dec-2008	13.066	0.314	0.627	-0.399	0.331	-0.003	1.432	0.730
31-Dec-2009	13.044	0.286	0.617	0.017	0.114	-0.008	1.326	0.660
Average	13.010	0.282	0.610	-0.064	0.175	0.025	2.669	0.690

5.2 Univariate analyses

Table 11 presents the univariate comparisons of the variables by cash-to-total-assets quartile and table 12 shows the same comparison by cash-to-net-assets quartile. The first quartile is firms that hold the lowest cash balance and the fourth quartile is firms that hold the highest cash balance among the sample. The quartiles are constructed each year, which explains why the ranges of the cash-to-assets ratio overlap across quartiles. For each year (date), for example for the first quartile, 25% of the firms with the lowest cash balance and the related independent variables are selected and put together to calculate the mean and the median of the first quartile. Each quartile contains 100 firm-years. The t-statistics (F-ratio) is used to test the hypothesis that the fourth quartile firms differ significantly from the first quartile firms (Ferreira & Vilela, 2004) (Opler et al., 1999). Significant different means that when the cash balance increase, the independent variable will also increase. P-values are reported for the two-tailed test for equality of means. ***, **, * indicate coefficient significance level of 1%, 5% and 10%.

From the results of the cash to total assets quartiles is indicated that all the firm characteristics, except cash flow and cash flow volatility, are significantly different between the first and fourth cash-to-total-assets quartiles. Firm size, leverage, liquid assets, and dividend dummy are significant at 1% level. Bank debt is significant at 5% level, and investment opportunity is significant at 10% level.

From the results of the cash to net assets quartiles is indicated that firm characteristics, except leverage and cash flow, are significantly different between the first and fourth cash-to-net-assets quartiles. Firm size, liquid assets and dividend dummy are significant at 1% level. Bank debt is

significant at the 5% level. Cash flow volatility and investment opportunity are significant at 10% level. Cash flow at both dependent variables, and leverage at cash to net assets ratio are not significantly different at any of the levels. This means that these firm characteristics do not always change in the same way (monotonically) across cash-to-assets ratio quartiles, so comparing firms in the first and fourth quartiles is not sufficient to describe the relation between cash holdings and firm characteristics. None of the firm characteristics show an undoubtedly monotonic relationship with cash holdings.

Table 11: Firm characteristics by cash/ total assets quartile

Variable	First Quartile	Second Quartile	Third Quartile	Fourth Quartile	t-statistics (p-value)
Cash/total assets range	-0.23 to 0.03	0.01 to 0.07	0.05 to 0.14	0.13 to 0.88	
Cash/total assets	-0.022 [0.002]	0.038 [0.039]	0.092 [0.095]	0.309 [0.243]	222.01 (0.000)***
Firm size	12.149 [12.539]	14.251 [14.309]	13.210 [13.646]	12.339 [11.984]	17.30 (0.000)***
Total debt/total assets	0.294 [0.291]	0.259 [0.247]	0.255 [0.247]	0.173 [0.157]	15.11 (0.000)***
Bank debt/total debt	0.677 [0.685]	0.605 [0.709]	0.556 [0.629]	0.563 [0.536]	2.47 (0.031)**
Cash flow/total assets	0.047 [0.068]	0.062 [0.078]	0.028 [0.068]	-0.017 [0.072]	0.82 (0.241)
σ cash flow/total assets	0.107 [0.048]	0.074 [0.037]	0.090 [0.039]	0.164 [0.074]	1.34 (0.131)
NWC/total assets	0.063 [0.080]	0.021 [0.030]	0.104 [0.101]	0.425 [0.358]	7.159 (0.000)***
Market-to-book ratio	5.848 [1.241]	1.372 [1.268]	1.449 [1.220]	2.089 [1.547]	1.74 (0.088)*
Dividend dummy	0.710 [1.000]	0.830 [1.000]	0.700 [1.000]	0.520 [1.000]	8.02 (0.000)***

Table 12: Firm characteristics by cash/ net assets quartile

Variable	First Quartile	Second Quartile	Third Quartile	Fourth Quartile	t-statistics (p-value)
Cash/net assets range	-0.18 to 0.03	0.01 to 0.07	0.06 to 0.16	0.15 to 7.43	
Cash/net assets	-0.020 [0.002]	0.039 [0.037]	0.102 [0.102]	0.715 [0.322]	34.53 (0.000)***
Firm size	12.149 [12.539]	14.342 [14.433]	13.210 [13.647]	12.293 [11.935]	24.23 (0.000)***

Total debt/net assets	0.289 [0.282]	0.278 [0.267]	0.281 [0.273]	0.285 [0.239]	0.06 (0.491)
Bank debt/total debt	0.658 [0.670]	0.611 [0.767]	0.556 [0.629]	0.563 [0.536]	2.42 (0.033)**
Cash flow/net assets	0.048 [0.064]	0.043 [0.065]	0.030 [0.073]	-0.376 [0.091]	1.16 (0.162)
σ cash flow/net assets	0.105 [0.048]	0.086 [0.038]	0.100 [0.045]	0.407 [0.097]	1.85 (0.069)*
NWC/net assets	0.063 [0.073]	0.021 [0.031]	0.111 [0.109]	0.774 [0.453]	4.472 (0.002)***
Market-to-book ratio	5.848 [1.241]	1.290 [1.211]	1.449 [1.220]	2.089 [1.547]	1.79 (0.074)*
Dividend dummy	0.710 [1.000]	0.830 [1.000]	0.700 [1.000]	0.520 [1.000]	8.02 (0.000)***

5.3 Regression analyses

In this paragraph the regression analyses: Fama-MacBeth analysis, cross-sectional analysis using means, pooled OLS analysis using year dummies, pooled OLS analysis using year and industry dummies, and the Least Square Dummy Variable (Fixed Effects) analysis, shall be employed using cash-to-total-assets ratio and cash-to-net-assets ratio as dependent variable, for the whole sample with missing values and the whole sample after dropped bank debt (without missing values). The whole sample with missing values is 338 firms since bank debt has 62 missing values. When running the regressions in SPSS, the software excludes all the cases with missing values list wise. In order to test the influence of the firm characteristics on cash holding on the whole sample of 400 firms the variable “bank debt” has to be excluded. Each regression analysis is first explained separately, then in paragraph 5.4 these regression analyses are compared with each other. Table 25, 26, 29, and 30 provides summaries of the findings obtained from these regression analyses.

For all the four regression tests it is tested if the data is normally distributed and whether heteroskedasticity is present. When the data is normally distributed it means that most of the examples of the data set are close to the average of the data. The data is tested on normality by running the Shapiro-Wilk test (when the sample size is smaller than 50) and Kolmogorov-Smirnov test (when the sample size is bigger than 50). Since the sample size is bigger than 50 the Kolmogorov-Smirnov test is used. In appendix 5 the normality tests of this research are showed to test whether the variables in this study is normally distributed. Heteroskedasticity means that the error variance in the regression model is not constant across units (firms). The presence of heteroskedasticity is tested by running the White’s test (1980). In appendix 6 the White’s tests are showed to detect whether heteroskedasticity is present. Both the normality and heteroskedasticity are corrected using White’s correction. In SPSS the General Linear Model of Complex Samples is used to correct for the non-normality of the data and to correct for heteroskedasticity. This General Linear Model of Complex

Samples is the robust estimator in SPSS. In STATA these are corrected by running the robust regression (robust standard errors). After corrected for heteroskedasticity only the standard errors are corrected. The beta coefficient of the independent variables is not changed.

For the regression tests it is tested whether there is presence of collinearity. Collinearity is tested by using the Pearson's Correlation. In appendix 7 the Pearson's Correlations are showed to see whether some independent variables are highly correlated. According to Pearson's correlation by using cash-to-net-assets ratio as dependent variable the variables cash flow and cash flow volatility are highly correlated. To solve the problem of collinearity one of those variables has to be dropped. For each regression first the cash flow is dropped to see what have changed in the results and then also for each regression the cash flow volatility is dropped. The results after dropping cash flow or cash flow volatility are showed in appendix 8. In appendix 9 a table is showed of which variable was dropped in this study, in this case bank debt, cash flow, and cash flow volatility. In the table also the reason of dropping the variables and my opinion of dropping it are showed. It is not needed to drop the variable but I want to see how the results change if these variables are dropped because of missing values and collinearity.

5.3.1. Fama-MacBeth analysis

Table 13 and 14 represent the outcomes of the Fama-MacBeth regression test. In the table for each variable the beta coefficient, the t-statistics and the significance are showed.

Cash-to-total-assets ratio as dependent variables:

By running the Fama-MacBeth model using cash-to-total-assets as dependent variable none of the results are significant. Firm size, cash flow, cash flow volatility, and investment opportunity have a positive relationship with cash holding. Leverage, bank debt, liquid assets, and dividend payment have a negative relationship with cash holding. However, all these results are insignificant.

Cash-to-net-assets ratio as dependent variable:

The cash flow coefficient (positive sign) is significant at the 5% level which is consistent with the pecking order theory and the findings of previous authors, but in contrast to the trade-off model. The negative sign of investment opportunity is significant at the 1% level, which is consistent with the free cash flow theory, but in contrast to the trade-off model, pecking order theory, and the findings of previous authors. Firm size, leverage, cash flow have a positive relationship with cash holding, and bank debt, liquid assets, and dividend payment have a negative relationship with cash holding, but however these results are insignificant.

Dropped bank debt because of missing values:

Because there are too many missing values at the independent variable "bank debt", this variable is dropped so the complete sample of the other variables is measured.

By using cash-to-total-assets ratio as dependent variable, when I have dropped bank debt, the negative sign of leverage became significant at the 10% level, which is consistent with all the three theories and the findings of previous authors. The positive sign of investment opportunity became significant at the 10% level which is consistent to the trade-off model, pecking order theory, and the findings of previous authors, but in contrast with the free cash flow theory. The negative sign of divided payment became significant at the 5% level which is consistent with the trade-off model and the findings of previous authors. The positive sign of firm size, cash flow became negative but still

insignificant. The positive result of cash flow volatility and negative result of liquid assets stay the same and also insignificant.

By using cash-to-net-assets ratio as dependent variable, when I have dropped bank debt, the positive sign of cash flow became significant at the 10% level which is consistent with the pecking order theory and the findings of previous authors, but in contrast with the trade-off model. The result of cash flow volatility stays the same. The negative sign of investment opportunity became positive and the significance level increased from 1% to 5% level, which is consistent to the trade-off model, pecking order theory, and the findings of previous authors, but in contrast with the free cash flow theory. The positive result of firm size and leverage, and the negative result of liquid assets and dividend payment still are insignificant.

Conclusion by dropping cash flow/ cash flow volatility after dropped bank debt:

By using cash-to-total-assets ratio as dependent variable, when I have dropped bank debt, three variables became significant (leverage, investment opportunity, dividend payment). Firm size, cash flow, cash flow volatility, and liquid assets stay insignificant. By using cash-to-net-assets ratio as dependent variable, when I have dropped bank debt, one variable (cash flow) became significant. Cash flow volatility and investment opportunity

Table 13: Results Fama-MacBeth analysis using cash-to-total-assets ratio as dependent variable

Independent variable		Fama-MacBeth model	
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	0.072	0.052
	t-statistic	0.771	1.943
	Significance	0.048**	0.064*
Firm size	Beta coefficient	0.006	-0.0003
	t-statistic	0.988	-0.041
	Significance	0.189	0.553
Total debt/total assets	Beta coefficient	-0.158	-0.357
	t-statistic	-1.544	-2.981
	Significance	0.106	0.064*
Bank debt/total debt	Beta coefficient	-0.021	-
	t-statistic	-0.617	-
	Significance	0.136	-
Cash flow/total assets	Beta coefficient	0.062	-0.063
	t-statistic	0.239	-0.410
	Significance	0.282	0.228
σ cash flow/total assets	Beta coefficient	0.092	0.089
	t-statistic	0.596	0.637
	Significance	0.295	0.274

NWC/total assets	Beta coefficient	-0.124	-0.077
	t-statistic	-1.499	-0.886
	Significance	0.103	0.289
Market-to-book ratio	Beta coefficient	0.012	0.019
	t-statistic	0.074	0.348
	Significance	0.164	0.089
Dividend dummy	Beta coefficient	-0.051	-0.065
	t-statistic	-1.449	-1.666
	Significance	0.109	0.037**

Table 14: Results Fama-MacBeth analysis using cash-to-net-assets ratio as dependent variable

Independent variable		Fama-MacBeth model	
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	-0.057	-0.063
	t-statistic	-0.513	-0.749
	Significance	0.153	0.228
Firm size	Beta coefficient	0.006	0.005
	t-statistic	0.762	0.241
	Significance	0.256	0.229
Total debt/net assets	Beta coefficient	0.223	0.041
	t-statistic	1.127	0.048
	Significance	0.120	0.291
Bank debt/total debt	Beta coefficient	-0.014	-
	t-statistic	-0.310	-
	Significance	0.148	-
Cash flow/net assets	Beta coefficient	0.092	0.947
	t-statistic	0.665	2.052
	Significance	0.144	0.065*
σ cash flow/net assets	Beta coefficient	0.613	0.709
	t-statistic	2.487	2.495
	Significance	0.029**	0.051**
NWC/net assets	Beta coefficient	-0.105	-0.016
	t-statistic	-0.369	-0.068
	Significance	0.232	0.239

Market-to-book ratio	Beta coefficient	-0.009	0.026
	t-statistic	-1.532	1.785
	Significance	0.005***	0.028**
Dividend dummy	Beta coefficient	-0.048	-0.029
	t-statistic	-0.899	-0.149
	Significance	0.193	0.275

5.3.2 Cross-sectional analysis using means

Table 15 and 16 represent the outcomes of the cross-sectional regression using means of variables for each firm.

Cash-to-total-assets ratio as dependent variable:

The leverage coefficient (negative sign) is significant at the 1% level which is consistent with the trade-off model, pecking order theory, free cash flow theory and the findings of previous authors. There is an unknown relation between leverage and cash holding, but according to my results there is a negative relation between leverage and cash holding. The negative coefficient of bank debt is significant at the 10% level, consistent with the trade-off model, pecking order theory, free cash flow theory, and the results of previous authors. The negative coefficient of dividend payment is significant at the 5% level which is consistent to the trade-off model. This result is also consistent to the results of previous authors. The negative sign of cash flow volatility, liquid assets, and investment opportunity and the positive sign of firm size, cash flow are insignificant.

Cash-to-net-assets ratio as dependent variable:

Some results using cash-to-net-assets ratio as dependent variable are the same as using cash-to-total-assets as dependent variable. The negative sign of dividend payment is still significant but by using cash-to-net-assets ratio as dependent variable the significance level is 1%. The variables firm size, cash flow, liquid assets are still insignificant. In contrast to using cash-to-total assets as dependent variable, leverage and bank debt are insignificant, and cash flow volatility and investment opportunity is significant. The positive sign of cash flow volatility is significant at the 5% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of investment opportunity is significant at the 1% level which is consistent to the free cash flow theory, but in contrast to the trade-off model, pecking order theory and the findings of previous authors.

Dropped bank debt because of the missing values:

Because there are too many missing values at the independent variable "bank debt", this variable is dropped so the complete sample of the other variables is measured.

By using cash-to-total-assets ratio as dependent variables, after dropping bank debt, the results of firm size, leverage, cash flow volatility, liquid assets and dividend payment stay the same. The negative sign of cash flow became significant at the 5% level which is consistent to the trade-off model, but in contrast to the pecking order theory and the findings of previous authors. The sign of investment opportunity became from negative to positive but this sign is still insignificant after dropping bank debt.

By using cash-to-net-assets ratio as dependent variable, after dropping bank debt, all the results have changed. At first the positive sign of firm size and liquid assets became negative but still insignificant. The negative sign of leverage became positive but still insignificant. The insignificant positive sign of cash flow became negative and significant at the 5% level which is consistent to the trade-off model, but in contrast to the pecking order theory and the findings of previous authors. The significant positive sign of cash flow volatility became negative and insignificant. The significant negative sign of investment opportunity became positive and insignificant. The negative sign of dividend payment became insignificant.

Conclusion by dropping bank debt (because of missing values):

By using cash-to-total-assets ratio with year and industry dummies, when dropped bank debt, one variable became significant (cash flow). By using cash-to-net-assets ratio with year and industry dummies, when dropped bank debt, one variable became significant (cash flow) and three variables became insignificant (cash flow volatility, investment opportunity, and dividend payment).

Table 15: Cross-sectional analysis using means using cash-to-total-assets ratio as dependent variable

Independent variable		Cross-sectional regression using means	
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	0.185	0.207
	t-statistic	2.679	2.317
	Significance	0.005	0.012
Firm size	Beta coefficient	0.005	0.005
	t-statistic	0.867	0.809
	Significance	0.194	0.211
Total debt/total assets	Beta coefficient	-0.288	-0.425
	t-statistic	-3.639	-3.576
	Significance	0.000***	0.001***
Bank debt/total debt	Beta coefficient	-0.039	-
	t-statistic	-1.294	-
	Significance	0.099*	-
Cash flow/total assets	Beta coefficient	0.131	-0.299
	t-statistic	0.591	-1.627
	Significance	0.278	0.053**
σ cash flow/total assets	Beta coefficient	-0.012	-0.078
	t-statistic	-0.084	-0.363
	Significance	0.467	0.359

NWC/total assets	Beta		
	coefficient	-0.073	-0.039
	t-statistic	-1.019	-0.466
	Significance	0.156	0.322
Market-to-book ratio	Beta		
	coefficient	-0.001	0.001
	t-statistic	-0.584	0.596
	Significance	0.281	0.277
Dividend dummy	Beta		
	coefficient	-0.092	-0.072
	t-statistic	-3.005	-1.957
	Significance	0.015**	0.027**

Table 16: Cross-sectional regression using means using cash-to-net-assets ratio as dependent variable

Independent variable	Cross-sectional regression using means		
		Normal model	Dropped Bank debt
Intercept	Beta		
	coefficient	0.230	0.464
	t-statistic	1.774	1.658
	Significance	0.039	0.051
Firm size	Beta		
	coefficient	0.000	-0.005
	t-statistic	0.006	-0.259
	Significance	0.498	0.398
Total debt/net assets	Beta		
	coefficient	-0.084	0.117
	t-statistic	-0.422	0.429
	Significance	0.337	0.335
Bank debt/total debt	Beta		
	coefficient	-0.048	-
	t-statistic	-0.852	-
	Significance	0.198	-
Cash flow/net assets	Beta		
	coefficient	0.334	-1.123
	t-statistic	0.960	-1.600
	Significance	0.170	0.057**

σ cash flow/net assets	Beta		
	coefficient	0.332	-1.266
	t-statistic	1.885	-1.255
	Significance	0.032**	0.106
NWC/net assets	Beta		
	coefficient	0.047	-0.213
	t-statistic	0.398	-0.898
	Significance	0.346	0.186
Market-to-book ratio	Beta		
	coefficient	-0.004	0.007
	t-statistic	2.457	1.055
	Significance	0.008***	0.147
Dividend dummy	Beta		
	coefficient	-0.139	-0.128
	t-statistic	-2.204	-1.215
	Significance	0.002***	0.114

5.3.3. Pooled OLS analysis with year dummies

Table 17 and 18 represent the outcomes of the pooled OLS with year dummies. In the table for each variable the beta coefficient, the t-statistics and the significance are showed.

Cash-to-total-assets ratio as dependent variable:

The firm size coefficient (positive sign) is statistically significant at the 1% level, which is consistent with the pecking order and free cash flow theory, but in contrast to the trade-off model. This result is not consistent to the results of previous authors. The negative sign of leverage is significant at the 1% level which is consistent with the trade-off model, pecking order theory, free cash flow theory, and the findings of previous authors. There is an unknown relation between leverage and cash holding, but according to my results there is a negative relation between leverage and cash holding.

Bank debt is statistically negative correlated with cash holding at 10% level, which is consistent to the trade-off model, pecking order theory, free cash flow theory, and the results of previous authors except Pinkowitz & Williamson, 2001. The negative sign of liquid assets is significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of dividend payment is significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The positive sign of cash flow, cash flow volatility, and liquid assets is insignificant.

Cash-to-net-assets ratio as dependent variable:

Comparing to using cash-to-total-assets ratio as dependent variable, by using cash-to-net-assets ratio as dependent variable only the insignificant result of cash flow stays the same. The positive sign of firm size is significant at the 10% level which is consistent with the pecking order and free cash flow theory, but in contrast to the trade-off model. This result is not consistent to the results of previous

authors. The positive sign of leverage is significant at the 5% level which is consistent to the trade-off model, but in contrast to the pecking order theory, free cash flow theory, and the findings of previous authors. This means that firms has to hold more cash to reduce the chance of experiencing financial distress due to the pressure that amortization plans put on the firm's treasury management. The positive sign of cash flow volatility is significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of investment opportunity is significant at the 1% level which is consistent to the free cash flow theory, but in contrast to the trade-off model, pecking order theory and the findings of previous authors. The negative sign of dividend payment is significant at the 5% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of bank debt and liquid assets is insignificant when using cash-to-net-assets ratio as dependent variable.

Dropped bank debt because of missing values:

Because there are too many missing values at the independent variable "bank debt", this variable is dropped so the complete sample of the other variables is measured.

By dropping bank debt using cash-to-total-assets ratio as dependent variable with year dummies, firm size became from significant to insignificant. The positive sign of cash flow became negative but still insignificant. The significance level of liquid assets increased from 1% to 5%. The insignificant positive sign of investment opportunity became negative and significant at the 1% level which is consistent to the free cash flow theory, but in contrast to the trade-off model, pecking order theory and the findings of previous authors. The results of leverage, cash flow volatility, and dividend dummy stay the same.

By using cash-to-net-assets ratio with year dummies, after dropping bank debt from the regression, the positive sign of firm size became negative and the significance level dropped from 10% to 1%. This result is consistent to the trade-off model and the findings of previous authors, but in contrast to the pecking order theory and free cash flow theory. Same as dropping bank debt from the regression by using cash-to-total-assets ratio as dependent variable, the positive sign of cash flow became negative but still insignificant. The significant positive sign of cash flow volatility became negative and insignificant. The negative sign of liquid assets became significant at the 10% level after dropping bank debt. This result is consistent to the trade-off model and the findings of previous authors. The significance level of the negative sign of dividend payment dropped from 10% to 1%. The results of leverage, investment opportunity stay the same after dropping bank debt from the regression.

Conclusion by dropping bank debt (because of missing values):

By using cash-to-total-assets ratio as dependent variable with year dummies, when dropped bank debt, one more independent variable became significant (investment opportunity), but one variable became insignificant (firm size). By using cash-to-net-assets ratio as dependent variable with year dummies, when dropped bank debt, one variable became significant (liquid assets) and one became insignificant (cash flow volatility).

Table 17: Pooled OLS analysis with year dummies using cash-to-total-assets ratio as dependent variable

Independent variable		Pooled OLS regression with year dummies	
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	-	-
	t-statistic	-	-
	Significance	-	-
Firm size	Beta coefficient	0.006	-0.001
	t-statistic	1.968	-0.209
	Significance	0.003***	0.417
Total debt/total assets	Beta coefficient	-0.176	-0.343
	t-statistic	-3.189	-5.757
	Significance	0.001***	0.000***
Bank debt/total debt	Beta coefficient	-0.025	-
	t-statistic	-1.480	-
	Significance	0.070*	-
Cash flow/total assets	Beta coefficient	0.050	-0.056
	t-statistic	0.894	-1.048
	Significance	0.186	0.148
σ cash flow/total assets	Beta coefficient	0.031	0.082
	t-statistic	0.397	0.920
	Significance	0.346	0.179
NWC/total assets	Beta coefficient	-0.117	-0.077
	t-statistic	-2.619	-1.710
	Significance	0.005***	0.044**
Market-to-book ratio	Beta coefficient	0.000	-0.001
	t-statistic	-1.119	-2.222
	Significance	0.132	0.014***
Dividend dummy	Beta coefficient	-0.053	-0.063
	t-statistic	-2.965	-3.150
	Significance	0.002***	0.001***

Table 18: Pooled OLS analysis with year dummies using cash-to-net-assets ratio as dependent variable

Independent variable		Pooled OLS regression with year dummies	
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	-	-
	t-statistic	-	-
	Significance	-	-
Firm size	Beta coefficient	0.006	-0.026
	t-statistic	1.496	-2.295
	Significance	0.068*	0.011***
Total debt/net assets	Beta coefficient	0.257	0.475
	t-statistic	1.638	2.022
	Significance	0.051**	0.022**
Bank debt/total debt	Beta coefficient	-0.028	-
	t-statistic	-1.022	-
	Significance	0.154	-
Cash flow/net assets	Beta coefficient	0.133	-0.280
	t-statistic	0.993	-1.007
	Significance	0.161	0.158
σ cash flow/net assets	Beta coefficient	0.454	-0.264
	t-statistic	3.203	-0.571
	Significance	0.001***	0.285
NWC/net assets	Beta coefficient	-0.104	-0.285
	t-statistic	-1.605	-1.508
	Significance	0.144	0.066*
Market-to-book ratio	Beta coefficient	-0.002	0.000
	t-statistic	-3.685	-2.184
	Significance	0.000***	0.365
Dividend dummy	Beta coefficient	-0.058	-0.144
	t-statistic	-2.127	-2.184
	Significance	0.017**	0.015***

5.3.4. Pooled OLS analysis with year and industry dummies

Table 19 and 20 represent the outcomes of the pooled OLS regression with year and industry dummy variables. In the table for each variable the beta coefficient, the t-statistics and the significance are showed.

Cash-to-total-assets as dependent variable:

Comparing to the pooled OLS regression with year dummies using cash-to-total-assets as dependent variable, by adding industry dummies, the results of firm size, leverage, cash flow volatility, investment opportunity, and dividend payment stays the same.

The significance level of bank debt has decreased from 10% to 5% level. The positive sign of cash flow became significant at the 10% level which is consistent to the pecking order theory and the findings of previous authors, but in contrast to the trade-off model. The significance level of liquid assets has increased from 1% to 5% level.

Cash-to-net-assets as dependent variable:

Comparing to the pooled OLS regression with year dummies using cash-to-net-assets as dependent variable, by adding industry dummies, the results of leverage, bank debt, cash flow volatility, liquid assets, and investment opportunity stay the same. The significance level of firm size decreased from 10% to 1% level. The positive sign of cash flow became insignificant after adding industry dummies. The negative sign of dividend payment became insignificant after adding industry dummies.

Dropped bank debt because of missing values:

Because there are too many missing values at the independent variable "bank debt", this variable is dropped so the complete sample of the other variables is measured.

By dropping bank debt from the OLS regression using cash-to-total-assets ratio as dependent variable with year and industry dummies, the results of firm size and leverage stay the same. The significant positive sign of cash flow became insignificant. The insignificant positive sign of cash flow volatility became significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The significant negative sign of liquid assets became insignificant. The negative sign of investment opportunity became significant at the 1% level which is consistent to the free cash flow theory, but in contrast to the trade-off model, pecking order theory, and the findings of previous authors. The significance level of the negative sign of dividend payment increased from 5% to 10% level.

By dropping bank debt from the OLS regression using cash-to-total-assets ratio as dependent variable with year and industry dummies, the results of liquid assets and dividend payment stay the same. The significant positive sign of firm size became negative and insignificant. The significance level of leverage decreased from 5% to 1% level. The significant positive sign of cash flow became negative and insignificant. The significant positive sign of cash flow volatility became insignificant. The significant negative sign of investment opportunity became positive and insignificant.

Conclusion by dropping bank debt (because of missing values):

By using cash-to-total-assets ratio with year and industry dummies, when dropped bank debt, two variables became insignificant (cash flow and liquid assets), and two variables became significant (cash flow volatility and investment opportunity).

By using cash-to-net-assets ratio with year and industry dummies, when dropped bank debt, four variables became insignificant (firm size, cash flow, cash flow volatility, and investment opportunity).

Table 19: Pooled OLS analysis with year and industry dummies using cash-to-total-assets ratio as dependent variable

Independent variable	Pooled OLS regression with year and industry dummies		
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	-	-
	t-statistic	-	-
	Significance	-	-
Firm size	Beta coefficient	0.011	0.006
	t-statistic	3.657	1.769
	Significance	0.000***	0.039**
Total debt/total assets	Beta coefficient	-0.174	-0.272
	t-statistic	-3.155	-4.938
	Significance	0.001***	0.000***
Bank debt/total debt	Beta coefficient	-0.029	-
	t-statistic	-1.734	-
	Significance	0.042**	-
Cash flow/total assets	Beta coefficient	0.074	0.006
	t-statistic	1.512	0.128
	Significance	0.066*	0.449
σ cash flow/total assets	Beta coefficient	0.065	0.202
	t-statistic	0.869	2.531
	Significance	0.193	0.006***
NWC/total assets	Beta coefficient	-0.071	-0.030
	t-statistic	-1.596	-0.695
	Significance	0.056**	0.244
Market-to-book ratio	Beta coefficient	0.000	-0.001
	t-statistic	-0.979	-2.652
	Significance	0.164	0.004***
Dividend dummy	Beta coefficient	-0.032	-0.026
	t-statistic	-2.028	-1.490
	Significance	0.022**	0.069*

Table 20: Pooled OLS analysis with year and industry dummies using cash-to-net-assets ratio as dependent variable

Independent variable		Pooled OLS regression with year and industry dummies	
		Normal model	Dropped Bank debt
Intercept	Beta coefficient	-	-
	t-statistic	-	-
	Significance	-	-
Firm size	Beta coefficient	0.013	-0.008
	t-statistic	3.224	-0.891
	Significance	0.001***	0.187
Total debt/net assets	Beta coefficient	0.270	0.490
	t-statistic	1.888	2.191
	Significance	0.030**	0.015***
Bank debt/total debt	Beta coefficient	-0.027	-
	t-statistic	-0.980	-
	Significance	0.160	-
Cash flow/net assets	Beta coefficient	0.173	-0.122
	t-statistic	1.521	-0.534
	Significance	0.065*	0.297
σ cash flow/net assets	Beta coefficient	0.490	0.000
	t-statistic	3.858	0.000
	Significance	0.000***	0.500
NWC/net assets	Beta coefficient	-0.084	-0.227
	t-statistic	-0.831	-1.280
	Significance	0.204	0.101
Market-to-book ratio	Beta coefficient	-0.002	0.000
	t-statistic	-3.428	-0.225
	Significance	0.001***	0.411
Dividend dummy	Beta coefficient	-0.018	-0.038
	t-statistic	-0.762	-0.750
	Significance	0.224	0.227

5.3.5. Least Square Dummy Variables analysis

Table 21 and 22 represent the outcomes of the Least Squares Dummy Variables of the fixed effects regression with annual dummies but without the intercept. This regression is also called Least Square Dummy Variable (LSDV). In the table for each variable the beta coefficient, the t-statistics and the significance are showed.

All the results in the LSDV regression are almost the same as the results of the pooled OLS using year dummies. This can be because the way of running this regression is almost the same.

Cash-to-total-assets ratio as dependent variable:

The firm size coefficient (positive sign) is statistically significant at the 1% level, which is consistent with the pecking order and free cash flow theory, but in contrast to the trade-off model. This result is not consistent to the results of previous authors. The negative sign of leverage is significant at the 1% level which is consistent with the trade-off model, pecking order theory, free cash flow theory, and the findings of previous authors. There is an unknown relation between leverage and cash holding, but according to my results there is a negative relation between leverage and cash holding.

Bank debt is statistically negative correlated with cash holding at 10% level, which is consistent to the trade-off model, pecking order theory, free cash flow theory, and the results of previous authors except Pinkowitz & Williamson, 2001. The negative sign of liquid assets is significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of dividend payment is significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The positive sign of cash flow, cash flow volatility, and liquid assets is insignificant.

Cash-to-net-assets ratio as dependent variable:

Comparing to using cash-to-total-assets ratio as dependent variable, by using cash-to-net-assets ratio as dependent variable only the insignificant result of cash flow stays the same. The positive sign of firm size is significant at the 10% level which is consistent with the pecking order and free cash flow theory, but in contrast to the trade-off model. This result is not consistent to the results of previous authors. The positive sign of leverage is significant at the 5% level which is consistent to the trade-off model, but in contrast to the pecking order theory, free cash flow theory, and the findings of previous authors. This means that firms has to hold more cash to reduce the chance of experiencing financial distress due to the pressure that amortization plans put on the firm's treasury management. The positive sign of cash flow volatility is significant at the 1% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of investment opportunity is significant at the 1% level which is consistent to the free cash flow theory, but in contrast to the trade-off model, pecking order theory and the findings of previous authors. The negative sign of dividend payment is significant at the 5% level which is consistent to the trade-off model and the findings of previous authors. The negative sign of bank debt and liquid assets is insignificant when using cash-to-net-assets ratio as dependent variable.

Dropped bank debt because of missing values:

Because there are too many missing values at the independent variable "bank debt", this variable is dropped so the complete sample of the other variables is measured.

By dropping bank debt using cash-to-total-assets ratio as dependent variable with year dummies, firm size became from significant to insignificant. The positive sign of cash flow became negative but still insignificant. The significance level of liquid assets increased from 1% to 5%. The insignificant positive sign of investment opportunity became negative and significant at the 1% level which is consistent to the free cash flow theory, but in contrast to the trade-off model, pecking order theory and the findings of previous authors. The results of leverage, cash flow volatility, and dividend dummy stay the same.

By using cash-to-net-assets ratio with year dummies, after dropping bank debt from the regression, the positive sign of firm size became negative and the significance level dropped from 10% to 1%. This result is consistent to the trade-off model and the findings of previous authors, but in contrast to the pecking order theory and free cash flow theory. Same as dropping bank debt from the regression by using cash-to-total-assets ratio as dependent variable, the positive sign of cash flow became negative but still insignificant. The significant positive sign of cash flow volatility became negative and insignificant. The negative sign of liquid assets became significant at the 10% level after dropping bank debt. This result is consistent to the trade-off model and the findings of previous authors. The significance level of the negative sign of dividend payment dropped from 10% to 1%. The results of leverage, investment opportunity stay the same after dropping bank debt from the regression.

Conclusion by dropping bank debt (because of missing values):

By using cash-to-total-assets ratio as dependent variable with year dummies, when dropped bank debt, one more independent variable became significant (investment opportunity), but one variable became insignificant (firm size). By using cash-to-net-assets ratio as dependent variable with year dummies, when dropped bank debt, one variable became significant (liquid assets) and one became insignificant (cash flow volatility).

Table 21: LSDV (Fixed effects regression) with year dummies using cash-to-total-assets ratio as dependent variable

Independent variable		LSDV (Fixed effects regression)	
		Normal model	Dropped Bank debt
Intercept	Beta		
	coefficient	-	-
	t-statistic	-	-
	Significance	-	-
Firm size	Beta		
	coefficient	0.006	-0.001
	t-statistic	1.940	-0.210
	Significance	0.027**	0.418
Total debt/total assets	Beta		
	coefficient	-0.176	-0.343
	t-statistic	-3.140	-5.680
	Significance	0.001***	0.000***

Bank debt/total debt	Beta		
	coefficient	-0.024	-
	t-statistic	-1.460	-
	Significance	0.074*	-
Cash flow/total assets	Beta		
	coefficient	0.049	-0.056
	t-statistic	0.880	-1.040
	Significance	0.190	0.151
σ cash flow/total assets	Beta		
	coefficient	0.031	0.082
	t-statistic	0.390	0.910
	Significance	0.348	0.182
NWC/total assets	Beta		
	coefficient	-0.116	-0.077
	t-statistic	-2.580	-1.690
	Significance	0.005***	0.046**
Market-to-book ratio	Beta		
	coefficient	-0.0003	-0.001
	t-statistic	-1.100	-2.190
	Significance	0.136	0.015***
Dividend dummy	Beta		
	coefficient	-0.053	-0.063
	t-statistic	-2.920	-3.110
	Significance	0.002***	0.001***

Table 22: LSDV (Fixed effects regression) with year dummies using cash-to-net-assets ratio as dependent variable

Independent variable		LSDV (Fixed effects regression)	
		Normal model	Dropped Bank debt
Intercept	Beta		
	coefficient	-	-
	t-statistic	-	-
	Significance	-	-
Firm size	Beta		
	coefficient	0.006	-0.026
	t-statistic	1.47	-2.27
	Significance	0.071*	0.012***

Total debt/net assets	Beta		
	coefficient	0.257	0.475
	t-statistic	1.61	2.00
	Significance	0.054**	0.024**
Bank debt/total debt	Beta		
	coefficient	-0.028	-
	t-statistic	-1.01	-
	Significance	0.158	-
Cash flow/net assets	Beta		
	coefficient	0.133	-0.279
	t-statistic	0.980	-0.99
	Significance	0.165	0.161
σ cash flow/net assets	Beta		
	coefficient	0.454	-0.264
	t-statistic	3.15	-0.56
	Significance	0.001***	0.287
NWC/net assets	Beta		
	coefficient	-0.104	-0.284
	t-statistic	-1.05	-1.49
	Significance	0.148	0.069*
Market-to-book ratio	Beta		
	coefficient	-0.002	-0.001
	t-statistic	-3.62	-0.34
	Significance	0.000***	0.367
Dividend dummy	Beta		
	coefficient	-0.057	-0.144
	t-statistic	-2.09	-2.16
	Significance	0.019**	0.016**

5.4. Regression results

In this paragraph all the different regression results are showed in one table in order to compare them. Table 23 and 24 show the regression results of all the variables. In this case 62 cases are deleted because of missing values of bank debt. To see the results with the whole sample of the variables that don't have missing values, the variable bank debt is deleted and regressions are run. These results without the bank debt variable are showed in table 27 and 28. After the description of these results the negative or positive relation between the firm characteristics and cash holding is summarized in four tables. Table 25, 26, 29, and 30 summarizes the findings of this study.

Four different regression methodologies are used to test the relationship between cash holding and the independent variables. The first column of table 24 reports the results of the Fama-MacBeth (1973) regression. In this regression individual cross-sectional regressions are run for each year and the average of those cross-sectional regressions are used to make the final estimation. The second column shows the estimation of a cross-sectional regression using means of each variable for each firm. Column three presents results of the pooled OLS regression. In this regression dummy variables are used as control variables. Annual dummies are created to control for any macroeconomic events. Annual dummies allow the intercept to differ across periods (Wooldridge, 2009). Industry dummies are created to stand for industry specific factors that can affect cash holding but are not captured by the independent variables. Finally, in the last column, a Least Square Dummy Variable (fixed effects) regression is run. In this regression annual dummies are used. In all the regressions where dummy variables are used, there is no intercept. Normally if a regression is run with dummy variables, one dummy variable is excluded, because that year is chosen as the base year to estimate the intercept (Wooldridge, 2009). In order to run all the dummy variables, the intercept must be excluded.

Cash-to-total-assets as dependent variable:

Three regressions support that larger firms have more cash holdings, which is consistent with the pecking order and free cash flow theory. According to the pecking order theory large firms have been more successful so they should have more cash after controlling for investment. The argument that larger firms have more cash holdings is also supported by the free cash flow theory that managers of large firms have more power on the firm's investment and financial policies that is leading to a greater amount of cash holding. The argument of the trade-off model that larger firms have a lower demand of cash holding is clearly not supported.

All regressions, except the Fama-MacBeth regression show that firms with higher leverage have less cash holdings, which is consistent with the pecking order and free cash flow theory. This means that the pecking order theory is supported that firms with high leverage hold less cash holdings when the firm's investment exceeds retained earnings. The free cash flow theory is supported that firms with low leverage are less subject to monitoring by capital markets preventing superior managerial discretion. The trade-off model has an unclear predicted sign for the relationship between leverage and cash holdings. The argument that firms with more ability to increase debt hold less cash is supported. But the argument that high leverage firms hold more cash in order to prevent bankruptcy is clearly not supported.

All regressions, except the Fama-MacBeth regression, show that firms with more bank relationship hold less cash. Only the Fama-MacBeth regression shows an insignificant result of this relationship. There is an unknown predicted sign for the relationship between bank debt and cash holding. The argument that when firms have a closer relationship with banks they have easier access to external financing, because they are less likely to experience agency and asymmetric information problems, and thus hold less cash, is supported. This result is consistent with the results of the research of EMU countries (Ferreira & Vilela, 2004) and UK (Ozkan & Ozkan, 2004). On the other side, the argument of Pinkowitz & Williamson (2001) that Japanese firms hold more cash when there is a good relation with banks, because of the monopoly power of banks, is clearly not supported.

Cash flow show a positive relationship with cash holding but this result is only significant with the pooled OLS regression with year and industry dummies which is consistent with the pecking order theory. This means that firms with more cash flow has better operating activities so the firm can

invest more with cash to grow (Ferreira & Vilela, 2004). This also means that the firms with higher cash flow prefer internal financing than external financing (Ozkan & Ozkan, 2004).

Cash flow volatility shows more a positive relation with cash holdings but all the results are not significant.

Three regressions (pooled OLS regression with year dummies, pooled OLS regression with year and industry dummies, LSDV regression) show a negative relationship between liquid assets and cash holdings which is consistent to the trade-off model. Liquid assets are substitutes of cash and can be converted easily into cash with low cost (Bigelli & Sanchez-Vidal, 2001) (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004). So extra cash holding is not needed when there is more liquid assets.

The cross-sectional regression using means and the LSDV regression show a negative relationship with cash holdings, and the Fama-MacBeth regression and the pooled OLS regression show a positive relation with cash holdings. However, these results are not significant.

All regressions, except the Fama-MacBeth regression, show that there is a negative relation between dividend payment and cash holding, which is consistent to the trade-off model. The argument of Ozkan & Ozkan (2004) that a firm that pays dividend can raise funds at low cost by reducing its dividend payments is supported. Also the argument of Opler et al. (1999) and Ferreira & Vilela (2004) that a firm that does not pay dividends has to use the capital markets to raise funds is supported.

The findings of leverage, cash flow, liquid assets and dividend payment are mainly consistent with the empirical studies on the determinants of cash holdings of EMU countries (Ferreira & Vilela, 2004), UK firms (Ozkan & Ozkan, 2004), US firms (Bates et. al, 2009)(Opler et. al, 1999)(Pinkowitz & Williamson, 2001), and Japanese and German firms (Pinkowitz & Williamson, 2001). The findings of bank debt are consistent to all the empirical findings mentioned before except for Japanese firms ((Pinkowitz & Williamson, 2001). The finding of firm size is in contrast to the findings of EMU countries (Ferreira & Vilela, 2004), UK firms (Ozkan & Ozkan, 2004), US firms (Bates et. al, 2009)(Opler et. al, 1999)(Pinkowitz & Williamson, 2001), and Japanese and German firms (Pinkowitz & Williamson, 2001). The findings of cash flow volatility and investment opportunity can't be compared to the findings of previous authors because all results of cash flow are insignificant.

Cash-to-net-assets as dependent variable:

The results of firm size, bank debt, and dividend payment are the same by using cash-to-net-assets and cash-to-total-assets as dependent variable. That means that the positive relation of firm size, the negative relation of bank debt, and the negative relation of dividend payment, and cash holding is supported.

It is supported that firms with more leverage will hold less cash because the firm wants to decrease change of experiencing financial distress/ bankruptcy. Leverage will increase the chance of bankruptcy due to the pressure that amortization plans put on the firm's treasury management. This result is consistent with the trade-off model.

All the regressions show insignificant results of the negative relationship between bank debt and cash holdings. The argument of Ferreira & Vilela (2004) and Ozkan & Ozkan (2004) that when firms have a closer relationship with banks they have easier access to external financing, because they are less likely to experience agency and asymmetric information problems, and thus hold less cash, is clearly not supported.

All the regressions show insignificant results of the positive relationship between cash flow and cash holdings. The argument that high levered firms hold more cash to prevent bankruptcy is clearly not supported.

All the regressions show significant results between the positive relationship between cash flow volatility and cash holdings which is consistent with the trade-off model. The argument that firms with more cash flow volatility hold more cash as a buffer to increase the chance of surviving during periods when there is poor business conditions (Bigelli & Sanchez-Vidal, 2010), is clearly supported. Also the argument of Ozkan & Ozkan (2004) that firms with more cash flow volatility hold more cash to avoid the expected costs of liquidity constraints due to passing up some valuable growth opportunities is supported.

All the regressions show insignificant results between the negative relationship between liquid assets and cash holdings. The argument of Bigelli & Sanchez Vidal (2010), Ferreira & Vilela (2004), and Ozkan & Ozkan (2004) that firms with more liquid assets hold less cash because liquid assets are already cash substitutes that can be easily converted into cash with low costs is clearly not supported.

The argument of Ferreira & Vilela (2004) of the free cash flow theory that managers of firm with poor investment opportunities are expected to hold more cash because they have to ensure that there is funds to invest in growth projects, is supported. There is a negative relationship between investment opportunity and cash holdings.

Three regressions (the cross-sectional regression using means, the pooled OLS regression using year dummies, and the LSDV regression) shows a significant negative relationship between dividend payment and cash holdings, which is consistent with the trade-off model. The argument of Ozkan & Ozkan (2004) that a firm that pays dividend can raise funds at low cost by reducing its dividend payments is clearly supported. Also the argument of Opler et al. (1999) and Ferreira & Vilela (2004) that a firm that does not pay dividends has to use the capital markets to raise funds is supported.

The findings cash flow volatility and dividend payment are mainly consistent with the empirical studies on the determinants of cash holdings of EMU countries (Ferreira & Vilela, 2004), UK firms (Ozkan & Ozkan, 2004), US firms (Bates et. al, 2009)(Opler et. al, 1999)(Pinkowitz & Williamson, 2001), and Japanese and German firms (Pinkowitz & Williamson, 2001). The findings of firm size and leverage are in contrast to the findings of EMU countries (Ferreira & Vilela, 2004), UK firms (Ozkan & Ozkan, 2004), US firms (Bates et. al, 2009)(Opler et. al, 1999)(Pinkowitz & Williamson, 2001), and Japanese and German firms (Pinkowitz & Williamson, 2001). The findings the negative sign of investment opportunity are only consistent with the empirical findings of Japanese firms (Pinkowitz & Williamson, 2001), and the findings of the positive sign of investment opportunity are consistent with other firms mentioned before. The findings of bank debt, cash flow, and liquid assets can't be compared to the findings of previous authors because all results of cash flow are insignificant.

Table 23: Regression results of cash holdings on firm characteristics using cash-to-total-assets ratio as dependent variable

Independent variable		Fama-MacBeth model	Cross-sectional regression using means	Pooled OLS regressions using dummy variables for:		LSDV (Fixed effects regression)
				Year	Year and industry	
Intercept	Beta					
	coefficient	0.072	0.185	-	-	-
	t-statistic	0.771	2.679	-	-	-
	Significance	0.048	0.005	-	-	-
Firm size	Beta					
	coefficient	0.006	0.005	0.006	0.011	0.006
	t-statistic	0.988	0.867	1.968	3.657	1.940
	Significance	0.189	0.194	0.003***	0.000***	0.027**
Total debt/total assets	Beta					
	coefficient	-0.158	-0.288	-0.176	-0.174	-0.176
	t-statistic	-1.544	-3.639	-3.189	-3.155	-3.140
	Significance	0.106	0.000***	0.001***	0.001***	0.001***
Bank debt/total debt	Beta					
	coefficient	-0.021	-0.039	-0.025	-0.029	-0.024
	t-statistic	-0.617	-1.294	-1.480	-1.734	-1.460
	Significance	0.136	0.099*	0.070*	0.042**	0.074*
Cash flow/total assets	Beta					
	coefficient	0.062	0.131	0.050	0.074	0.049
	t-statistic	0.239	0.591	0.894	1.512	0.880
	Significance	0.282	0.278	0.186	0.066*	0.190

σ cash flow/total assets	Beta					
	coefficient	0.092	-0.012	0.031	0.065	0.031
	t-statistic	0.596	-0.084	0.397	0.869	0.390
	Significance	0.295	0.467	0.346	0.193	0.348
NWC/total assets	Beta					
	coefficient	0.124	-0.073	-0.117	-0.071	-0.116
	t-statistic	1.499	-1.019	-2.619	-1.596	-2.580
	Significance	0.103	0.156	0.005***	0.056**	0.005***
Market-to-book ratio	Beta					
	coefficient	0.012	-0.001	0.000	0.000	-0.0003
	t-statistic	0.074	-0.584	-1.119	-0.979	-1.100
	Significance	0.164	0.281	0.132	0.164	0.136
Dividend dummy	Beta					
	coefficient	-0.051	-0.092	-0.053	-0.032	-0.053
	t-statistic	-1.449	-3.005	-2.965	-2.028	-2.920
	Significance	0.109	0.015***	0.002***	0.022**	0.002***

Table 24: Regression results of cash holdings on firm characteristics using cash-to-net-assets ratio as dependent variable

Independent variable		Fama-MacBeth model	Cross-sectional regression using means	Pooled OLS regressions using dummy variables for:		LSDV (Fixed effects regression)
				Year	Year and industry	
Intercept	Beta coefficient	-0.057	0.230	-	-	-
	t-statistic	-0.513	1.774	-	-	-
	Significance	0.153	0.039	-	-	-
Firm size	Beta coefficient	0.006	0.000	0.006	0.013	0.006
	t-statistic	0.762	0.006	1.496	3.224	1.47
	Significance	0.256	0.498	0.068*	0.001***	0.071*
Total debt/net assets	Beta coefficient	0.223	-0.084	0.257	0.270	0.257
	t-statistic	1.127	-0.422	1.638	1.888	1.61
	Significance	0.120	0.337	0.051	0.030**	0.054**
Bank debt/total debt	Beta coefficient	-0.014	-0.048	-0.028	-0.027	-0.028
	t-statistic	-0.310	-0.852	-1.022	-0.980	-1.01
	Significance	0.148	0.198	0.154	0.160	0.158
Cash flow/net assets	Beta coefficient	0.092	0.334	0.133	0.173	0.133
	t-statistic	0.665	0.960	0.993	1.521	0.980
	Significance	0.144	0.170	0.161	0.065*	0.165

σ cash flow/net assets	Beta					
	coefficient	0.613	0.332	0.454	0.490	0.454
	t-statistic	2.487	1.885	3.203	3.858	3.15
	Significance	0.029**	0.032**	0.001***	0.000***	0.001***
NWC/net assets	Beta					
	coefficient	0.105	0.047	-0.104	-0.084	-0.104
	t-statistic	0.369	0.398	-1.605	-0.831	-1.05
	Significance	0.232	0.346	0.144	0.204	0.148
Market-to-book ratio	Beta					
	coefficient	0.009	-0.004	-0.002	-0.002	-0.002
	t-statistic	-1.532	2.457	-3.685	-3.428	-3.62
	Significance	0.005***	0.008***	0.000***	0.001***	0.000***
Dividend dummy	Beta					
	coefficient	0.048	-0.139	-0.058	-0.018	-0.057
	t-statistic	0.899	-2.204	-2.127	-0.762	-2.09
	Significance	0.193	0.002***	0.017**	0.224	0.019**

Based on the described results a summary of the positive or negative relation between the firm characteristic and cash holding are showed in table 25 and 26. Not supported in parentheses means that there is no evidence found of the relation between cash holding and the firm characteristic of that theory/ model.

Table 25: Summary of the findings using cash-to-total-assets as dependent variable (included bank debt)

Variable	Trade-off Model	Pecking Order Theory	Free Cash Flow Theory
Firm size	Negative (not supported)	Positive	Positive
Leverage	Negative	Negative	Negative
Bank debt	Negative	Negative	Negative
Cash flow	Negative (not supported)	Positive	
Cash flow volatility	Positive (not supported)		
Liquid assets	Negative		
Investment opportunity	Positive (not supported)	Positive (not supported)	Negative (not supported)
Dividend payment	Negative		

Table 26: Summary of the findings using cash-to-net-assets as dependent variable (included bank debt)

Variable	Trade-off Model	Pecking Order Theory	Free Cash Flow Theory
Firm size	Negative (not supported)	Positive	Positive
Leverage	Positive	Negative (not supported)	Negative (not supported)
Bank debt	Negative (not supported)	Negative (not supported)	Negative (not supported)
Cash flow	Negative (not supported)	Positive (not supported)	
Cash flow volatility	Positive		
Liquid assets	Negative (not supported)		
Investment opportunity	Positive (not supported)	Positive (not supported)	Negative
Dividend payment	Negative		

Table 27 and 28 present the results of the same regressions but this time without the variable “bank debt”, because this variable has in total 62 missing values. So when running the regressions together with this variable with the missing values, 62 cases are deleted. In this case I want to see the results of the other variable of the whole sample (without missing values).

Cash-to-total-assets as dependent variable (dropped bank debt):

The results of the regression with bank debt and without bank debt, using cash-to-total-assets as dependent variable, are the same for firm size, leverage, liquid assets, and dividend payment. That means that the positive relation of firm size, the negative relation of leverage, the negative relation of liquid assets, and the negative relation of dividend payment, and cash holding is supported. After dropped bank debt the positive sign of cash flow became negative which is consistent with the trade-off model but in contrast with the pecking order theory. The argument of Ferreira & Vilela (2004) that firms with high cash flow hold less cash, because cash flow provides a ready source of liquidity and can be seen as cash substitute is supported.

Only the pooled OLS regression using year and industry dummies shows significant results between the positive relationship between cash flow volatility and cash holdings which is consistent with the trade-off model. The argument that firms with more cash flow volatility hold more cash as a buffer to increase the chance of surviving during periods when there is poor business conditions (Bigelli & Sanchez-Vidal, 2010), is clearly supported. Also the argument of Ozkan & Ozkan (2004) that firms with more cash flow volatility hold more cash to avoid the expected costs of liquidity constraints due to passing up some valuable growth opportunities is supported.

Two regressions (pooled OLS regression with year dummies and LSDV regression) show a negative relationship between liquid assets and cash holdings which is consistent to the trade-off model. Liquid assets are substitutes of cash and can be converted easily into cash with low cost (Bigelli & Sanchez-Vidal, 2001) (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004). So extra cash holding is not needed when there is more liquid assets.

The results of investment opportunity show both positive and negative relation with cash holding. The positive relation between market-to-book-ratio and cash holding is supported by the Fama-MacBeth regression which is consistent with the trade-off model and the free cash flow theory. And the negative relation supported by the pooled OLS regression with year and industry dummies and the LSDV regression, which is consistent with the free cash flow theory. The argument of Ferreira & Vilela (2004) of the trade-off model that firms with more investment opportunity hold more cash to avoid financial distress due to greater bankruptcy costs is clearly supported. The argument of Ferreira & Vilela (2004) and Ozkan & Ozkan (2004) of the pecking order theory that firms with more investment opportunity hold more cash to avoid that the firm will pass up some investments because of cash shortfalls is clearly supported. When a firm with high investment opportunity the firm finds itself being short of cash and will engage in costly external financing. At that time the firm has to engage in costly external financing and it must force itself to have profitable investment opportunities (Ferreira & Vilela, 2004). The argument of Ferreira & Vilela (2004) of the free cash flow theory that managers of firm with poor investment opportunities are expected to hold more cash because they have to ensure that there is funds to invest in growth projects, is supported. There is a negative relationship between investment opportunity and cash holdings.

After dropped the variable bank debt, there are changes in the variable cash flow, which became from a positive sign to a negative sign, and in the variable investment opportunity, which became significant with a positive and negative sign.

Cash-to-net-assets as dependent variable (dropped bank debt):

The results of the regression with bank debt and without bank debt, using cash-to-net-assets as dependent variable, are the same for leverage, cash flow volatility, and dividend payment. That means that the positive relation of leverage, the positive relation of cash flow volatility, and the negative relation of dividend payment, and cash holding is supported.

After dropped bank debt by using cash-to-net-assets ratio as dependent variable, the relationship between firm size and cash holdings became from positive to negative which is consistent with the trade-off model, but in contrast with the pecking order theory and the free cash flow theory. This result is significant with the pooled OLS regression using year dummies and LSDV regression. Larger firms hold less cash because of economies of scale (Faulkender, 2002) and they face less borrowing constraints than small firms (Kim, Mauer, & Sherman, 1998), and larger firms are more diversified so they have less probability of financial distress (Ferreira & Vilela, 2004).

The variable cash flow became significant at both a negative and a positive sign which is consistent with the trade-off model and pecking order theory. The negative sign is significant with the cross-sectional regression using means and the positive sign is significant with the Fama-McBeth model. The argument of Ferreira & Vilela (2004) that firms with high cash flow hold less cash, because cash flow provides a ready source of liquidity and can be seen as cash substitute is supported. Firms with more cash flow have better operating activities so the firm can invest more with cash to grow (Ferreira & Vilela, 2004). It also means that the firms with higher cash flow prefer internal financing than external financing because it is less costly (Ozkan & Ozkan, 2004).

After dropped bank debt by using cash-to-net-assets ratio as dependent variable, the negative sign of liquid assets became significant which is consistent with the trade-off model. This result is supported the pooled OLS regression with year dummies and the LSDV regression. Liquid assets are substitutes of cash and can be converted easily into cash with low cost (Bigelli & Sanchez-Vidal, 2001) (Ferreira & Vilela, 2004) (Ozkan & Ozkan, 2004). So extra cash holding is not needed when there is more liquid assets.

After dropped bank debt by using cash-to-net-assets ratio as dependent variable, the significant negative sign of investment opportunity became significant positive which is consistent with the trade-off model and pecking order theory, but in contrast to the free cash flow theory. This positive sign is only supported by the Fama-MacBeth model. The argument of Ferreira & Vilela (2004) of the trade-off model that firms with more investment opportunity hold more cash to avoid financial distress due to greater bankruptcy costs is clearly supported. The argument of Ferreira Ozkan & Ozkan (2004) of the pecking order theory that firms with more investment opportunity hold more cash to avoid that the firm will pass up some investments because of cash shortfalls is clearly supported. When a firm with high investment opportunity the firm finds itself being short of cash and will engage in costly external financing. At that time the firm has to engage in costly external financing and it must force itself to have profitable investment opportunities (Ferreira & Vilela, 2004).

After dropped the variable bank debt, there are changes in the variable firm size, which became from a positive sign to a negative sign. Both insignificant negative and positive sign of cash flow became both significant. The insignificant negative sign of liquid assets became significant. At last the variable investment opportunity became from a significant negative sign to a significant positive sign.

Table 27: Regression results of cash holdings on firm characteristics using cash-to-total assets ratio as dependent variable (after dropped bank debt)

Independent variable		Fama-MacBeth model	Cross-sectional regression using means	Pooled OLS regressions using dummy variables for:		LSDV (Fixed effects regression)
				Year	Year and industry	
Intercept	Beta coefficient	0.052	0.207	-	-	-
	t-statistic	1.943	2.317	-	-	-
	Significance	0.064	0.012	-	-	-
Firm size	Beta coefficient	-0.0003	0.005	-0.001	0.006	-0.001
	t-statistic	0.041	0.809	-0.209	1.769	-0.210
	Significance	0.553	0.211	0.417	0.039**	0.418
Total debt/total assets	Beta coefficient	-0.357	-0.425	-0.343	-0.272	-0.343
	t-statistic	-2.981	-3.576	-5.757	-4.938	-5.680
	Significance	0.064*	0.001***	0.000***	0.000***	0.000***
Cash flow/total assets	Beta coefficient	-0.063	-0.299	-0.056	0.006	-0.056
	t-statistic	-0.410	-1.627	-1.048	0.128	-1.040
	Significance	0.228	0.053**	0.148	0.449	0.151
σ cash flow/total assets	Beta coefficient	0.089	-0.078	0.082	0.202	0.082
	t-statistic	0.637	-0.363	0.920	2.531	0.910
	Significance	0.274	0.359	0.179	0.006***	0.182

NWC/total assets	Beta					
	coefficient	-0.077	-0.039	-0.077	-0.030	-0.077
	t-statistic	0.886	-0.466	-1.710	-0.695	-1.690
	Significance	0.289	0.322	0.044**	0.244	0.046**
Market-to-book ratio	Beta					
	coefficient	0.019	0.001	-0.001	-0.001	-0.001
	t-statistic	0.348	0.596	-2.222	-2.652	-2.190
	Significance	0.089*	0.277	0.014***	0.004***	0.015***
Dividend dummy	Beta					
	coefficient	-0.065	-0.072	-0.063	-0.026	-0.063
	t-statistic	-1.666	-1.957	-3.150	-1.490	-3.110
	Significance	0.037**	0.027**	0.001***	0.069*	0.001***

Table 28: Regression of cash holdings on firm characteristics (after dropped bank debt) using cash-to-net assets ratio as dependent variable

Independent variable		Fama-MacBeth model	Cross-sectional regression using means	Pooled OLS regressions using dummy variables for:		LSDV (Fixed effects regression)
				Year	Year and industry	
Intercept	Beta coefficient	-0.063	0.464	-	-	-
	t-statistic	-0.749	1.658	-	-	-
	Significance	0.228	0.051	-	-	-
Firm size	Beta coefficient	0.005	-0.005	-0.026	-0.008	-0.026
	t-statistic	0.241	-0.259	-2.295	-0.891	-2.27
	Significance	0.229	0.398	0.011***	0.187	0.012***
Total debt/net assets	Beta coefficient	0.041	0.117	0.475	0.490	0.475
	t-statistic	0.048	0.429	2.022	2.191	2.00
	Significance	0.291	0.335	0.022**	0.015***	0.024**
Cash flow/net assets	Beta coefficient	0.947	-1.123	-0.280	-0.122	-0.279
	t-statistic	2.052	-1.600	-1.007	-0.534	-0.99
	Significance	0.065*	0.057*	0.158	0.297	0.161
σ cash flow/net assets	Beta coefficient	0.709	-1.266	-0.264	0.000	-0.264
	t-statistic	2.495	-1.255	-0.571	0.000	-0.56
	Significance	0.051**	0.106	0.285	0.500	0.287
NWC/net assets	Beta	0.016	-0.213	-0.285	-0.227	-0.284

	coefficient					
	t-statistic	0.068	-0.898	-1.508	-1.280	-1.49
	Significance	0.239	0.186	0.066*	0.101	0.069*
Market-to-book ratio	Beta coefficient	0.026	0.007	0.000	0.000	-0.001
	t-statistic	1.785	1.055	-2.184	-0.225	-0.34
	Significance	0.028**	0.147	0.365	0.411	0.367
Dividend dummy	Beta coefficient	-0.029	-0.128	-0.144	-0.038	-0.144
	t-statistic	0.149	-1.215	-2.184	-0.750	-2.16
	Significance	0.275	0.114	0.015***	0.227	0.016**

Based on the described results a summary of the positive or negative relation between the firm characteristic and cash holding are showed in table 29 and 30. Not supported in parentheses means that there is no evidence found of the relation between cash holding and the firm characteristic of that theory/ model.

**Table 29: Summary of the findings using cash-to-total-assets as dependent variable
(excluded bank debt)**

Variable	Trade-off Model	Pecking Order Theory	Free Cash Flow Theory
Firm size	Negative (not supported)	Positive	Positive
Leverage	Negative	Negative	Negative
Cash flow	Negative	Positive (not supported)	
Cash flow volatility	Positive		
Liquid assets	Negative		
Investment opportunity	Positive	Positive	Negative
Dividend payment	Negative		

**Table 30: Summary of the findings using cash-to-net-assets as dependent variable
(excluded bank debt)**

Variable	Trade-off Model	Pecking Order Theory	Free Cash Flow Theory
Firm size	Negative	Positive (not supported)	Positive (not supported)
Leverage	Positive	Negative (not supported)	Negative (not supported)
Cash flow	Negative	Positive	
Cash flow volatility	Positive		
Liquid assets	Negative		
Investment opportunity	Positive	Positive	Negative (not supported)
Dividend payment	Negative		

6. Discussion and conclusion

This chapter draws conclusion on the empirical findings of this research. In this study the determinants of cash holdings of Dutch listed firms from 31 December 2006, 31 December 2007, 31 December 2008, and 31 December 2009 are examined using panel data. From the theory some important determinants of cash holding are taken to fulfill the objective of this research. The firm characteristics firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity and dividend payment have a relation with cash holding. The objective of this research is to find out whether firm size, leverage, bank debt, cash flow, cash flow volatility, investment opportunity, and dividend payment has an impact on cash holdings, and if so, whether it is positively or negatively affected. The research question “To which extent do firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets, investment opportunity, and dividend payment has an influence on cash holding of Dutch non-financial listed firms?” is answered. The answers of the research question are found in paragraph 5.1 and 5.2. Since the research question is answered, the objective of this study has been fulfilled.

For this study also some implications are discussed and some limitations and recommendations for future research are discussed for future researchers. In section 5.1 the findings of the research is discussed and in section 5.2 the findings of the research without the firm characteristic “bank debt” is discussed in order to have a complete sample size. The implications of the study are elaborated in section 5.3. Section 5.4 presents the limitations of the study and at last in section 5.5 recommendations for future research are described.

6.1. Findings included bank debt

I modeled the cash-to-total-assets ratio and cash-to-net-assets ratio as a function of the firm characteristics. The following concluded results are from both dependent variables cash-to-total-assets ratio and cash-to-net-assets ratio. Similarly to the previous findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009) about the determinants of cash holdings, my results indicate that the amount of cash holding by Dutch listed negatively affected by dividend payment. The findings of dividend payment are consistent with the trade-off model.

However, there are some firm characteristics that are in contrast to the findings of the authors, but consistent to some of the theories. The positive relation between firm size and cash holding is consistent with the pecking-order theory and free cash flow theory but in contrast to the trade-off model and also contradictory to the findings of previous authors.

The findings of leverage, cash flow, cash flow volatility, liquid assets, and investment opportunity are different using the two different dependent variables cash-to-total-assets ratio and cash-to-net-assets ratio. By using cash-to-total-assets ratio as dependent variable the relation between leverage and cash holding is negative which is consistent to the trade-off model, pecking-order theory, free cash flow theory, and the findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009). But by using cash-to-net-assets ratio as dependent variable the relation between leverage and cash holding is positive which is only

consistent with the trade-off model, but in contrast to the pecking-order theory, free cash flow theory, and the findings of previous authors.

By using cash-to-total-assets ratio as dependent variable the relation between cash flow and cash holding is positive which is consistent with the pecking order theory and the findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009). By using cash-to-net-assets ratio as dependent variable the relation between leverage and cash holding is positive but insignificant, so nothing can be concluded.

The relationship between bank debt and cash holding is negative by using cash-to-total assets as dependent variable, but this result is not significant when using cash-to-net-assets as dependent variable.

By using cash-to-total-assets ratio as dependent variable the relation between cash flow volatility and cash holding is positive but insignificant, while by using cash-to-net-assets ratio this positive relationship is significant. The findings are consistent with the trade-off model and the findings of previous authors.

By using cash-to-total-assets ratio as dependent variable it can be concluded that cash holding is negatively affected by liquid assets which is consistent with the trade-off model and the findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009). However, when using cash-to-net-assets as dependent variable this negative relation is not significant.

By using cash-to-total-assets ratio as dependent variable the relation between investment opportunity and cash holding nothing can be concluded because the results are insignificant. When using cash-to-net-assets ratio as dependent variable the negative sign of investment opportunity is significant which is consistent with the free cash flow theory, but in contrast to the trade-off model, pecking order theory and the findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009).

6.2. Findings excluded bank debt

Because there are missing values from bank debt, the statistic software SPSS and STATA exclude the other cases listwise. So the sample size became smaller. The sample size included bank debt is 338 Dutch listed firms. By excluding bank debt, the sample size stays on 400 Dutch listed firms. Some of the results are different after excluded bank debt.

The following concluded results are from both dependent variables cash-to-total-assets ratio and cash-to-net-assets ratio. Similarly to the previous findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009) about the determinants of cash holdings, my results indicate that the amount of cash holding by Dutch listed firms positively affected by cash flow volatility, negatively affected by liquid assets, and negatively affected by dividend payment. These findings are consistent with the trade-off model that the firm can identify the optimal level of cash holding by balancing the marginal costs and the marginal benefits of cash holding.

The findings of firm size, leverage, cash flow, and investment opportunity are different using the two different dependent variables cash-to-total-assets ratio and cash-to-net-assets ratio. By using cash-to-total-assets ratio as dependent variable cash holding is positively affected by firm size which is consistent with the pecking order theory and free cash flow theory. On the other side by using cash-to-net-assets ratio as dependent variable the relationship between firm size and cash holding is

negative which is consistent with the trade-off model and findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009).

By using cash-total-assets ratio as dependent variable cash holding is negatively affected by leverage which is consistent with all the three theories and the findings of previous authors. On the other side when using cash-to-net-assets ratio as dependent variable cash holding is positively affected by leverage which is only consistent to the trade-off model.

There is a negative relationship between cash flow and cash holding when using cash-to-total-assets ratio as dependent variable, which is consistent to the trade-off model. When using cash-to-net-assets ratio as dependent variable the relationship between cash flow and cash holding is both negative and positive which is consistent to both the trade-off model and the pecking order theory.

By using cash-total-assets ratio as dependent variable cash holding is both positively and negatively affected by investment opportunity which is consistent to the trade-off model, pecking order theory, and free cash flow theory. Only the positive sign is consistent with the findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009). By using cash-to-net-assets ratio as dependent variable the relationship between investment opportunity and cash holding is positive which is consistent to the trade-off model, pecking order theory, and the findings of previous authors.

6.3. Implications

There have been several studies done on the determinants of cash holdings using the same tests that are used in this study in the United Kingdom, EMU countries, Germany, Japan and mostly in the United States. This study is the first research of the determinants of cash holdings in the Netherlands.

The results support some of the findings of Opler et al. (1999), Pinkowitz & Williamson (2001), Ferreira & Vilela (2004), Ozkan & Ozkan (2004), and Bates et al. (2009). There are some results that support the theory that was not supported by the findings of previous authors before. There are also some results that are totally different from the results of the theory and the findings of previous authors.

The results of this study might be useful for when a firm wants to know whether to hold more cash or less cash in for example the financial crisis or inflation. It is important to know which factors of your firms will have a positive or negative influence on your cash holding. So if a firm wants to hold more or less cash the firm will know which firm characteristic is related with it. Cash is the most important object in a firm. It keeps a firm running.

6.4. Limitations

This study has some limitations. One of the limitations is that previous studies the research has been done for more than twenty years. This research is only done for four years. The reason for this is that the author (me) does not have access to the database with the annual numbers like Datastream or Compustat. The data of this research is collected from annual reports and the earlier you go back to the past, the more difficult it is to find back the annual reports. The reason is also because this is a small/ short research for several months so there will be not enough time to study the determinants of cash holdings for twenty years.

The other limitation is that there are more firm characteristic to examine whether there is a positive or negative relation between the firm characteristic and cash holding. Examples of other firm characteristics are cash conversion cycle, taxes, agency costs, sales, wages, investor rights, shareholder protection, asymmetric information, cash conversion cycle, research and development, capital expenditures, acquisitions, etc.

Only firm characteristics (internal factors) are examined in this study. It is also possible to do research on external factors like financial crisis, inflation, unemployment, business conditions, economies of scale, corporate governance, financial constraints, capital markets developments etc.

6.5. Future research

In this study only the Dutch listed firms are investigated. For further research it is possible to also investigate the determinants of cash holdings of Dutch non-listed firms. Many other internal and external firm characteristics that have influence on cash holdings, that are mentioned by previous authors but not investigated in this study, can also be investigated for Dutch firms for example the financial crisis, inflation, unemployment, business conditions, taxes, corporate governance, financial constraints, capital markets developments, agency costs, sales, wages, investor rights, shareholder protection, asymmetric information, cash conversion cycle, research and development, capital expenditures, acquisitions, etc. For further research it is also possible to investigate the same firm characteristics for longer periods so it can be compared with the findings of previous authors like 1971-1994, 1984-1999, 1980-2006, or 1999-2004.

7. References

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Appendices

Appendix 1: Data collection

For each date/ year two different tables are showed. The first table shows all the data of the variables that is needed for the measurement. The second table shows only the data that is needed to calculate the data of the variables that is needed for the measurement. Cash flow is calculated by EBITDA minus interest expenses minus tax expenses minus dividends paid. But during data collection cash flow is calculated by the net income plus depreciation and amortization minus dividends paid which has the same outcome as calculating EBITDA minus interest expenses minus tax expenses minus dividends paid. The standard deviation of cash flow is calculated by first calculating the average of the cash flow. This is calculated by summing up the cash flows of all four years for each firm and then divides by four. Then the deviations are calculated. This is calculated by subtracting the average from every cash flow of that firm. Then the deviations for each firm is squared and summed up. Then the sum of the squared deviation is divided by N-1. At last the square root is taken from the resulting outcome to get the standard deviation. The net working capital is calculated by current assets minus current liabilities minus cash and cash equivalents. The market value of equity is calculated by multiplying the outstanding shares with the closing share price of 31 December.

31-Dec-2006	(amount in thousands) Cash and - equivalents	Bank debt	Total debt	Cash flow	SD cash flow	Net working capital	Equity (book value)	Equity (market value)	Total assets	Net assets
Ahold, Kon.	€ 1,844,000	€ 4,142,000	€ 6,480,000	€ 1,835,000	€ 1,028,194	€ 835,000	€ 5,270,000	€ 12,538,765	€ 18,442,000	€ 16,598,000
Air-France KLM	€ 3,364,000	€ 133,000	€ 8,650,000	€ 2,589,000	€ 1,059,144	€ 274,000	€ 8,412,000	€ 9,501,228	€ 26,670,000	€ 23,306,000
Akzo Nobel	€ 1,631,000	€ 258,000	€ 2,961,000	€ 1,184,000	€ 4,637,890	€ 4,691,000	€ 4,263,000	€ 13,274,670	€ 12,785,000	€ 11,154,000
ArcelorMittal	\$ 6,146,000	\$ 9,381,000	\$ 26,567,000	\$ 8,962,000	\$ 4,350,637.68	\$ 14,853,000	\$ 50,228,000	\$ 55,501,173	\$ 112,681,000	\$ 106,535,000
ASML Holding	€ 1,655,857	€ 380,000	€ 708,428	€ 705,640	€ 407,449	€ 2,244,625	€ 2,148,003	€ 9,156,489	€ 3,953,888	€ 2,298,031
BAM Groep, Kon.	€ 551,163	€ 1,187,428	€ 1,956,726	€ 182,548	€ 138,932	€ 596,162	€ 696,849	€ 1,421,589	€ 6,496,809	€ 5,945,646
Boskalis Westminster, Kon.	€ 206,077	€ 37,533	€ 71,401	€ 172,180	€ 89,531	€ -2,063	€ 624,640	€ 2,103,543	€ 1,583,909	€ 1,377,832
DSM, Kon.	€ 552,000	€ 159,000	€ 1,514,000	€ 790,000	€ 65,658	€ 1,478,000	€ 5,855,000	€ 6,900,444	€ 10,091,000	€ 9,539,000
Fugro	€ 28,169	€ 142,879	€ 441,886	€ 206,795	€ 91,253	€ 150,773	€ 565,781	€ 2,491,965	€ 1,405,698	€ 1,377,529
Heineken	€ 627,000	€ 1,640,000	€ 3,332,000	€ 1,834,000	€ 389,339	€ 229,000	€ 5,520,000	€ 8,827,777	€ 12,997,000	€ 12,370,000
KPN, Kon.	€ 803,000	€ 9,919,000	€ 9,974,000	€ 3,215,000	€ 1,676,214	€ -791,000	€ 4,196,000	€ 20,770,498	€ 21,258,000	€ 20,455,000

Philips, Kon.	€ 5,886,000	€ 3,493,000	€ 3,869,000	€ 5,670,000	€ 2,393,078	€ 5,832,000	€ 22,997,000	€ 31,623,933	€ 38,497,000	€ 32,611,000
Randstad	€ 250,300	€ -	€ 96,200	€ 320,800	€ 111,600	€ 522,200	€ 790,300	€ 6,083,448	€ 2,577,800	€ 2,327,500
Reed Elsevier	€ 148,000	€ 8,000	€ 8,000	€ 198,000	€ 714,626	€ 79,000	€ 1,465,000	€ 116,069	€ 1,537,000	€ 1,389,000
Royal Dutch Shell A	\$ 9,002,000	\$ 2,500,000	\$ 15,773,000	\$ 38,917,858	\$ 9,901,034.53	\$ 15,137,000	\$ 114,945,000	\$ 126,575,295	\$ 235,276,000	\$ 226,274,000
SBM Offshore	\$ 339,687	\$ 918,924	\$ 932,133	\$ 367,538	\$ 50,606.44	\$ 143,880	\$ 1,119,023	\$ 4,843,429	\$ 2,940,336	\$ 2,600,649
TNT	€ 297,000	€ 1,566,000	€ 1,914,000	€ 707,000	€ 200,021	€ -420,000	€ 2,008,000	€ 13,437,668	€ 6,808,000	€ 6,511,000
TOMTOM	€ 437,801	€ 200,000	€ 279,447	€ 240,374	€ 532,198	€ 502,602	€ 550,790	€ 3,168,240	€ 902,968	€ 465,167
Unilever	€ 710,000	€ 8,477,000	€ 8,835,000	€ 3,395,000	€ 705,361	€ -4,383,000	€ 11,672,000	€ 316,093	€ 37,072,000	€ 36,362,000
Wolters Kluwer	€ 138,000	€ 2,173,000	€ 2,175,000	€ 442,000	€ 290,576	€ -1,569,000	€ 1,196,000	€ 6,667,740	€ 5,653,000	€ 5,515,000
Aalberts Industries	€ 117,539	€ 364,289	€ 512,571	€ 150,305	€ 26,989	€ 65,524	€ 387,562	€ 1,608,025	€ 1,278,930	€ 1,161,391
AMG	\$ 54,610	\$ 261,108	\$ 261,225	\$ 24,216	\$ 51,898.65	\$ 98,845	\$ (23,741)	\$ -	\$ 570,638	\$ 516,028
Arcadis	€ 101,488	€ 121,112	€ 263,805	€ 58,818	€ 8,201	€ 131,513	€ 188,881	€ 948,264	€ 736,470	€ 634,982
ASM International	€ 193,872	€ 226,965	€ 228,500	€ 140,539	€ 80,705	€ 381,204	€ 276,458	€ 854,800	€ 832,297	€ 638,425
Brunel International	€ 25,091	€ -	€ 26,880	€ 22,794	€ 7,205	€ 101,847	€ 113,592	€ 571,453	€ 178,491	€ 153,400
Crucell	€ 157,837	€ 39,446	€ 46,413	€ 139,816	€ 64,801	€ 226,819	€ 497,300	€ 1,259,757	€ 653,215	€ 495,378
CSM	€ 80,200	€ 515,800	€ 672,400	€ 130,700	€ 87,106	€ 324,400	€ 844,900	€ 2,074,023	€ 2,225,100	€ 2,144,900
Draka Holding	€ 10,100	€ 347,300	€ 506,300	€ 84,400	€ 24,409	€ 172,500	€ 439,100	€ 917,629	€ 1,745,000	€ 1,734,900
Heijmans	€ 192,930	€ 358,524	€ 690,337	€ 76,462	€ 41,664	€ 510,292	€ 441,843	€ 2,975,540	€ 2,129,877	€ 1,936,947
Imtech	€ 19,192	€ 61,034	€ 105,487	€ 64,555	€ 36,619	€ 174,476	€ 324,820	€ 1,262,669	€ 1,567,170	€ 1,547,978
Logica	£ 150,900	£ 726,800	£ 735,200	£ 105,100	£ 51,724.10	£ 106,600	£ 1,554,400	£ 1,775,917	£ 3,470,800	£ 3,319,900
Mediq	€ 21,252	€ 82,732	€ 163,875	€ 94,159	€ 109,374	€ 128,052	€ 511,218	€ 1,352,266	€ 1,050,848	€ 1,029,596
Nutreco	€ 495,900	€ 700	€ 324,100	€ -186,300	€ 158,347	€ 584,300	€ 749,600	€ 1,525,431	€ 1,799,100	€ 1,303,200
Ordina	€ 5,213	€ 45,000	€ 82,893	€ 40,214	€ 15,484	€ -4,665	€ 194,039	€ 653,640	€ 457,037	€ 451,824
Ten Cate, Kon.	€ -22,400	€ 88,700	€ 93,900	€ 93,400	€ 11,860	€ 149,700	€ 238,900	€ 484,456	€ 489,100	€ 511,500
Unit4	€ -17,284	€ 64,670	€ 106,465	€ 38,861	€ 10,396	€ -42,491	€ 133,031	€ 461,312	€ 379,006	€ 396,290
USG People	€ 12,589	€ 599,410	€ 650,739	€ 159,831	€ 63,845	€ -2,729	€ 575,549	€ 1,867,983	€ 1,899,782	€ 1,887,193
Vopak, Kon.	€ 88,400	€ 153,700	€ 543,600	€ 199,700	€ 78,499	€ -27,200	€ 735,200	€ 1,111,309	€ 1,820,600	€ 1,732,200
Wavin	€ 17,041	€ 614,776	€ 617,664	€ 129,347	€ 32,007	€ 157,661	€ 299,941	€ 3,745,640	€ 1,464,181	€ 1,447,140
Wessanen, Kon.	€ 12,400	€ 155,600	€ 163,200	€ 4,300	€ 135,206	€ 269,600	€ 480,000	€ 734,136	€ 950,700	€ 938,300
Accell Group	€ 118	€ 83,752	€ 96,588	€ 21,306	€ 6,243	€ 68,971	€ 91,918	€ 240,548	€ 245,568	€ 245,450

Antonov	£ 226	£ -	£ 1,257	-£ 3,185	£ 884.90	-£ 588	£ 1,985	£ 19,009	£ 3,242	£ 3,016
Arseus	€ 2,532	€ 4,037	€ 108,987	€ 17,385	€ 3,230	€ -14,043	€ 100,812	€ -	€ 285,458	€ 282,926
Ballast Nedam	€ 62,000	€ 67,000	€ 226,000	€ 55,000	€ 14,742	€ -14,000	€ 158,000	€ 327,690	€ 794,000	€ 732,000
Beter Bed	€ 8,544	€ 1,417	€ 15,182	€ 15,013	€ 4,556	€ 16,021	€ 42,701	€ 417,710	€ 82,957	€ 74,413
Dockwise	\$ 34,783	\$ 97,625	\$ 97,625	\$ 41,396	\$ 61,214.15	\$ (86,926)	\$ 209,835	\$ -	\$ 372,374	\$ 337,591
Exact Holding	€ 127,813	€ 3,029	€ 3,826	€ 17,136	€ 9,617	€ 105,893	€ 184,703	€ 588,303	€ 280,648	€ 152,835
Fornix BioSciences	€ 20,749	€ -	€ 4,793	€ 9,988	€ 3,799	€ 25,278	€ 40,506	€ 153,931	€ 57,056	€ 36,307
Gamma Holding	€ 22,100	€ 230,800	€ 230,800	€ 151,400	€ 206,176	€ 153,900	€ 189,500	€ 338,334	€ 672,900	€ 650,800
Grontmij	€ 26,000	€ 114,896	€ 117,707	€ 25,458	€ 9,541	€ 22,471	€ 138,708	€ 391,930	€ 533,810	€ 507,810
Innoconcepts	€ 12,577	€ 3,969	€ 31,417	€ 13,761	€ 28,233	€ 38,507	€ 77,226	€ 128,695	€ 108,540	€ 95,963
Machintosh Retail	€ 3,891	€ 86,136	€ 191,813	€ 53,503	€ 8,019	€ 89,451	€ 169,183	€ 567,837	€ 464,767	€ 460,876
Pharming Group	€ 31,253	€ -	€ 11,942	€ -17,288	€ 7,395	€ 33,212	€ 49,843	€ 371,877	€ 79,079	€ 47,826
Qurius	€ 4,820	€ 3,605	€ 37,089	€ 4,252	€ 11,436	€ -8,468	€ 33,474	€ 84,391	€ 87,767	€ 82,947
Sligro Food Group	€ 1,499	€ 223,988	€ 285,961	€ 72,571	€ 16,299	€ 137,197	€ 312,837	€ 1,092,006	€ 719,266	€ 717,767
Spyker Cars	€ -23,615	€ 25,052	€ 61,555	€ 1,070	€ 30,278	€ -25,366	€ 82,921	€ 117,997	€ 186,044	€ 209,659
Telegraaf	€ 67,347	€ 141,196	€ 412,951	€ 84,712	€ 322,723	€ 8,617	€ 504,528	€ 992,500	€ 1,042,573	€ 975,226
TKH Group	€ 9,970	€ 78,108	€ 79,139	€ 41,598	€ 18,184	€ 98,874	€ 221,226	€ 540,283	€ 465,287	€ 455,317
Ajax	€ 20,406	€ 14	€ 12,451	€ 11,796	€ 15,015	€ 9,245	€ 57,852	€ 149,967	€ 92,481	€ 72,075
Alanheri	€ 39	€ 6,325	€ 7,645	€ -417	€ 1,340	€ 2,418	€ 6,773	€ 6,892	€ 20,964	€ 20,925
Amsterdam Commodities	€ 3,327	€ 17,293	€ 18,171	€ 3,924	€ 1,123	€ 16,698	€ 29,280	€ 63,379	€ 57,344	€ 54,017
AMT Holding	€ 14,058	€ -	€ 2,782	€ -8,441	€ 3,767	€ 12,772	€ -1,682	€ 2,999	€ 18,218	€ 4,160
AND Intl Publishers	€ 977	€ -	€ 417	€ 769	€ 352	€ 541	€ 11,177	€ 24,031	€ 14,683	€ 13,706
Batenburg	€ 12,452	€ -	€ 10,758	€ 4,396	€ 2,018	€ 23,538	€ 38,753	€ 58,536	€ 70,952	€ 58,500
BE Semiconductor	€ 98,012	€ 35,740	€ 82,802	€ 20,012	€ 11,215	€ 142,276	€ 194,531	€ 146,815	€ 314,008	€ 215,996
Brill, Kon.	€ 2,000	€ 4,702	€ 7,203	€ -122	€ 1,738	€ 5,485	€ 16,113	€ 38,009	€ 35,687	€ 33,687
Crown Van Gelder	€ 1,644	€ 16,249	€ 22,744	€ 7,585	€ 9,152	€ 20,145	€ 115,907	€ 51,000	€ 154,619	€ 152,975
Cryo Save Group	€ 3,185	€ -	€ 985	€ 2,200	€ 937	€ 6,871	€ 4,647	€ 4,620	€ 10,249	€ 7,064
Ctac	€ 4,668	€ 1,500	€ 4,170	€ 1,779	€ 3,082	€ 5,840	€ 10,522	€ 40,975	€ 19,405	€ 14,737
DOC Data	€ 5,831	€ 1,698	€ 11,092	€ 2,351	€ 3,536	€ 7,006	€ 22,414	€ 50,066	€ 45,902	€ 40,071
DPA Group	€ 1,160	€ 1,000	€ 3,106	€ 3,193	€ 6,858	€ 8,366	€ 30,599	€ 82,026	€ 48,080	€ 46,920

Galapagos	€	51,519	€	-	€	9,314	€	-6,599	€	9,459	€	50,209	€	109,542	€	190,771	€	156,261	€	104,742	
HES Beheer	€	12,718	€	7,177	€	7,177	€	10,442	€	2,710	€	8,262	€	57,318	€	123,580	€	84,931	€	72,213	
HITT	€	2,719	€	4,910	€	6,688	€	4,890	€	1,903	€	9,384	€	13,550	€	27,789	€	26,839	€	24,120	
Holland Colours	€	-2,797	€	9,421	€	13,495	€	3,697	€	1,000	€	15,647	€	22,353	€	43,491	€	46,442	€	49,239	
Hunter Douglas	\$	87,000	\$	78,000	\$	475,000	\$	296,000	\$	164,568.88	\$	1,352,000	\$	1,683,000	\$	3,344,073	\$	2,972,000	\$	2,885,000	
Hydratec	€	1,787	€	217	€	2,093	€	2,886	€	4,151	€	6,524	€	12,862	€	23,200	€	18,878	€	17,091	
ICT Automatisering	€	17,118	€	3,300	€	10,127	€	1,617	€	3,275	€	25,134	€	38,662	€	119,485	€	57,357	€	40,239	
Kendrion	€	-3,700	€	92,800	€	102,200	€	23,900	€	8,430	€	65,600	€	83,800	€	196,501	€	291,500	€	295,200	
LBI International	185,400 kr		21,400 kr		113,000 kr		131,300 kr		383,947.36 kr		309,600 kr		1,903,100 kr		2,183,130 kr		2,344,100 kr		2,158,700 kr		
Nedap	€	-3,542	€	7,388	€	22,917	€	11,417	€	7,423	€	24,787	€	53,956	€	185,729	€	102,061	€	105,603	
Nedsense Enterprice	€	-3,702	€	6,992	€	11,835	€	-969	€	4,706	€	-10,009	€	3,268	€	9,518	€	30,192	€	33,894	
Neways Electronics	€	-3,594	€	11,132	€	13,971	€	14,786	€	8,990	€	33,886	€	37,578	€	90,661	€	105,752	€	109,346	
Oce	€	84,996	€	197,632	€	749,878	€	210,084	€	50,975	€	391,272	€	721,445	€	1,057,322	€	2,606,229	€	2,521,233	
Octoplus	€	19,553	€	1,482	€	4,826	€	-7,605	€	5,822	€	15,628	€	21,142	€	72,090	€	32,266	€	12,713	
Oranjewoud A	€	26,010	€	2,489	€	29,756	€	16,510	€	5,959	€	35,996	€	65,716	€	171,278	€	144,363	€	118,353	
Porceleyne Fles	€	-489	€	562	€	562	€	150	€	2,466	€	1,143	€	3,695	€	3,520	€	4,905	€	5,394	
Punch Graphix	€	937	€	7,011	€	7,586	€	-1,736	€	17,443	€	-2,751	€	28,633	€	45,596	€	52,991	€	52,054	
RoodMicro Tec	€	-718	€	2,816	€	4,787	€	1,289	€	707	€	-897	€	3,335	€	17,649	€	11,174	€	11,892	
Roto Smeets	€	1,794	€	-	€	21,223	€	38,019	€	15,847	€	3,954	€	135,717	€	131,611	€	325,517	€	323,723	
Royal Dutch Shell B	\$	9,002,000	\$	2,500,000	\$	15,773,000	\$	38,917,858	\$	9,901,034.53	\$	15,137,000	\$	114,945,000	\$	95,588,156	\$	235,276,000	\$	226,274,000	
Simac Techniek	€	7,152	€	3,371	€	9,225	€	2,177	€	1,223	€	2,628	€	11,939	€	32,745	€	62,830	€	55,678	
Sopheon Plc	£	1,034	£	414	£	414	£	35	£	674.25	£	657	£	1,620	£	30,590	£	4,486	£	3,452	
Stern Groep	€	1,351	€	20,909	€	171,837	€	20,187	€	5,459	€	-23,559	€	114,888	€	193,500	€	407,885	€	406,534	
Thunderbird	\$	7,353	\$	10,950	\$	46,098	\$	1,483	\$	23,111	\$	(4,036)	\$	(2,302)	\$	49,380	\$	67,384	\$	60,031	
Tie Holding	€	166	€	195	€	195	€	1,703	€	1,309	€	-2,197	€	4,789	€	16,652	€	9,555	€	9,389	
TMC	€	4,999	€	2	€	2	€	1,939	€	1,888	€	6,697	€	6,804	€	45,498	€	10,024	€	5,025	
Value8	€	3,904	€	-	€	761	€	1,615	€	2,632	€	4,354	€	4,281	€	56,416	€	6,124	€	2,220	
Vivenda Media Group	€	50	€	741	€	741	€	884	€	5,131	€	4,291	€	8,506	€	1,258,516	€	9,247	€	9,197	
Wegener	€	5,470	€	151,678	€	336,622	€	45,936	€	8,549	€	-155,305	€	273,296	€	490,033	€	770,891	€	765,421	

Name company	(amount in thousands)				Current assets	Current liabilities	Cash and - equivalents	Net working capital	Closed share price 31 dec	Outstanding shares	Equity (market value)
	31-Dec-2006	Net income	Deprec. & Amort.	Dividends paid								Cash flow
Ahold, Kon.	€ 915,000	€ 920,000	€ -	€ 1,835,000	€ 6,656,000	€ 5,821,000	€ 1,844,000	€ 835,000	€ 8.060	1,555,678,000	€ 12,538,765
Air-France KLM	€ 887,000	€ 1,790,000	€ 88,000	€ 2,589,000	€ 8,434,000	€ 8,160,000	€ 3,364,000	€ 274,000	€ 34.010	279,365,707	€ 9,501,228
Akzo Nobel	€ 1,182,000	€ 371,000	€ 369,000	€ 1,184,000	€ 8,649,000	€ 3,958,000	€ 1,631,000	€ 4,691,000	€ 46.210	287,268,350	€ 13,274,670
ArcelorMittal	\$ 7,994,000	\$ 3,448,000	\$ 2,480,000	\$ 8,962,000	\$ 39,413,000	\$ 24,560,000	\$ 6,146,000	\$ 14,853,000	\$ 40.131	1,383,000,000	\$ 55,501,173
ASML Holding	€ 618,548	€ 87,092	€ -	€ 705,640	€ 3,426,038	€ 1,181,413	€ 1,655,857	€ 2,244,625	€ 19.192	477,099,245	€ 9,156,489
BAM Groep, Kon. Boskalis Westminster, Kon.	€ 137,636	€ 98,901	€ 53,989	€ 182,548	€ 4,412,356	€ 3,816,194	€ 551,163	€ 596,162	€ 11.617	122,371,460	€ 1,421,589
DSM, Kon.	€ 117,058	€ 86,582	€ 31,460	€ 172,180	€ 839,099	€ 841,162	€ 206,077	€ -2,063	€ 24.517	85,799,361	€ 2,103,543
Fugro	€ 552,000	€ 451,000	€ 213,000	€ 790,000	€ 3,888,000	€ 2,410,000	€ 552,000	€ 1,478,000	€ 37.330	184,849,837	€ 6,900,444
Heineken	€ 141,749	€ 84,381	€ 19,335	€ 206,795	€ 595,703	€ 444,930	€ 28,169	€ 150,773	€ 36.200	68,838,805	€ 2,491,965
KPN, Kon.	€ 1,345,000	€ 786,000	€ 297,000	€ 1,834,000	€ 4,237,000	€ 4,008,000	€ 627,000	€ 229,000	€ 36.030	245,011,848	€ 8,827,777
Philips, Kon.	€ 1,583,000	€ 2,614,000	€ 982,000	€ 3,215,000	€ 3,058,000	€ 3,849,000	€ 803,000	€ -791,000	€ 10.770	1,928,551,326	€ 20,770,498
Randstad	€ 5,383,000	€ 810,000	€ 523,000	€ 5,670,000	€ 14,962,000	€ 9,130,000	€ 5,886,000	€ 5,832,000	€ 28.570	1,106,893,000	€ 31,623,933
Reed Elsevier	€ 360,300	€ 59,600	€ 99,100	€ 320,800	€ 1,795,600	€ 1,273,400	€ 250,300	€ 522,200	€ 52.400	116,096,328	€ 6,083,448
Royal Dutch Shell A	€ 458,000	€ 12,000	€ 272,000	€ 198,000	€ 151,000	€ 72,000	€ 148,000	€ 79,000	€ 12.957	8,958,000	€ 116,069
SBM Offshore	\$ 26,311,000	\$ 12,615,000	\$ 8,142	\$ 38,917,858	\$ 91,885,000	\$ 76,748,000	\$ 9,002,000	\$ 15,137,000	\$ 35.305	3,585,194,588	\$ 126,575,295
TNT	\$ 216,339	\$ 223,268	\$ 72,069	\$ 367,538	\$ 1,161,302	\$ 1,017,422	\$ 339,687	\$ 143,880	\$ 34.420	140,715,535	\$ 4,843,429
TOMTOM	€ 671,000	€ 318,000	€ 282,000	€ 707,000	€ 2,122,000	€ 2,542,000	€ 297,000	€ -420,000	€ 31.785	422,767,600	€ 13,437,668
Unilever	€ 222,181	€ 18,193	€ -	€ 240,374	€ 843,798	€ 341,196	€ 437,801	€ 502,602	€ 27.043	117,155,643	€ 3,168,240
Wolters Kluwer	€ 5,015,000	€ 982,000	€ 2,602,000	€ 3,395,000	€ 9,501,000	€ 13,884,000	€ 710,000	€ -4,383,000	€ 20.700	15,270,180	€ 316,093
Aalberts Industries	€ 322,000	€ 200,000	€ 80,000	€ 442,000	€ 1,265,000	€ 2,834,000	€ 138,000	€ -1,569,000	€ 21.790	306,000,000	€ 6,667,740
AMG	€ 101,025	€ 61,411	€ 12,131	€ 150,305	€ 548,501	€ 482,977	€ 117,539	€ 65,524	€ 16.375	98,200,000	€ 1,608,025
Arcadis	\$ 5,687	\$ 18,529	\$ -	\$ 24,216	\$ 384,469	\$ 285,624	\$ 54,610	\$ 98,845	€ -	450	\$ -
ASM International	€ 46,405	€ 26,003	€ 13,590	€ 58,818	€ 501,764	€ 370,251	€ 101,488	€ 131,513	€ 15.567	60,915,000	€ 948,264
Brunel International	€ 89,216	€ 51,323	€ -	€ 140,539	€ 616,518	€ 235,314	€ 193,872	€ 381,204	€ 15.880	53,828,745	€ 854,800
Crucell	€ 26,702	€ 2,981	€ 6,889	€ 22,794	€ 163,404	€ 61,557	€ 25,091	€ 101,847	€ 25.220	22,658,742	€ 571,453
	€ 87,565	€ 52,251	€ -	€ 139,816	€ 317,071	€ 90,252	€ 157,837	€ 226,819	€ 19.440	64,802,325	€ 1,259,757

CSM	€	104,700	€	83,800	€	57,800	€	130,700	€	869,500	€	545,100	€	80,200	€	324,400	€	29.170	71,101,226	€	2,074,023
Draka Holding	€	23,400	€	61,000	€	-	€	84,400	€	937,000	€	764,500	€	10,100	€	172,500	€	25.800	35,567,000	€	917,629
Heijmans	€	82,540	€	28,827	€	34,905	€	76,462	€	1,682,948	€	1,172,656	€	192,930	€	510,292	€	123.607	24,072,584	€	2,975,540
Imtech	€	69,065	€	24,204	€	28,714	€	64,555	€	1,196,188	€	1,021,712	€	19,192	€	174,476	€	16.047	78,685,689	€	1,262,669
Logica	£	89,100	£	78,700	£	62,700	£	105,100	£	1,281,600	£	1,175,000	£	150,900	£	106,600	£	186.000	9,547,941	£	1,775,917
Mediq	€	102,533	€	17,110	€	25,484	€	94,159	€	496,440	€	368,388	€	21,252	€	128,052	€	22.250	60,776,000	€	1,352,266
Nutreco	€	105,300	€	41,400	€	333,000	€	-186,300	€	1,344,800	€	760,500	€	495,900	€	584,300	€	44.990	33,906,000	€	1,525,431
Ordina	€	25,828	€	21,891	€	7,505	€	40,214	€	185,874	€	190,539	€	5,213	€	-4,665	€	16.760	39,000,000	€	653,640
Ten Cate, Kon.	€	76,100	€	23,100	€	5,800	€	93,400	€	292,600	€	142,900	€	-22,400	€	149,700	€	23.000	21,063,292	€	484,456
Unit4	€	18,432	€	20,429	€	-	€	38,861	€	106,288	€	148,779	€	-17,284	€	-42,491	€	17.780	25,945,533	€	461,312
USG People	€	111,282	€	61,151	€	12,602	€	159,831	€	833,300	€	836,029	€	12,589	€	-2,729	€	29.643	63,016,000	€	1,867,983
Vopak, Kon.	€	146,900	€	93,300	€	40,500	€	199,700	€	359,100	€	386,300	€	88,400	€	-27,200	€	17.795	62,450,656	€	1,111,309
Wavin	€	73,416	€	57,993	€	2,062	€	129,347	€	549,561	€	391,900	€	17,041	€	157,661	€	48.237	77,650,764	€	3,745,640
Wessanen, Kon.	€	33,600	€	17,000	€	46,300	€	4,300	€	576,100	€	306,500	€	12,400	€	269,600	€	10.250	71,623,000	€	734,136
Accell Group	€	18,387	€	4,894	€	1,975	€	21,306	€	174,414	€	105,443	€	118	€	68,971	€	26.000	9,251,838	€	240,548
Antonov	-£	3,396	£	211	£	-	-£	3,185	£	660	£	1,248	£	226	-£	588	£	8.209	2,315,647	£	19,009
Arseus	€	12,123	€	5,262	€	-	€	17,385	€	112,446	€	126,489	€	2,532	€	-14,043	€	-	0	€	-
Ballast Nedam	€	44,000	€	21,000	€	10,000	€	55,000	€	541,000	€	555,000	€	62,000	€	-14,000	€	33.020	9,924,000	€	327,690
Beter Bed	€	23,830	€	6,117	€	14,934	€	15,013	€	54,726	€	38,705	€	8,544	€	16,021	€	19.300	21,643,000	€	417,710
Dockwise	\$	60,495	\$	34,518	\$	53,617	\$	41,396	\$	75,613	\$	162,539	\$	34,783	\$	(86,926)	\$	-	0	\$	-
Exact Holding	€	34,390	€	6,674	€	23,928	€	17,136	€	185,223	€	79,330	€	127,813	€	105,893	€	24.480	24,032,000	€	588,303
Fornix BioSciences	€	12,446	€	691	€	3,149	€	9,988	€	41,193	€	15,915	€	20,749	€	25,278	€	22.180	6,940,074	€	153,931
Gamma Holding	€	28,000	€	138,500	€	15,100	€	151,400	€	336,700	€	182,800	€	22,100	€	153,900	€	45.000	7,518,535	€	338,334
Grontmij	€	22,053	€	11,888	€	8,483	€	25,458	€	222,680	€	200,209	€	26,000	€	22,471	€	22.062	17,764,920	€	391,930
Innoconcepts	€	14,199	€	1,273	€	1,711	€	13,761	€	46,287	€	7,780	€	12,577	€	38,507	€	6.048	21,278,967	€	128,695
Machintosh Retail	€	46,004	€	20,576	€	13,077	€	53,503	€	196,437	€	106,986	€	3,891	€	89,451	€	25.500	22,268,118	€	567,837
Pharming Group	€	-18,496	€	1,208	€	-	€	-17,288	€	42,405	€	9,193	€	31,253	€	33,212	€	4.190	88,753,511	€	371,877
Qurius	€	3,201	€	1,051	€	-	€	4,252	€	33,397	€	41,865	€	4,820	€	-8,468	€	1.130	74,682,619	€	84,391
Sligro Food Group	€	62,079	€	28,583	€	18,091	€	72,571	€	311,954	€	174,757	€	1,499	€	137,197	€	25.750	42,408,000	€	1,092,006
Spyker Cars	€	-1,341	€	2,411	€	-	€	1,070	€	54,907	€	80,273	€	-23,615	€	-25,366	€	19.000	6,210,378	€	117,997

Telegraaf	€	49,181	€	58,631	€	23,100	€	84,712	€	248,772	€	240,155	€	67,347	€	8,617	€	19.850	50,000,000	€	992,500
TKH Group	€	35,366	€	11,477	€	5,245	€	41,598	€	285,641	€	186,767	€	9,970	€	98,874	€	16.025	33,715,000	€	540,283
Ajax	€	10,420	€	1,376	€	-	€	11,796	€	40,598	€	31,353	€	20,406	€	9,245	€	8.180	18,333,333	€	149,967
Alanheri Amsterdam Commodities	€	-636	€	219	€	-	€	-417	€	16,326	€	13,908	€	39	€	2,418	€	10.300	669,112	€	6,892
AMT Holding	€	7,826	€	182	€	4,084	€	3,924	€	43,612	€	26,914	€	3,327	€	16,698	€	3.880	16,334,866	€	63,379
AND Intl Publishers	€	-8,760	€	319	€	-	€	-8,441	€	15,587	€	2,815	€	14,058	€	12,772	€	1.530	1,960,000	€	2,999
Batenburg	€	688	€	81	€	-	€	769	€	2,609	€	2,068	€	977	€	541	€	7.850	3,061,266	€	24,031
BE Semiconductor	€	4,917	€	1,639	€	2,160	€	4,396	€	52,547	€	29,009	€	12,452	€	23,538	€	24.390	2,400,000	€	58,536
Brill, Kon.	€	10,799	€	9,213	€	-	€	20,012	€	203,910	€	61,634	€	98,012	€	142,276	€	4.480	32,771,105	€	146,815
Crown Van Gelder	€	-1,036	€	1,163	€	249	€	-122	€	21,097	€	15,612	€	2,000	€	5,485	€	21.000	1,809,965	€	38,009
Cryo Save Group	€	2,282	€	9,659	€	4,356	€	7,585	€	52,186	€	32,041	€	1,644	€	20,145	€	17.000	3,000,000	€	51,000
Ctac	€	2,045	€	155	€	-	€	2,200	€	9,434	€	2,563	€	3,185	€	6,871	€	0.650	7,107,450	€	4,620
DOC Data	€	2,123	€	716	€	1,060	€	1,779	€	14,693	€	8,853	€	4,668	€	5,840	€	4.640	8,830,879	€	40,975
DPA Group	€	136	€	5,056	€	2,841	€	2,351	€	27,576	€	20,570	€	5,831	€	7,006	€	6.850	7,308,850	€	50,066
Galapagos	€	-24,721	€	27,914	€	-	€	3,193	€	23,212	€	14,846	€	1,160	€	8,366	€	7.794	10,524,262	€	82,026
HES Beheer	€	-11,335	€	4,736	€	-	€	-6,599	€	79,864	€	29,655	€	51,519	€	50,209	€	9.610	19,851,330	€	190,771
HITT	€	8,845	€	4,660	€	3,063	€	10,442	€	25,041	€	16,779	€	12,718	€	8,262	€	14.120	8,752,136	€	123,580
Holland Colours	€	1,860	€	3,546	€	516	€	4,890	€	16,903	€	7,519	€	2,719	€	9,384	€	5.920	4,694,158	€	27,789
Hunter Douglas	€	1,918	€	3,156	€	1,377	€	3,697	€	32,221	€	16,574	€	-2,797	€	15,647	€	50.550	860,351	€	43,491
Hydratec	\$	328,000	\$	70,000	\$	102,000	\$	296,000	\$	2,192,000	\$	840,000	\$	87,000	\$	1,352,000	\$	79.807	41,902,000	\$	3,344,073
ICT Automatisering	€	2,241	€	1,532	€	887	€	2,886	€	12,063	€	5,539	€	1,787	€	6,524	€	19.610	1,183,094	€	23,200
Kendrion	€	6,212	€	698	€	5,293	€	1,617	€	42,429	€	17,295	€	17,118	€	25,134	€	14.580	8,195,139	€	119,485
LBI International	€	14,300	€	9,700	€	100	€	23,900	€	182,000	€	116,400	€	-3,700	€	65,600	€	19.100	10,288,000	€	196,501
Nedap		89,600 kr		41,700 kr		- kr		131,300 kr		665,900 kr		356,300 kr		185,400 kr		309,600 kr		47.448 kr	46,011,000		2,183,130 kr
Nedsense Enterprice	€	12,424	€	6,797	€	7,804	€	11,417	€	52,688	€	27,901	€	-3,542	€	24,787	€	27.750	6,692,920	€	185,729
Neways Electronics	€	-6,574	€	5,605	€	-	€	-969	€	15,159	€	25,168	€	-3,702	€	-10,009	€	2.710	3,512,120	€	9,518
Oce	€	11,154	€	3,801	€	169	€	14,786	€	92,584	€	58,698	€	-3,594	€	33,886	€	9.750	9,298,615	€	90,661
Octopus	€	57,123	€	203,850	€	50,889	€	210,084	€	1,197,379	€	806,107	€	84,996	€	391,272	€	12.590	83,981,134	€	1,057,322
	€	-8,665	€	1,060	€	-	€	-7,605	€	23,134	€	7,506	€	19,553	€	15,628	€	4.460	16,163,576	€	72,090

Oranjewoud A	€ 11,467	€ 5,043	€ -	€ 16,510	€ 93,518	€ 57,522	€ 26,010	€ 35,996	€ 4.940	34,671,731	€ 171,278
Porceleyne Fles	€ 13	€ 137	€ -	€ 150	€ 2,037	€ 894	€ -489	€ 1,143	€ 13.170	267,245	€ 3,520
Punch Graphix	€ -2,977	€ 1,241	€ -	€ -1,736	€ 21,032	€ 23,783	€ 937	€ -2,751	€ 9.930	4,591,764	€ 45,596
RoodMicro Tec	€ 141	€ 1,184	€ 36	€ 1,289	€ 2,309	€ 3,206	€ -718	€ -897	€ 0.660	26,741,000	€ 17,649
Roto Smeets	€ 7,605	€ 36,199	€ 5,785	€ 38,019	€ 123,223	€ 119,269	€ 1,794	€ 3,954	€ 40.000	3,290,275	€ 131,611
Royal Dutch Shell B	\$ 26,311,000	\$ 12,615,000	\$ 8,142	\$ 38,917,858	\$ 91,885,000	\$ 76,748,000	\$ 9,002,000	\$ 15,137,000	\$ 35.226	2,713,568,281	\$ 95,588,156
Simac Techniek	€ 490	€ 1,957	€ 270	€ 2,177	€ 44,314	€ 41,686	€ 7,152	€ 2,628	€ 2.290	14,299,000	€ 32,745
Sopheon Plc	-£ 303	£ 338	£ -	£ 35	£ 3,518	£ 2,861	£ 1,034	£ 657	£ 0.229	133,579,027	£ 30,590
Stern Groep	€ 12,607	€ 7,667	€ 87	€ 20,187	€ 170,216	€ 193,775	€ 1,351	€ -23,559	€ 37.500	5,160,000	€ 193,500
Thunderbird	\$ (3,961)	\$ 5,444	\$ -	\$ 1,483	\$ 18,907	\$ 22,943	\$ 7,353	\$ (4,036)	\$ 1.960	25,194,128	\$ 49,380
Tie Holding	€ 1,041	€ 662	€ -	€ 1,703	€ 2,233	€ 4,430	€ 166	€ -2,197	€ 0.380	43,821,000	€ 16,652
TMC	€ 1,913	€ 26	€ -	€ 1,939	€ 9,917	€ 3,220	€ 4,999	€ 6,697	€ 14.000	3,249,845	€ 45,498
Value8	€ 1,465	€ 150	€ -	€ 1,615	€ 5,797	€ 1,443	€ 3,904	€ 4,354	€ 32.000	1,763,000	€ 56,416
Vivenda Media Group	€ 884	€ -	€ -	€ 884	€ 5,032	€ 741	€ 50	€ 4,291	€ 73.000	17,239,939	€ 1,258,516
Wegener	€ 29,108	€ 23,245	€ 6,417	€ 45,936	€ 93,026	€ 248,331	€ 5,470	€ -155,305	€ 10.990	44,589,000	€ 490,033

31-Dec-2007	(amount in thousands)									
Name company	Cash and - equivalents	Bank debt	Total debt	Cash flow	SD cash flow	Net working capital	Equity (book value)	Equity (market value)	Total assets	Net assets
Ahold, Kon.	€ 3,263,000	€ 3,327,000	€ 5,379,000	€ 3,650,000	€ 1,028,194	€ 894,000	€ 3,887,000	€ 11,168,417	€ 13,944,000	€ 10,681,000
Air-France KLM	€ 4,209,000	€ 172,000	€ 7,991,000	€ 2,253,000	€ 1,059,144	€ 957,000	€ 10,614,000	€ 5,331,894	€ 30,690,000	€ 26,481,000
Akzo Nobel	€ 11,067,000	€ 572,000	€ 3,589,000	€ 9,318,000	€ 4,637,890	€ 10,540,000	€ 11,129,000	€ 14,372,665	€ 19,243,000	€ 8,176,000
ArcelorMittal	\$ 8,105,000	\$ 26,763,000	\$ 30,627,000	\$12,669,000	\$ 4,350,637.68	\$ 13,119,000	\$ 61,535,000	\$ 105,082,502	\$ 133,625,000	\$ 125,520,000
ASML Holding	€ 1,271,636	€ 602,016	€ 884,969	€ 797,345	€ 407,449	€ 1,997,988	€ 1,891,004	€ 9,435,658	€ 4,073,128	€ 2,801,492
BAM Groep, Kon.	€ 566,261	€ 1,388,858	€ 2,198,623	€ 392,766	€ 138,932	€ 1,060,651	€ 1,004,351	€ 1,992,510	€ 6,985,472	€ 6,419,211
Boskalis Westminster, Kon.	€ 350,354	€ 44,436	€ 87,081	€ 251,260	€ 89,531	€ 12,161	€ 776,736	€ 3,574,401	€ 2,200,108	€ 1,849,754
DSM, Kon.	€ 369,000	€ 149,000	€ 1,752,000	€ 665,000	€ 65,658	€ 1,627,000	€ 5,383,000	€ 5,395,775	€ 9,828,000	€ 9,459,000
Fugro	€ 6,469	€ 278,443	€ 534,860	€ 313,677	€ 91,253	€ 171,347	€ 707,022	€ 3,689,597	€ 1,700,130	€ 1,693,661
Heineken	€ 433,000	€ 954,000	€ 2,676,000	€ 1,286,000	€ 389,339	€ -349,000	€ 5,946,000	€ 10,834,424	€ 12,968,000	€ 12,535,000

KPN, Kon.	€ 1,148,000	€ 12,145,000	€ 12,239,000	€ 4,067,000	€ 1,676,214	€ -2,517,000	€ 4,518,000	€ 22,932,919	€ 24,797,000	€ 23,649,000
Philips, Kon.	€ 8,769,000	€ 3,267,000	€ 3,557,000	€ 4,380,000	€ 2,393,078	€ 8,198,000	€ 21,684,000	€ 31,435,641	€ 36,343,000	€ 27,574,000
Randstad	€ 315,800	€ 460,000	€ 528,300	€ 298,400	€ 111,600	€ 639,600	€ 1,022,400	€ 3,150,717	€ 3,317,200	€ 3,001,400
Reed Elsevier	€ 9,000	€ 9,000	€ 9,000	€ 555,000	€ 714,626	€ -59,000	€ 2,016,000	€ 56,115	€ 2,089,000	€ 2,080,000
Royal Dutch Shell A	\$ 9,656,000	\$ 2,500,000	\$ 18,099,000	\$36,105,000	\$ 9,901,034.53	\$ 21,013,000	\$ 125,968,000	\$ 147,083,695	\$ 269,470,000	\$ 259,814,000
SBM Offshore	\$ 274,088	\$ 988,517	\$ 1,155,373	\$ 454,764	\$ 50,606.44	\$ 204,978	\$ 1,337,734	\$ 4,543,361	\$ 3,634,622	\$ 3,360,534
TNT	€ 295,000	€ 2,085,000	€ 2,482,000	€ 1,085,000	€ 200,021	€ -650,000	€ 1,951,000	€ 10,713,085	€ 7,085,000	€ 6,790,000
TOMTOM	€ 463,339	€ 200,000	€ 326,639	€ 340,720	€ 532,198	€ 479,444	€ 1,352,350	€ 6,140,637	€ 1,969,591	€ 1,506,252
Unilever	€ 901,000	€ 9,119,000	€ 9,649,000	€ 2,897,000	€ 705,361	€ -3,631,000	€ 12,819,000	€ 423,621	€ 37,302,000	€ 36,401,000
Wolters Kluwer	€ 152,000	€ 1,948,000	€ 1,954,000	€ 1,008,000	€ 290,576	€ -1,521,000	€ 1,214,000	€ 6,319,982	€ 5,276,000	€ 5,124,000
Aalberts Industries	€ 93,739	€ 390,114	€ 514,801	€ 177,695	€ 26,989	€ 90,692	€ 538,223	€ 1,387,200	€ 1,434,495	€ 1,340,756
AMG	\$ 172,558	\$ 127,991	\$ 133,030	\$ 26,765	\$ 51,898.65	\$ 307,537	\$ 309,797	\$ 2,019,344	\$ 896,547	\$ 723,989
Arcadis	€ 92,608	€ 207,228	€ 226,302	€ 67,674	€ 8,201	€ 96,020	€ 187,715	€ 2,861,745	€ 921,673	€ 829,065
ASM International	€ 157,923	€ 180,461	€ 186,936	€ 145,603	€ 80,705	€ 392,213	€ 318,878	€ 904,587	€ 840,333	€ 682,410
Brunel International	€ 39,665	€ -	€ 25,978	€ 28,271	€ 7,205	€ 121,812	€ 135,447	€ 371,836	€ 197,873	€ 158,208
Crucell	€ 163,248	€ 1,347	€ 52,795	€ -17,816	€ 64,801	€ 226,819	€ 497,683	€ 744,976	€ 653,961	€ 490,713
CSM	€ 37,700	€ 405,900	€ 493,300	€ 288,400	€ 87,106	€ 275,300	€ 957,700	€ 1,507,975	€ 2,048,300	€ 2,010,600
Draka Holding	€ 4,500	€ 583,600	€ 611,600	€ 131,900	€ 24,409	€ 331,600	€ 400,500	€ 950,440	€ 1,751,200	€ 1,746,700
Heijmans	€ 234,406	€ 226,805	€ 600,131	€ 57,199	€ 41,664	€ 488,581	€ 462,478	€ 621,795	€ 2,205,067	€ 1,970,661
Imtech	€ 49,462	€ 171,545	€ 215,935	€ 97,192	€ 36,619	€ 138,186	€ 370,102	€ 1,327,659	€ 1,891,130	€ 1,841,668
Logica	£ 99,600	£ 585,800	£ 594,600	£ 208,600	£ 51,724.10	-£ 78,800	£ 1,625,300	£ 1,423,361	£ 3,345,800	£ 3,246,200
Mediq	€ 11,865	€ 113,954	€ 189,857	€ 84,994	€ 109,374	€ 134,566	€ 578,279	€ 1,136,903	€ 1,172,155	€ 1,160,290
Nutreco	€ 135,400	€ -	€ 497,600	€ 128,300	€ 158,347	€ 262,000	€ 651,200	€ 728,625	€ 1,992,500	€ 1,857,100
Ordina	€ 11,723	€ -	€ 96,309	€ 53,061	€ 15,484	€ -14,238	€ 254,591	€ 803,400	€ 532,153	€ 520,430
Ten Cate, Kon.	€ -7,700	€ 232,000	€ 235,200	€ 74,500	€ 11,860	€ 198,800	€ 310,400	€ 501,039	€ 721,900	€ 729,600
Unit4	€ 15,387	€ 39,478	€ 100,990	€ 36,627	€ 10,396	€ -883	€ 165,201	€ 512,111	€ 371,531	€ 356,144
USG People	€ 43,532	€ 577,213	€ 624,559	€ 158,633	€ 63,845	€ 107,030	€ 685,712	€ 1,181,896	€ 1,959,449	€ 1,915,917
Vopak, Kon.	€ 110,300	€ 117,700	€ 698,300	€ 256,200	€ 78,499	€ -54,500	€ 879,900	€ 2,423,085	€ 2,133,100	€ 2,022,800
Wavin	€ 19,454	€ 561,863	€ 563,763	€ 124,322	€ 32,007	€ 129,370	€ 369,774	€ 718,347	€ 1,491,509	€ 1,472,055
Wessanen, Kon.	€ 50,100	€ 208,500	€ 212,300	€ 26,300	€ 135,206	€ 248,400	€ 429,700	€ 735,314	€ 912,800	€ 862,700

Accell Group	€	208	€	97,295	€	109,953	€	21,852	€	6,243	€	92,868	€	107,081	€	235,045	€	277,631	€	277,423
Antonov	£	98	£	-	£	2,377	-£	3,920	£	884.90	-£	820	£	4,213	£	4,219	£	6,590	£	6,492
Arseus	€	27,789	€	74,570	€	87,508	€	25,112	€	3,230	€	-976	€	178,225	€	245,576	€	347,467	€	319,678
Ballast Nedam	€	52,000	€	142,000	€	306,000	€	35,000	€	14,742	€	66,000	€	172,000	€	280,170	€	898,000	€	846,000
Beter Bed	€	-7,505	€	14,065	€	30,663	€	12,809	€	4,556	€	13,339	€	45,066	€	384,774	€	95,160	€	102,665
Dockwise	\$	15,494	\$	1,790	\$	937,841	\$	7,277	\$	61,214.15	\$	18,380	\$	553,950	\$	4,212,000	\$	1,603,191	\$	1,587,697
Exact Holding	€	69,031	€	679	€	1,382	€	-6,035	€	9,617	€	42,212	€	165,643	€	595,273	€	275,024	€	205,993
Fornix BioSciences	€	33,235	€	-	€	4,677	€	8,621	€	3,799	€	33,571	€	49,208	€	136,529	€	59,187	€	25,952
Gamma Holding	€	25,300	€	232,900	€	232,900	€	153,800	€	206,176	€	147,200	€	201,200	€	416,602	€	632,600	€	607,300
Grontmij	€	17,631	€	97,325	€	102,211	€	37,644	€	9,541	€	55,581	€	157,203	€	429,556	€	529,236	€	511,605
Innoconcepts	€	14,181	€	28,661	€	32,166	€	18,559	€	28,233	€	37,928	€	106,125	€	170,948	€	150,678	€	136,497
Machintosh Retail	€	3,508	€	88,526	€	175,322	€	56,806	€	8,019	€	105,974	€	198,707	€	515,062	€	403,176	€	399,668
Pharming Group	€	65,266	€	49,768	€	65,899	€	-34,204	€	7,395	€	55,154	€	34,691	€	120,430	€	114,348	€	49,082
Qurius	€	4,375	€	14,976	€	44,405	€	5,196	€	11,436	€	2,572	€	71,586	€	73,803	€	138,855	€	134,480
Sligro Food Group	€	-29,250	€	229,648	€	309,007	€	103,488	€	16,299	€	56,203	€	374,775	€	1,155,562	€	857,973	€	887,223
Spyker Cars	€	-3,121	€	7,213	€	17,236	€	-70,570	€	30,278	€	-15,110	€	24,847	€	40,257	€	68,012	€	71,133
Telegraaf	€	496,025	€	2,543	€	248,343	€	449,024	€	322,723	€	411,010	€	870,836	€	1,243,505	€	1,233,211	€	737,186
TKH Group	€	9,653	€	173,366	€	174,170	€	54,662	€	18,184	€	96,838	€	265,853	€	518,184	€	658,618	€	648,965
Ajax	€	18,886	€	8	€	21,720	€	9,021	€	15,015	€	18,024	€	65,442	€	135,667	€	125,143	€	106,257
Alanheri	€	47	€	5,700	€	6,572	€	-2,502	€	1,340	€	107	€	4,085	€	8,498	€	17,205	€	17,158
Amsterdam Commodities	€	4,988	€	20,359	€	23,382	€	4,125	€	1,123	€	21,166	€	32,050	€	68,933	€	66,279	€	61,291
AMT Holding	€	51,330	€	-	€	4,035	€	-14,601	€	3,767	€	48,414	€	51,407	€	109,372	€	58,239	€	6,909
AND Intl Publishers	€	1,713	€	-	€	310	€	1,332	€	352	€	682	€	13,137	€	51,271	€	16,899	€	15,186
Batenburg	€	4,928	€	768	€	12,231	€	7,250	€	2,018	€	19,136	€	43,048	€	68,280	€	75,199	€	70,271
BE Semiconductor	€	74,781	€	26,727	€	67,023	€	3,966	€	11,215	€	125,921	€	178,718	€	116,388	€	285,005	€	210,224
Brill, Kon.	€	1,043	€	4,575	€	5,175	€	-236	€	1,738	€	6,111	€	18,787	€	42,654	€	36,960	€	35,917
Crown Van Gelder	€	1,295	€	12,608	€	17,135	€	7,570	€	9,152	€	24,962	€	108,385	€	45,750	€	142,754	€	141,459
Cryo Save Group	€	39,465	€	-	€	1,425	€	4,110	€	937	€	42,822	€	42,921	€	42,915	€	51,914	€	12,449
Ctac	€	-3,111	€	5,700	€	6,620	€	2,189	€	3,082	€	616	€	12,476	€	25,957	€	29,871	€	32,982
DOC Data	€	5,586	€	2,110	€	10,186	€	5,569	€	3,536	€	5,041	€	22,187	€	48,238	€	42,455	€	36,869

DPA Group	€ -14,187	€ 14,499	€ 21,358	€ 1,551	€ 6,858	€ -7,303	€ 30,407	€ 68,050	€ 65,513	€ 79,700
Galapagos	€ 49,295	€ -	€ 6,568	€ -12,033	€ 9,459	€ 37,382	€ 98,626	€ 170,782	€ 148,724	€ 99,429
HES Beheer	€ 14,101	€ 8,191	€ 8,191	€ 15,129	€ 2,710	€ 8,505	€ 66,610	€ 196,923	€ 97,793	€ 83,692
HITT	€ 4,852	€ 3,061	€ 3,454	€ 2,764	€ 1,903	€ 7,984	€ 13,632	€ 23,987	€ 32,086	€ 27,234
Holland Colours	€ -4,049	€ 11,119	€ 14,573	€ 2,784	€ 1,000	€ 15,717	€ 19,608	€ 30,542	€ 44,315	€ 48,364
Hunter Douglas	\$ 72,000	\$ 370,000	\$ 647,000	\$ 277,000	\$ 164,568.88	\$ 1,591,000	\$ 1,969,000	\$ 3,138,711	\$ 3,450,000	\$ 3,378,000
Hydratec	€ 1,716	€ -	€ 1,702	€ 2,660	€ 4,151	€ 6,881	€ 14,123	€ 29,282	€ 19,459	€ 17,743
ICT Automatisering	€ 12,420	€ 2,500	€ 10,472	€ 1,664	€ 3,275	€ 22,264	€ 41,117	€ 89,789	€ 59,994	€ 47,574
Kendrion	€ 2,100	€ 100,000	€ 102,300	€ 13,800	€ 8,430	€ 60,100	€ 88,800	€ 185,184	€ 303,100	€ 301,000
LBI International	217,200 kr	225,300 kr	273,700 kr	162,000 kr	383,947.36 kr	336,400 kr	2,017,900 kr	1,890,287 kr	2,927,900 kr	2,710,700 kr
Nedap	€ -740	€ 6,032	€ 21,503	€ 10,103	€ 7,423	€ 25,726	€ 57,120	€ 212,835	€ 102,461	€ 103,201
Nedsense Enterprice	€ 452	€ 607	€ 2,944	€ 7,564	€ 4,706	€ -604	€ 10,315	€ 10,863	€ 21,639	€ 21,187
Neways Electronics	€ -1,933	€ 8,885	€ 12,957	€ 14,896	€ 8,990	€ 37,843	€ 48,914	€ 116,867	€ 119,325	€ 121,258
Oce	€ 167,233	€ 181,656	€ 628,650	€ 237,796	€ 50,975	€ 461,968	€ 712,599	€ 1,031,205	€ 2,491,169	€ 2,323,936
Octopus	€ 2,515	€ 815	€ 5,052	€ -14,053	€ 5,822	€ -3,458	€ 6,667	€ 52,187	€ 20,913	€ 18,398
Oranjewoud A	€ 20,046	€ 1,625	€ 39,803	€ 28,077	€ 5,959	€ 33,017	€ 82,199	€ 203,176	€ 170,156	€ 150,110
Porceleyne Fles	€ -57	€ 112	€ 112	€ -368	€ 2,466	€ 1,646	€ 4,301	€ 6,439	€ 5,189	€ 5,246
Punch Graphix	€ 40,706	€ 9,027	€ 52,609	€ 30,336	€ 17,443	€ 31,098	€ 173,819	€ 163,649	€ 308,389	€ 267,683
RoodMicro Tec	€ -969	€ 2,686	€ 4,822	€ 1,559	€ 707	€ -1,788	€ 3,344	€ 15,242	€ 11,295	€ 12,264
Roto Smeets	€ 1,909	€ -	€ 19,054	€ 34,302	€ 15,847	€ -4,311	€ 135,228	€ 103,644	€ 303,785	€ 301,876
Royal Dutch Shell B	\$ 9,656,000	\$ 2,500,000	\$ 18,099,000	\$36,105,000	\$ 9,901,034.53	\$ 21,013,000	\$ 125,968,000	\$ 113,787,120	\$ 269,470,000	\$ 259,814,000
Simac Techniek	€ 6,618	€ 8,615	€ 14,838	€ 3,478	€ 1,223	€ 3,056	€ 13,364	€ 34,826	€ 75,147	€ 68,529
Sopheon Plc	£ 2,053	£ 1,947	£ 1,947	£ 53	£ 674.25	£ 588	£ 3,310	£ 23,293	£ 8,191	£ 6,138
Stern Groep	€ 1,918	€ 92,768	€ 234,873	€ 18,804	€ 5,459	€ -32,604	€ 145,005	€ 196,272	€ 507,683	€ 505,765
Thunderbird	\$ 71,656	\$ 13,803	\$ 80,540	\$ 4,554	\$ 23,111	\$ 47,078	\$ 75,592	\$ 53,540	\$ 214,916	\$ 143,260
Tie Holding	€ 262	€ 326	€ 526	€ -771	€ 1,309	€ -2,094	€ 2,141	€ 9,157	€ 6,568	€ 6,306
TMC	€ 2,191	€ 4,035	€ 4,035	€ 3,820	€ 1,888	€ 3,158	€ 19,511	€ 46,699	€ 30,690	€ 28,499
Value8	€ 3,821	€ -	€ 908	€ 435	€ 2,632	€ 5,211	€ 4,543	€ 63,468	€ 6,761	€ 2,940
Vivenda Media Group	€ 51	€ 270	€ 1,172	€ -552	€ 5,131	€ 761	€ 2,820	€ 1,307,584	€ 4,446	€ 4,395
Wegener	€ 32,498	€ 174,383	€ 352,133	€ 42,451	€ 8,549	€ -108,307	€ 299,326	€ 687,738	€ 775,830	€ 743,332

31-Dec-2007	(amount in thousands)										
Name company	Net income	Deprec. & Amort.	Dividends paid	Cash flow	Current assets	Current liabilities	Cash and - equivalents	Net working capital	Closed share price 31 dec	Outstanding shares	Equity (market value)
Ahold, Kon.	€ 2,945,000	€ 705,000	€ -	€ 3,650,000	€ 5,827,000	€ 4,933,000	€ 3,263,000	€ 894,000	€ 9.53	1,171,922,000	€ 11,168,417
Air-France KLM	€ 767,000	€ 1,623,000	€ 137,000	€ 2,253,000	€ 10,148,000	€ 9,191,000	€ 4,209,000	€ 957,000	€ 17.76	300,219,278	€ 5,331,894
Akzo Nobel	€ 9,361,000	€ 355,000	€ 398,000	€ 9,318,000	€ 14,969,000	€ 4,429,000	€ 11,067,000	€ 10,540,000	€ 54.79	262,322,775	€ 14,372,665
ArcelorMittal	\$ 10,368,000	\$ 4,570,000	\$ 2,269,000	\$ 12,669,000	\$ 45,328,000	\$ 32,209,000	\$ 8,105,000	\$ 13,119,000	\$ 73.92	1,421,570,646	\$105,082,502
ASML Holding	€ 671,001	€ 126,344	€ -	€ 797,345	€ 3,324,745	€ 1,326,757	€ 1,271,636	€ 1,997,988	€ 21.66	435,625,934	€ 9,435,658
BAM Groep, Kon. Boskalis Westminster, Kon.	€ 351,039	€ 102,254	€ 60,527	€ 392,766	€ 4,867,719	€ 3,807,068	€ 566,261	€ 1,060,651	€ 16.10	123,758,414	€ 1,992,510
DSM, Kon.	€ 207,073	€ 102,531	€ 58,344	€ 251,260	€ 1,321,574	€ 1,309,413	€ 350,354	€ 12,161	€ 41.66	85,799,361	€ 3,574,401
DSM, Kon.	€ 434,000	€ 424,000	€ 193,000	€ 665,000	€ 3,690,000	€ 2,063,000	€ 369,000	€ 1,627,000	€ 32.33	166,896,860	€ 5,395,775
Fugro	€ 222,329	€ 114,777	€ 23,429	€ 313,677	€ 667,401	€ 496,054	€ 6,469	€ 171,347	€ 52.80	69,878,727	€ 3,689,597
Heineken	€ 972,000	€ 764,000	€ 450,000	€ 1,286,000	€ 3,844,000	€ 4,193,000	€ 433,000	€ -349,000	€ 44.22	245,011,848	€ 10,834,424
KPN, Kon.	€ 2,649,000	€ 2,400,000	€ 982,000	€ 4,067,000	€ 4,060,000	€ 6,577,000	€ 1,148,000	€ -2,517,000	€ 12.44	1,843,482,213	€ 22,932,919
Philips, Kon.	€ 4,168,000	€ 851,000	€ 639,000	€ 4,380,000	€ 17,831,000	€ 9,633,000	€ 8,769,000	€ 8,198,000	€ 29.52	1,064,893,000	€ 31,435,641
Randstad	€ 384,900	€ 66,000	€ 152,500	€ 298,400	€ 1,974,600	€ 1,335,000	€ 315,800	€ 639,600	€ 27.02	116,606,865	€ 3,150,717
Reed Elsevier	€ 855,000	€ 10,000	€ 310,000	€ 555,000	€ 14,000	€ 73,000	€ 9,000	€ -59,000	€ 13.65	4,111,000	€ 56,115
Royal Dutch Shell A	\$ 31,926,000	\$ 13,180,000	\$ 9,001,000	\$ 36,105,000	\$ 115,397,000	\$ 94,384,000	\$ 9,656,000	\$ 21,013,000	\$ 42.19	3,486,221,746	\$147,083,695
SBM Offshore	\$ 266,766	\$ 246,282	\$ 58,284	\$ 454,764	\$ 1,535,439	\$ 1,330,461	\$ 274,088	\$ 204,978	\$ 31.70	143,323,681	\$ 4,543,361
TNT	€ 989,000	€ 394,000	€ 298,000	€ 1,085,000	€ 2,252,000	€ 2,902,000	€ 295,000	€ -650,000	€ 28.25	379,224,255	€ 10,713,085
TOMTOM	€ 317,242	€ 23,478	€ -	€ 340,720	€ 1,054,272	€ 574,828	€ 463,339	€ 479,444	€ 51.50	119,235,661	€ 6,140,637
Unilever	€ 4,136,000	€ 943,000	€ 2,182,000	€ 2,897,000	€ 9,928,000	€ 13,559,000	€ 901,000	€ -3,631,000	€ 25.15	16,843,769	€ 423,621
Wolters Kluwer	€ 918,000	€ 201,000	€ 111,000	€ 1,008,000	€ 1,281,000	€ 2,802,000	€ 152,000	€ -1,521,000	€ 22.48	281,138,000	€ 6,319,982
Aalberts Industries	€ 120,031	€ 70,214	€ 12,550	€ 177,695	€ 563,061	€ 472,369	€ 93,739	€ 90,692	€ 13.60	102,000,000	€ 1,387,200
AMG	\$ 8,102	\$ 18,663	\$ -	\$ 26,765	\$ 613,880	\$ 306,343	\$ 172,558	\$ 307,537	\$ 75.34	26,803,086	\$ 2,019,344
Arcadis	€ 57,498	€ 32,629	€ 22,453	€ 67,674	€ 588,800	€ 492,780	€ 92,608	€ 96,020	€ 47.30	60,502,000	€ 2,861,745

ASM International	€ 116,322	€ 34,678	€ 5,397	€ 145,603	€ 633,552	€ 241,339	€ 157,923	€ 392,213	€ 16.75	54,005,214	€ 904,587
Brunel International	€ 36,912	€ 3,114	€ 11,755	€ 28,271	€ 180,563	€ 58,751	€ 39,665	€ 121,812	€ 16.35	22,742,257	€ 371,836
Crucell	€ -44,334	€ 26,518	€ -	€ -17,816	€ 317,071	€ 90,252	€ 163,248	€ 226,819	€ 11.40	65,348,796	€ 744,976
CSM	€ 202,800	€ 138,400	€ 52,800	€ 288,400	€ 699,400	€ 424,100	€ 37,700	€ 275,300	€ 23.10	65,280,284	€ 1,507,975
Draka Holding	€ 94,000	€ 52,500	€ 14,600	€ 131,900	€ 954,000	€ 622,400	€ 4,500	€ 331,600	€ 22.46	42,317,000	€ 950,440
Heijmans	€ 56,427	€ 35,677	€ 34,905	€ 57,199	€ 1,662,029	€ 1,173,448	€ 234,406	€ 488,581	€ 25.83	24,072,584	€ 621,795
Imtech	€ 92,837	€ 33,217	€ 28,862	€ 97,192	€ 1,365,543	€ 1,227,357	€ 49,462	€ 138,186	€ 16.94	78,374,232	€ 1,327,659
Logica	£ 168,100	£ 126,800	£ 86,300	£ 208,600	£ 1,171,800	£ 1,250,600	£ 99,600	-£ 78,800	£ 117.75	12,087,993	£ 1,423,361
Mediq	€ 95,331	€ 20,754	€ 31,091	€ 84,994	€ 536,913	€ 402,347	€ 11,865	€ 134,566	€ 19.00	59,837,000	€ 1,136,903
Nutreco	€ 113,300	€ 48,100	€ 33,100	€ 128,300	€ 1,149,800	€ 887,800	€ 135,400	€ 262,000	€ 39.56	34,256,000	€ 728,625
Ordina	€ 30,394	€ 30,877	€ 8,210	€ 53,061	€ 204,663	€ 218,901	€ 11,723	€ -14,238	€ 12.20	41,200,000	€ 803,400
Ten Cate, Kon.	€ 46,500	€ 32,700	€ 4,700	€ 74,500	€ 347,200	€ 148,400	€ -7,700	€ 198,800	€ 21.27	23,556,158	€ 501,039
Unit4	€ 28,255	€ 27,923	€ 19,551	€ 36,627	€ 168,189	€ 169,072	€ 15,387	€ -883	€ 19.50	26,262,125	€ 512,111
USG People	€ 140,513	€ 47,420	€ 29,300	€ 158,633	€ 872,491	€ 765,461	€ 43,532	€ 107,030	€ 18.56	63,679,719	€ 1,181,896
Vopak, Kon.	€ 198,100	€ 107,300	€ 49,200	€ 256,200	€ 352,500	€ 407,000	€ 110,300	€ -54,500	€ 38.80	62,450,656	€ 2,423,085
Wavin	€ 92,989	€ 58,881	€ 27,548	€ 124,322	€ 573,243	€ 443,873	€ 19,454	€ 129,370	€ 9.12	78,766,116	€ 718,347
Wessanen, Kon.	€ 57,500	€ 18,300	€ 49,500	€ 26,300	€ 515,600	€ 267,200	€ 50,100	€ 248,400	€ 10.88	67,584,000	€ 735,314
Accell Group	€ 19,814	€ 5,782	€ 3,744	€ 21,852	€ 199,648	€ 106,780	€ 208	€ 92,868	€ 24.76	9,492,950	€ 235,045
Antonov	-£ 4,073	£ 153	£ -	-£ 3,920	£ 1,557	£ 2,377	£ 98	-£ 820	£ 4.09	1,031,482	£ 4,219
Arseus	€ 16,260	€ 8,852	€ -	€ 25,112	€ 156,096	€ 157,072	€ 27,789	€ -976	€ 9.25	26,548,780	€ 245,576
Ballast Nedam	€ 27,000	€ 21,000	€ 13,000	€ 35,000	€ 656,000	€ 590,000	€ 52,000	€ 66,000	€ 28.30	9,900,000	€ 280,170
Beter Bed	€ 27,572	€ 6,974	€ 21,737	€ 12,809	€ 61,661	€ 48,322	€ -7,505	€ 13,339	€ 17.77	21,653,000	€ 384,774
Dockwise	\$ (75,773)	\$ 83,050	\$ -	\$ 7,277	\$ 149,780	\$ 131,400	\$ 15,494	\$ 18,380	\$ 450.00	9,360,000	\$ 4,212,000
Exact Holding	€ 39,112	€ 7,244	€ 52,391	€ -6,035	€ 128,426	€ 86,214	€ 69,031	€ 42,212	€ 24.77	24,032,000	€ 595,273
Fornix BioSciences	€ 13,981	€ 682	€ 6,042	€ 8,621	€ 43,119	€ 9,548	€ 33,235	€ 33,571	€ 18.80	7,262,170	€ 136,529
Gamma Holding	€ 33,000	€ 135,900	€ 15,100	€ 153,800	€ 352,400	€ 205,200	€ 25,300	€ 147,200	€ 55.41	7,518,535	€ 416,602
Grontmij	€ 32,720	€ 18,247	€ 13,323	€ 37,644	€ 279,662	€ 224,081	€ 17,631	€ 55,581	€ 24.18	17,764,920	€ 429,556
Innoconcepts	€ 17,861	€ 2,868	€ 2,170	€ 18,559	€ 58,547	€ 20,619	€ 14,181	€ 37,928	€ 7.54	22,672,139	€ 170,948
Machintosh Retail	€ 54,515	€ 20,383	€ 18,092	€ 56,806	€ 208,112	€ 102,138	€ 3,508	€ 105,974	€ 23.13	22,268,118	€ 515,062
Pharming Group	€ -35,612	€ 1,408	€ -	€ -34,204	€ 78,703	€ 23,549	€ 65,266	€ 55,154	€ 1.32	91,235,178	€ 120,430

Qurius	€ 2,257	€ 2,939	€ -	€ 5,196	€ 57,122	€ 54,550	€ 4,375	€ 2,572	€ 0.70	105,432,619	€ 73,803
Sligro Food Group	€ 74,177	€ 39,041	€ 9,730	€ 103,488	€ 326,757	€ 270,554	€ -29,250	€ 56,203	€ 26.80	43,118,000	€ 1,155,562
Spyker Cars	€ -72,075	€ 1,505	€ -	€ -70,570	€ 24,739	€ 39,849	€ -3,121	€ -15,110	€ 4.13	9,747,476	€ 40,257
Telegraaf	€ 399,284	€ 74,740	€ 25,000	€ 449,024	€ 661,534	€ 250,524	€ 496,025	€ 411,010	€ 25.00	49,740,200	€ 1,243,505
TKH Group	€ 45,106	€ 17,962	€ 8,406	€ 54,662	€ 356,876	€ 260,038	€ 9,653	€ 96,838	€ 14.96	34,638,000	€ 518,184
Ajax	€ 7,772	€ 1,249	€ -	€ 9,021	€ 67,202	€ 49,178	€ 18,886	€ 18,024	€ 7.40	18,333,333	€ 135,667
Alanheri Amsterdam Commodities	€ -2,655	€ 153	€ -	€ -2,502	€ 13,072	€ 12,965	€ 47	€ 107	€ 12.70	669,112	€ 8,498
AMT Holding	€ 8,834	€ 192	€ 4,901	€ 4,125	€ 53,795	€ 32,629	€ 4,988	€ 21,166	€ 4.22	16,334,866	€ 68,933
AND Intl Publishers	€ -14,935	€ 334	€ -	€ -14,601	€ 54,240	€ 5,826	€ 51,330	€ 48,414	€ 7.50	14,582,984	€ 109,372
Batenburg	€ 1,219	€ 113	€ -	€ 1,332	€ 2,924	€ 2,242	€ 1,713	€ 682	€ 16.00	3,204,458	€ 51,271
BE Semiconductor	€ 6,623	€ 2,915	€ 2,288	€ 7,250	€ 49,903	€ 30,767	€ 4,928	€ 19,136	€ 28.45	2,400,000	€ 68,280
Brill, Kon.	€ -5,496	€ 9,462	€ -	€ 3,966	€ 178,288	€ 52,367	€ 74,781	€ 125,921	€ 3.79	30,709,364	€ 116,388
Crown Van Gelder	€ -1,080	€ 1,085	€ 241	€ -236	€ 21,209	€ 15,098	€ 1,043	€ 6,111	€ 23.00	1,854,507	€ 42,654
Cryo Save Group	€ 2,171	€ 9,755	€ 4,356	€ 7,570	€ 54,587	€ 29,625	€ 1,295	€ 24,962	€ 15.25	3,000,000	€ 45,750
Ctac	€ 3,883	€ 227	€ -	€ 4,110	€ 48,146	€ 5,324	€ 39,465	€ 42,822	€ 5.70	7,529,000	€ 42,915
DOC Data	€ 1,691	€ 1,558	€ 1,060	€ 2,189	€ 17,438	€ 16,822	€ -3,111	€ 616	€ 2.92	8,889,525	€ 25,957
DPA Group	€ 3,388	€ 3,625	€ 1,444	€ 5,569	€ 23,256	€ 18,215	€ 5,586	€ 5,041	€ 6.60	7,308,850	€ 48,238
Galapagos	€ -192	€ 1,743	€ -	€ 1,551	€ 24,529	€ 31,832	€ -14,187	€ -7,303	€ 6.47	10,524,262	€ 68,050
HES Beheer	€ -21,948	€ 9,915	€ -	€ -12,033	€ 80,743	€ 43,361	€ 49,295	€ 37,382	€ 8.06	21,188,829	€ 170,782
HITT	€ 14,376	€ 5,126	€ 4,373	€ 15,129	€ 28,959	€ 20,454	€ 14,101	€ 8,505	€ 22.50	8,752,136	€ 196,923
Holland Colours	€ 272	€ 3,149	€ 657	€ 2,764	€ 22,049	€ 14,065	€ 4,852	€ 7,984	€ 5.11	4,694,158	€ 23,987
Hunter Douglas	€ 796	€ 3,192	€ 1,204	€ 2,784	€ 31,466	€ 15,749	€ -4,049	€ 15,717	€ 35.50	860,351	€ 30,542
Hydratec	\$ 310,000	\$ 91,000	\$ 124,000	\$ 277,000	\$ 2,498,000	\$ 907,000	\$ 72,000	\$ 1,591,000	\$ 74.37	42,204,000	\$ 3,138,711
ICT Automatisering	€ 3,342	€ 1,211	€ 1,893	€ 2,660	€ 11,865	€ 4,984	€ 1,716	€ 6,881	€ 24.75	1,183,094	€ 29,282
Kendrion	€ 6,081	€ 477	€ 4,894	€ 1,664	€ 39,941	€ 17,677	€ 12,420	€ 22,264	€ 10.80	8,313,833	€ 89,789
LBI International	€ 3,700	€ 10,100	€ -	€ 13,800	€ 171,600	€ 111,500	€ 2,100	€ 60,100	€ 18.00	10,288,000	€ 185,184
Nedap	101,900 kr	60,100 kr	- kr	162,000 kr	776,300 kr	439,900 kr	217,200 kr	336,400 kr	30.48 kr	62,017,276	1,890,287 kr
Nedsense Enterprice	€ 14,300	€ 6,931	€ 11,128	€ 10,103	€ 49,998	€ 24,272	€ -740	€ 25,726	€ 31.80	6,692,920	€ 212,835
	€ 4,599	€ 2,965	€ -	€ 7,564	€ 8,590	€ 9,194	€ 452	€ -604	€ 2.45	4,433,702	€ 10,863

Neways Electronics	€ 14,491	€ 3,735	€ 3,330	€ 14,896	€ 102,276	€ 64,433	€ -1,933	€ 37,843	€ 12.70	9,202,115	€ 116,867
Oce	€ 78,863	€ 209,662	€ 50,729	€ 237,796	€ 1,199,361	€ 737,393	€ 167,233	€ 461,968	€ 12.17	84,733,321	€ 1,031,205
Octopus	€ -15,175	€ 1,122	€ -	€ -14,053	€ 7,230	€ 10,688	€ 2,515	€ -3,458	€ 3.22	16,207,076	€ 52,187
Oranjewoud A	€ 16,484	€ 11,593	€ -	€ 28,077	€ 106,805	€ 73,788	€ 20,046	€ 33,017	€ 5.86	34,671,731	€ 203,176
Porceleyne Fles	€ 53	€ 132	€ 553	€ -368	€ 2,216	€ 570	€ -57	€ 1,646	€ 23.90	269,400	€ 6,439
Punch Graphix	€ -4,883	€ 35,219	€ -	€ 30,336	€ 120,324	€ 89,226	€ 40,706	€ 31,098	€ 5.70	28,710,370	€ 163,649
RoodMicro Tec	€ 5	€ 1,554	€ -	€ 1,559	€ 2,424	€ 4,212	€ -969	€ -1,788	€ 0.57	26,741,000	€ 15,242
Roto Smeets	€ 5,439	€ 34,648	€ 5,785	€ 34,302	€ 108,692	€ 113,003	€ 1,909	€ -4,311	€ 31.50	3,290,275	€ 103,644
Royal Dutch Shell B	\$ 31,926,000	\$ 13,180,000	\$ 9,001,000	\$ 36,105,000	\$ 115,397,000	\$ 94,384,000	\$ 9,656,000	\$ 21,013,000	\$ 41.77	2,724,135,015	\$ 113,787,120
Simac Techniek	€ 1,465	€ 2,306	€ 293	€ 3,478	€ 56,147	€ 53,091	€ 6,618	€ 3,056	€ 2.40	14,511,000	€ 34,826
Sopheon Plc	-£ 443	£ 496	£ -	£ 53	£ 4,274	£ 3,686	£ 2,053	£ 588	£ 0.16	145,579,027	£ 23,293
Stern Groep	€ 13,199	€ 8,609	€ 3,004	€ 18,804	€ 220,692	€ 253,296	€ 1,918	€ -32,604	€ 33.84	5,800,000	€ 196,272
Thunderbird	\$ (5,670)	\$ 10,224	\$ -	\$ 4,554	\$ 89,116	\$ 42,038	\$ 71,656	\$ 47,078	\$ 2.84	18,852,004	\$ 53,540
Tie Holding	€ -3,368	€ 2,617	€ 20	€ -771	€ 2,013	€ 4,107	€ 262	€ -2,094	€ 0.18	50,870,000	€ 9,157
TMC	€ 3,561	€ 259	€ -	€ 3,820	€ 10,909	€ 7,751	€ 2,191	€ 3,158	€ 13.10	3,564,845	€ 46,699
Value8	€ 723	€ 65	€ 353	€ 435	€ 6,953	€ 1,742	€ 3,821	€ 5,211	€ 36.00	1,763,000	€ 63,468
Vivenda Media Group	€ -1,665	€ 1,113	€ -	€ -552	€ 2,387	€ 1,626	€ 51	€ 761	€ 27.00	48,429,023	€ 1,307,584
Wegener	€ 31,249	€ 21,258	€ 10,056	€ 42,451	€ 113,425	€ 221,732	€ 32,498	€ -108,307	€ 15.28	45,009,000	€ 687,738

31-Dec-2008	(amount in thousands)									
Name company	Cash and - equivalents	Bank debt	Total debt	Cash flow	SD cash flow	Net working capital	Equity (book value)	Equity (market value)	Total assets	Net assets
Ahold, Kon.	€ 2,863,000	€ 2,205,000	€ 4,241,000	€ 1,568,000	€ 1,028,194	€ 999,000	€ 4,687,000	€ 10,319,527	€ 13,603,000	€ 10,740,000
Air-France KLM	€ 3,748,000	€ 282,000	€ 9,499,000	€ 735,000	€ 1,059,144	€ -3,337,000	€ 5,676,000	€ 1,954,728	€ 28,773,000	€ 25,025,000
Akzo Nobel	€ 1,449,000	€ 158,000	€ 3,679,000	€ -990,000	€ 4,637,890	€ 664,000	€ 7,913,000	€ 6,820,194	€ 18,734,000	€ 17,285,000
ArcelorMittal	\$ 7,576,000	\$ 33,792,000	\$ 34,076,000	\$ 12,967,000	\$ 4,350,637.68	\$ 13,565,000	\$ 59,317,000	\$ 30,735,051	\$ 133,155,000	\$ 125,579,000
ASML Holding	€ 1,109,184	€ 647,050	€ 840,740	€ 333,719	€ 407,449	€ 1,964,906	€ 1,988,769	€ 5,508,938	€ 3,939,394	€ 2,830,210
BAM Groep, Kon.	€ 509,735	€ 1,256,904	€ 2,129,950	€ 139,127	€ 138,932	€ 1,036,983	€ 853,131	€ 832,699	€ 6,741,933	€ 6,232,198
Boskalis Westminster, Kon.	€ 402,097	€ 285,140	€ 319,160	€ 260,231	€ 89,531	€ -254,454	€ 867,698	€ 1,424,269	€ 2,551,413	€ 2,149,316

DSM, Kon.	€ 601,000	€ 498,000	€ 2,293,000	€ 808,000	€ 65,658	€ 1,380,000	€ 4,695,000	€ 2,973,622	€ 9,653,000	€ 9,052,000
Fugro	€ 81,294	€ 484,580	€ 616,449	€ 399,403	€ 91,253	€ 56,060	€ 935,811	€ 1,539,583	€ 2,123,306	€ 2,042,012
Heineken	€ 604,000	€ 7,409,000	€ 10,053,000	€ 1,068,000	€ 389,339	€ -309,000	€ 4,752,000	€ 5,365,759	€ 20,587,000	€ 19,983,000
KPN, Kon.	€ 1,199,000	€ 11,868,000	€ 12,041,000	€ 497,000	€ 1,676,214	€ -2,026,000	€ 3,759,000	€ 17,795,086	€ 23,913,000	€ 22,714,000
Philips, Kon.	€ 3,620,000	€ 3,870,000	€ 4,188,000	€ 738,000	€ 2,393,078	€ 3,116,000	€ 15,593,000	€ 12,764,841	€ 31,910,000	€ 28,290,000
Randstad	€ 760,900	€ 2,392,800	€ 2,472,000	€ 88,100	€ 111,600	€ 1,354,500	€ 2,420,900	€ 2,466,851	€ 7,722,800	€ 6,961,900
Reed Elsevier	€ 12,000	€ 10,000	€ 10,000	€ -1,074,000	€ 714,626	€ -60,000	€ 491,000	€ 43,767	€ 567,000	€ 555,000
Royal Dutch Shell A	\$ 15,188,000	\$ 5,675,000	\$ 23,269,000	\$ 30,616,000	\$ 9,901,034.53	\$ 11,041,000	\$ 128,866,000	\$ 90,266,592	\$ 282,401,000	\$ 267,213,000
SBM Offshore	\$ 230,137	\$ 1,613,953	\$ 1,694,289	\$ 402,914	\$ 50,606.44	\$ (338,295)	\$ 1,240,935	\$ 1,895,894	\$ 4,344,994	\$ 4,114,857
TNT	€ 497,000	€ 2,241,000	€ 2,735,000	€ 635,000	€ 200,021	€ -242,000	€ 1,757,000	€ 4,953,900	€ 7,185,000	€ 6,688,000
TOMTOM	€ 321,039	€ 175,000	€ 1,388,488	€ -799,284	€ 532,198	€ 87,097	€ 513,373	€ 641,973	€ 2,766,690	€ 2,445,651
Unilever	€ 2,360,000	€ 10,655,000	€ 11,205,000	€ 4,202,000	€ 705,361	€ -2,625,000	€ 10,372,000	€ 283,565	€ 36,142,000	€ 33,782,000
Wolters Kluwer	€ 345,000	€ 2,386,000	€ 2,597,000	€ 392,000	€ 290,576	€ -1,099,000	€ 1,447,000	€ 3,872,250	€ 6,388,000	€ 6,043,000
Aalberts Industries	€ 107,726	€ 627,538	€ 765,298	€ 160,884	€ 26,989	€ 94,568	€ 586,953	€ 522,698	€ 1,703,447	€ 1,595,721
AMG	\$ 143,473	\$ 221,624	\$ 225,577	\$ 35,613	\$ 51,898.65	\$ 200,853	\$ 311,811	\$ 257,277	\$ 1,130,024	\$ 986,551
Arcadis	€ 111,676	€ 274,015	€ 281,491	€ 72,475	€ 8,201	€ 173,834	€ 207,585	€ 564,949	€ 1,058,364	€ 946,688
ASM International	€ 157,277	€ 147,099	€ 153,682	€ 100,574	€ 80,705	€ 372,029	€ 317,902	€ 334,335	€ 767,798	€ 610,521
Brunel International	€ 40,312	€ -	€ 12,026	€ 32,494	€ 7,205	€ 144,620	€ 163,788	€ 194,522	€ 164,248	€ 123,936
Crucell	€ 170,969	€ -	€ 61,630	€ 47,441	€ 64,801	€ 204,017	€ 452,534	€ 716,924	€ 636,297	€ 465,328
CSM	€ 83,600	€ 496,700	€ 611,700	€ 95,800	€ 87,106	€ 359,200	€ 941,600	€ 745,147	€ 2,106,500	€ 2,022,900
Draka Holding	€ 59,700	€ 564,900	€ 588,700	€ 102,500	€ 24,409	€ 321,600	€ 440,400	€ 271,802	€ 1,657,200	€ 1,597,500
Heijmans	€ 367,679	€ 280,354	€ 698,440	€ -1,674	€ 41,664	€ 556,045	€ 370,696	€ 81,847	€ 2,219,830	€ 1,852,151
Imtech	€ 76,929	€ 530,612	€ 557,892	€ 118,964	€ 36,619	€ 75,663	€ 399,195	€ 929,549	€ 2,473,314	€ 2,396,385
Logica	£ 121,500	£ 553,900	£ 566,000	£ 98,500	£ 51,724.10	£ 204,200	£ 2,054,900	£ 1,879,088	£ 4,145,600	£ 4,024,100
Mediq	€ 591,665	€ 226,001	€ 307,247	€ -131,893	€ 109,374	€ 175,419	€ 379,045	€ 543,465	€ 1,117,075	€ 525,410
Nutreco	€ 151,800	€ 301,300	€ 595,400	€ 134,700	€ 158,347	€ 317,100	€ 665,500	€ 550,178	€ 2,187,800	€ 2,036,000
Ordina	€ -46,279	€ -	€ 106,934	€ 18,830	€ 15,484	€ -67,067	€ 163,280	€ 326,270	€ 460,471	€ 506,750
Ten Cate, Kon.	€ -14,000	€ 323,600	€ 336,500	€ 84,700	€ 11,860	€ 242,700	€ 372,000	€ 220,975	€ 889,200	€ 903,200
Unit4	€ -8,670	€ 59,022	€ 281,867	€ 46,195	€ 10,396	€ -52,577	€ 97,740	€ 207,485	€ 476,664	€ 485,334

USG People	€ 81,719	€ 584,882	€ 633,595	€ 105,625	€ 63,845	€ 26,721	€ 671,179	€ 599,117	€ 1,967,227	€ 1,885,508
Vopak, Kon.	€ -24,600	€ 495,700	€ 1,046,000	€ 278,600	€ 78,499	€ -128,700	€ 100,900	€ 1,686,168	€ 2,634,300	€ 2,658,900
Wavin	€ 48,847	€ 8,681	€ 523,090	€ 85,113	€ 32,007	€ 106,034	€ 334,166	€ 187,318	€ 1,375,761	€ 1,326,914
Wessanen, Kon.	€ 26,000	€ 255,700	€ 259,400	€ 1,500	€ 135,206	€ 185,900	€ 357,000	€ 314,345	€ 906,500	€ 880,500
Accell Group	€ 640	€ 98,142	€ 111,450	€ 33,197	€ 6,243	€ 115,746	€ 132,123	€ 176,007	€ 335,420	€ 334,780
Antonov	£ 500	£ -	£ 1,650	-£ 2,502	£ 884.90	£ 1,881	£ 3,068	£ 3,720	£ 4,718	£ 4,218
Arseus	€ 18,503	€ 119,814	€ 134,076	€ 22,336	€ 3,230	€ 62,563	€ 185,530	€ 191,751	€ 417,733	€ 399,230
Ballast Nedam	€ 92,000	€ 150,000	€ 295,000	€ 35,000	€ 14,742	€ 70,000	€ 168,000	€ 136,506	€ 1,004,000	€ 912,000
Beter Bed	€ -11,141	€ 16,337	€ 32,785	€ 8,371	€ 4,556	€ 8,172	€ 42,703	€ 181,425	€ 96,978	€ 108,119
Dockwise	\$ 217,372	\$ 22,020	\$ 1,001,345	\$ 121,531	\$ 61,214.15	\$ (56,945)	\$ 576,210	\$ 973,359	\$ 1,753,702	\$ 1,536,330
Exact Holding	€ 44,744	€ -	€ 635	€ 9,126	€ 9,617	€ 18,150	€ 139,383	€ 311,285	€ 238,561	€ 193,817
Fornix BioSciences	€ 32,021	€ -	€ 2,497	€ 2,211	€ 3,799	€ 35,326	€ 51,913	€ 53,995	€ 60,398	€ 28,377
Gamma Holding	€ 24,600	€ 31,800	€ 310,800	€ -284,400	€ 206,176	€ -126,000	€ 14,200	€ 47,668	€ 675,400	€ 650,800
Grontmij	€ -6,571	€ 115,821	€ 116,330	€ 37,566	€ 9,541	€ 13,188	€ 174,943	€ 311,064	€ 631,697	€ 638,268
Innoconcepts	€ 4,015	€ 44,135	€ 47,264	€ -16,317	€ 28,233	€ 4,125	€ 81,557	€ 39,680	€ 137,337	€ 133,322
Machintosh Retail	€ 13,951	€ 133,431	€ 230,454	€ 39,966	€ 8,019	€ 101,921	€ 201,523	€ 144,743	€ 626,777	€ 612,826
Pharming Group	€ 23,534	€ 48,762	€ 49,746	€ -24,784	€ 7,395	€ 23,425	€ 12,533	€ 62,355	€ 80,736	€ 57,202
Qurius	€ 3,759	€ 14,929	€ 44,617	€ -19,481	€ 11,436	€ -3,704	€ 48,691	€ 25,304	€ 118,582	€ 114,823
Sligro Food Group	€ 883	€ 176,448	€ 254,953	€ 105,773	€ 16,299	€ 88,034	€ 426,015	€ 651,011	€ 875,153	€ 874,270
Spyker Cars	€ 907	€ -	€ 27,238	€ -21,867	€ 30,278	€ -2,152	€ 24,913	€ 40,333	€ 60,542	€ 59,635
Telegraaf	€ 33,592	€ 800	€ 189,212	€ -338,412	€ 322,723	€ -73,329	€ 414,845	€ 594,488	€ 762,016	€ 728,424
TKH Group	€ 9,519	€ 195,623	€ 196,312	€ 57,962	€ 18,184	€ 129,308	€ 293,493	€ 282,320	€ 721,559	€ 712,040
Ajax	€ 18,609	€ 83	€ 13,462	€ -2,116	€ 15,015	€ 2,368	€ 61,789	€ 115,500	€ 125,864	€ 107,255
Alanheri	€ 48	€ 3,354	€ 4,151	€ -1,948	€ 1,340	€ -307	€ 3,527	€ 6,768	€ 10,002	€ 9,954
Amsterdam Commodities	€ 5,401	€ 16,788	€ 20,548	€ 2,393	€ 1,123	€ 20,931	€ 34,899	€ 55,539	€ 64,207	€ 58,806
AMT Holding	€ 34,150	€ -	€ 3,401	€ -16,266	€ 3,767	€ 30,721	€ 35,105	€ 44,030	€ 40,179	€ 6,029
AND Intl Publishers	€ 765	€ -	€ 1,083	€ 1,452	€ 352	€ -344	€ 14,681	€ 10,235	€ 18,608	€ 17,843
Batenburg	€ 5,382	€ -	€ 11,286	€ 5,102	€ 2,018	€ 22,224	€ 46,149	€ 91,872	€ 75,225	€ 69,843
BE Semiconductor	€ 74,008	€ 23,600	€ 64,246	€ -4,957	€ 11,215	€ 98,227	€ 146,284	€ 55,989	€ 242,879	€ 168,871
Brill, Kon.	€ 2,334	€ 6,244	€ 6,244	€ 296	€ 1,738	€ 4,813	€ 17,881	€ 21,639	€ 36,897	€ 34,563

Crown Van Gelder	€ 1,750	€ 12,593	€ 17,138	€ -9,465	€ 9,152	€ 20,251	€ 87,810	€ 17,490	€ 119,540	€ 117,790
Cryo Save Group	€ 4,697	€ 149	€ 202	€ 4,212	€ 937	€ 6,903	€ 43,053	€ 33,737	€ 64,148	€ 59,451
Ctac	€ -1,884	€ 2,983	€ 8,586	€ 6,681	€ 3,082	€ -59	€ 21,975	€ 26,012	€ 50,388	€ 52,272
DOC Data	€ 6,034	€ 1,675	€ 9,944	€ 5,535	€ 3,536	€ 4,974	€ 21,197	€ 37,407	€ 40,900	€ 34,866
DPA Group	€ -7,115	€ 7,115	€ 12,027	€ -11,449	€ 6,858	€ -3,875	€ 21,243	€ 27,854	€ 51,667	€ 58,782
Galapagos	€ 27,316	€ -	€ 19,968	€ -5,675	€ 9,459	€ 30,098	€ 84,324	€ 72,890	€ 118,842	€ 91,526
HES Beheer	€ 17,951	€ 7,417	€ 14,946	€ 11,775	€ 2,710	€ 9,663	€ 70,227	€ 141,785	€ 102,927	€ 84,976
HITT	€ 8,502	€ 4,955	€ 6,330	€ 6,162	€ 1,903	€ 11,874	€ 16,552	€ 16,430	€ 27,648	€ 19,146
Holland Colours	€ -2,966	€ 11,599	€ 12,542	€ 1,615	€ 1,000	€ -775	€ 18,641	€ 12,897	€ 40,462	€ 43,428
Hunter Douglas	\$ 36,000	\$ 489,000	\$ 723,000	\$ (60,000)	\$ 164,568.88	\$ 1,000,000	\$ 1,276,000	\$ 1,157,883	\$ 2,717,000	\$ 2,681,000
Hydratec	€ 15,363	€ -	€ 1,220	€ 9,209	€ 4,151	€ 18,643	€ 22,190	€ 18,764	€ 25,408	€ 10,045
ICT Automatisering	€ 9,209	€ 2,500	€ 8,926	€ 4,990	€ 3,275	€ 19,144	€ 45,254	€ 41,201	€ 65,221	€ 56,012
Kendrion	€ -9,600	€ 85,000	€ 85,800	€ 17,300	€ 8,430	€ 20,700	€ 93,500	€ 73,958	€ 280,500	€ 290,100
LBI International	185,800 kr	408,300 kr	463,800 kr	175,600 kr	383,947.36 kr	151,200 kr	2,119,700 kr	808,163 kr	3,322,700 kr	3,136,900 kr
Nedap	€ 457	€ 6,016	€ 21,376	€ 6,368	€ 7,423	€ 25,585	€ 57,977	€ 113,780	€ 103,160	€ 102,703
Nedsense Enterprice	€ 1,720	€ -	€ 3,741	€ -3,295	€ 4,706	€ -2,058	€ 4,048	€ 2,350	€ 14,520	€ 12,800
Neways Electronics	€ 295	€ 9,346	€ 17,661	€ -433	€ 8,990	€ 31,742	€ 46,232	€ 48,221	€ 102,110	€ 101,815
Oce	€ 79,361	€ 199,873	€ 666,478	€ 135,529	€ 50,975	€ -725,625	€ 680,511	€ 293,454	€ 2,548,889	€ 2,469,528
Octopus	€ -882	€ 3,053	€ 14,712	€ -4,602	€ 5,822	€ -12,233	€ 11,191	€ 13,938	€ 30,138	€ 31,020
Oranjewoud A	€ 9,251	€ 4,404	€ 40,636	€ 29,857	€ 5,959	€ 36,272	€ 108,732	€ 151,921	€ 219,386	€ 210,135
Porceleyne Fles	€ -4,346	€ 4,767	€ 4,767	€ -4,534	€ 2,466	€ 3,901	€ 10,505	€ 11,073	€ 20,546	€ 24,892
Punch Graphix	€ 16,668	€ 10,670	€ 59,886	€ 34,297	€ 17,443	€ 33,878	€ 183,413	€ 49,956	€ 296,133	€ 279,465
RoodMicro Tec	€ -622	€ 2,198	€ 6,001	€ 1,976	€ 707	€ -2,994	€ 4,132	€ 4,573	€ 14,675	€ 15,297
Roto Smeets	€ 1,558	€ -	€ 19,994	€ 26,908	€ 15,847	€ -2,051	€ 130,419	€ 55,606	€ 288,630	€ 287,072
Royal Dutch Shell B	\$ 15,188,000	\$ 5,675,000	\$ 23,269,000	\$ 30,616,000	\$ 9,901,034.53	\$ 11,041,000	\$128,866,000	\$ 68,700,073	\$ 282,401,000	\$ 267,213,000
Simac Techniek	€ 4,574	€ -	€ 4,214	€ 5,122	€ 1,223	€ 4,504	€ 15,047	€ 19,617	€ 65,984	€ 61,410
Sopheon Plc	£ 2,586	£ 2,183	£ 2,183	£ 1,273	£ 674.25	£ 420	£ 4,268	£ 13,102	£ 11,107	£ 8,521
Stern Groep	€ 1,016	€ 109,088	€ 285,922	€ 8,491	€ 5,459	€ -120,991	€ 131,353	€ 70,122	€ 541,259	€ 540,243
Thunderbird	\$ 21,783	\$ -	\$ 147,367	\$ 47,566	\$ 23,111	\$ (12,962)	\$ 49,113	\$ 36,358	\$ 258,542	\$ 236,759

Tie Holding	€ 1,088	€ 435	€ 1,072	€ -1,106	€ 1,309	€ -1,825	€ 2,184	€ 5,476	€ 7,431	€ 6,343
TMC	€ 2,123	€ -	€ 3,015	€ 4,604	€ 1,888	€ 5,800	€ 23,378	€ 28,519	€ 32,983	€ 30,860
Value8	€ 593	€ -	€ 201	€ -4,376	€ 2,632	€ 507	€ 507	€ 9,309	€ 708	€ 115
Vivenda Media Group	€ 33	€ 7,416	€ 11,975	€ 1,659	€ 5,131	€ -2,431	€ 2,737	€ 345,000	€ 15,595	€ 15,562
Wegener	€ 31,117	€ -	€ 269,099	€ 34,459	€ 8,549	€ -285,118	€ 306,178	€ 207,041	€ 787,550	€ 756,433

Name company	(amount in thousands)				Current assets	Current liabilities	Cash and - equivalents	Net working capital	Closed share price 31 dec	Outstanding shares	Equity (market value)
	Net income	Deprec. & Amort.	Dividends paid	Cash flow							
Ahold, Kon.	€ 1,082,000	€ 674,000	€ 188,000	€ 1,568,000	€ 5,137,000	€ 4,138,000	€ 2,863,000	€ 999,000	€ 8.77	1,176,685,000	€ 10,319,527
Air-France KLM	€ -807,000	€ 1,719,000	€ 177,000	€ 735,000	€ 8,053,000	€ 11,390,000	€ 3,748,000	€ -3,337,000	€ 6.51	300,219,278	€ 1,954,728
Akzo Nobel	€ -1,021,000	€ 612,000	€ 581,000	€ -990,000	€ 6,357,000	€ 5,693,000	€ 1,449,000	€ 664,000	€ 29.44	231,664,187	€ 6,820,194
ArcelorMittal	\$10,498,000	\$ 5,045,000	\$ 2,576,000	\$ 12,967,000	\$ 44,418,000	\$ 30,853,000	\$ 7,576,000	\$13,565,000	\$ 22.50	1,366,002,278	\$ 30,735,051
ASML Holding	€ 322,370	€ 119,190	€ 107,841	€ 333,719	€ 2,973,249	€ 1,008,343	€ 1,109,184	€ 1,964,906	€ 12.75	432,073,534	€ 5,508,938
BAM Groep, Kon.	€ 165,818	€ 95,460	€ 122,151	€ 139,127	€ 4,727,802	€ 3,690,819	€ 509,735	€ 1,036,983	€ 6.41	129,906,275	€ 832,699
Boskalis Westminster, Kon.	€ 250,112	€ 115,441	€ 105,322	€ 260,231	€ 1,318,417	€ 1,572,871	€ 402,097	€ -254,454	€ 16.60	85,799,361	€ 1,424,269
DSM, Kon.	€ 577,000	€ 451,000	€ 220,000	€ 808,000	€ 4,088,000	€ 2,708,000	€ 601,000	€ 1,380,000	€ 18.33	162,227,062	€ 2,973,622
Fugro	€ 289,456	€ 149,504	€ 39,557	€ 399,403	€ 781,553	€ 725,493	€ 81,294	€ 56,060	€ 20.49	75,138,262	€ 1,539,583
Heineken	€ 347,000	€ 1,206,000	€ 485,000	€ 1,068,000	€ 4,749,000	€ 5,058,000	€ 604,000	€ -309,000	€ 21.90	245,011,848	€ 5,365,759
KPN, Kon.	€ 1,337,000	€ 141,000	€ 981,000	€ 497,000	€ 3,735,000	€ 5,761,000	€ 1,199,000	€ -2,026,000	€ 10.38	1,714,362,792	€ 17,795,086
Philips, Kon.	€ -92,000	€ 1,528,000	€ 698,000	€ 738,000	€ 12,149,000	€ 9,033,000	€ 3,620,000	€ 3,116,000	€ 13.83	922,982,000	€ 12,764,841
Randstad	€ 18,400	€ 222,900	€ 153,200	€ 88,100	€ 3,719,100	€ 2,364,600	€ 760,900	€ 1,354,500	€ 14.55	169,543,025	€ 2,466,851
Reed Elsevier	€ 294,000	€ 201,000	€ 1,569,000	€ -1,074,000	€ 16,000	€ 76,000	€ 12,000	€ -60,000	€ 8.42	5,198,000	€ 43,767
Royal Dutch Shell A	\$26,476,000	\$13,656,000	\$ 9,516,000	\$ 30,616,000	\$ 116,570,000	\$ 105,529,000	\$15,188,000	\$11,041,000	\$ 26.12	3,455,841,942	\$ 90,266,592
SBM Offshore	\$ 227,785	\$ 254,993	\$ 79,864	\$ 402,914	\$ 1,299,461	\$ 1,637,756	\$ 230,137	\$ (338,295)	\$ 13.02	145,613,988	\$ 1,895,894
TNT	€ 560,000	€ 399,000	€ 324,000	€ 635,000	€ 2,430,000	€ 2,672,000	€ 497,000	€ -242,000	€ 13.76	360,021,821	€ 4,953,900
TOMTOM	€ -872,048	€ 72,764	€ -	€ -799,284	€ 808,988	€ 721,891	€ 321,039	€ 87,097	€ 5.20	123,456,416	€ 641,973

Unilever	€ 5,285,000	€ 1,003,000	€ 2,086,000	€ 4,202,000	€ 11,175,000	€ 13,800,000	€ 2,360,000	€ -2,625,000	€ 17.34	16,353,251	€ 283,565
Wolters Kluwer	€ 315,000	€ 202,000	€ 125,000	€ 392,000	€ 1,515,000	€ 2,614,000	€ 345,000	€ -1,099,000	€ 13.54	285,986,000	€ 3,872,250
Aalberts Industries	€ 93,835	€ 82,305	€ 15,256	€ 160,884	€ 566,983	€ 472,415	€ 107,726	€ 94,568	€ 5.06	103,300,000	€ 522,698
AMG	\$ 2,558	\$ 33,055	\$ -	\$ 35,613	\$ 694,980	\$ 494,127	\$ 143,473	\$ 200,853	\$ 9.58	26,855,586	\$ 257,277
Arcadis	€ 63,020	€ 35,468	€ 26,013	€ 72,475	€ 695,905	€ 522,071	€ 111,676	€ 173,834	€ 9.40	60,101,000	€ 564,949
ASM International	€ 56,709	€ 43,865	€ -	€ 100,574	€ 559,696	€ 187,667	€ 157,277	€ 372,029	€ 6.16	54,275,131	€ 334,335
Brunel International	€ 45,498	€ 3,199	€ 16,203	€ 32,494	€ 215,782	€ 71,162	€ 40,312	€ 144,620	€ 8.50	22,884,979	€ 194,522
Crucell	€ 14,250	€ 33,191	€ -	€ 47,441	€ 322,318	€ 118,301	€ 170,969	€ 204,017	€ 10.89	65,833,242	€ 716,924
CSM	€ 90,000	€ 63,000	€ 57,200	€ 95,800	€ 745,600	€ 386,400	€ 83,600	€ 359,200	€ 11.50	64,795,388	€ 745,147
Draka Holding	€ 70,600	€ 61,500	€ 29,600	€ 102,500	€ 846,700	€ 525,100	€ 59,700	€ 321,600	€ 6.40	42,469,000	€ 271,802
Heijmans	€ -34,057	€ 67,288	€ 34,905	€ -1,674	€ 1,713,227	€ 1,157,182	€ 367,679	€ 556,045	€ 3.40	24,072,584	€ 81,847
Imtech	€ 113,539	€ 42,683	€ 37,258	€ 118,964	€ 1,598,137	€ 1,522,474	€ 76,929	€ 75,663	€ 12.00	77,462,396	€ 929,549
Logica	£ 38,900	£ 144,900	£ 85,300	£ 98,500	£ 1,510,000	£ 1,305,800	£ 121,500	£ 204,200	£ 69.00	27,233,156	£ 1,879,088
Mediq	€ -127,518	€ 27,190	€ 31,565	€ -131,893	€ 591,665	€ 416,246	€ 591,665	€ 175,419	€ 9.29	58,500,000	€ 543,465
Nutreco	€ 105,800	€ 61,400	€ 32,500	€ 134,700	€ 1,346,800	€ 1,029,700	€ 151,800	€ 317,100	€ 23.52	34,279,000	€ 550,178
Ordina	€ -81,134	€ 108,214	€ 8,250	€ 18,830	€ 193,267	€ 260,334	€ -46,279	€ -67,067	€ 2.86	41,300,000	€ 326,270
Ten Cate, Kon.	€ 51,000	€ 42,300	€ 8,600	€ 84,700	€ 404,600	€ 161,900	€ -14,000	€ 242,700	€ 16.05	23,966,901	€ 220,975
Unit4	€ 12,281	€ 40,475	€ 6,561	€ 46,195	€ 130,507	€ 183,084	€ -8,670	€ -52,577	€ 7.90	26,263,899	€ 207,485
USG People	€ 18,095	€ 120,826	€ 33,296	€ 105,625	€ 767,112	€ 740,391	€ 81,719	€ 26,721	€ 9.22	64,980,130	€ 599,117
Vopak, Kon.	€ 229,700	€ 109,900	€ 61,000	€ 278,600	€ 355,700	€ 484,400	€ -24,600	€ -128,700	€ 27.00	62,450,656	€ 1,686,168
Wavin	€ 32,082	€ 68,868	€ 15,837	€ 85,113	€ 496,033	€ 389,999	€ 48,847	€ 106,034	€ 2.33	80,393,950	€ 187,318
Wessanen, Kon.	€ 29,500	€ 12,600	€ 40,600	€ 1,500	€ 477,700	€ 291,800	€ 26,000	€ 185,900	€ 4.65	67,601,000	€ 314,345
Accell Group	€ 28,567	€ 9,187	€ 4,557	€ 33,197	€ 225,191	€ 109,445	€ 640	€ 115,746	€ 18.00	9,778,172	€ 176,007
Antonov	-£ 9,738	£ 7,236	£ -	-£ 2,502	£ 3,531	£ 1,650	£ 500	£ 1,881	£ 1.81	2,055,000	£ 3,720
Arseus	€ 14,900	€ 9,269	€ 1,833	€ 22,336	€ 163,518	€ 100,955	€ 18,503	€ 62,563	€ 6.25	30,680,209	€ 191,751
Ballast Nedam	€ 24,000	€ 25,000	€ 14,000	€ 35,000	€ 730,000	€ 660,000	€ 92,000	€ 70,000	€ 13.83	9,870,249	€ 136,506
Beter Bed	€ 22,126	€ 7,309	€ 21,064	€ 8,371	€ 60,699	€ 52,527	€ -11,141	€ 8,172	€ 8.51	21,319,000	€ 181,425
Dockwise	\$ 49,976	\$ 71,555	\$ -	\$ 121,531	\$ 129,202	\$ 186,147	\$ 217,372	\$ (56,945)	\$ 79.00	12,321,000	\$ 973,359
Exact Holding	€ 36,825	€ 8,830	€ 36,529	€ 9,126	€ 102,871	€ 84,721	€ 44,744	€ 18,150	€ 13.18	23,618,000	€ 311,285
Fornix BioSciences	€ 10,265	€ 471	€ 8,525	€ 2,211	€ 43,514	€ 8,188	€ 32,021	€ 35,326	€ 7.00	7,713,614	€ 53,995

Gamma Holding	€ -332,000	€ 62,800	€ 15,200	€ -284,400	€ 321,700	€ 447,700	€ 24,600	€ -126,000	€ 6.34	7,518,535	€ 47,668
Grontmij	€ 38,770	€ 18,337	€ 19,541	€ 37,566	€ 339,497	€ 326,309	€ -6,571	€ 13,188	€ 17.51	17,764,920	€ 311,064
Innoconcepts	€ -22,154	€ 7,939	€ 2,102	€ -16,317	€ 22,992	€ 18,867	€ 4,015	€ 4,125	€ 1.72	23,069,659	€ 39,680
Machintosh Retail	€ 31,249	€ 30,287	€ 21,570	€ 39,966	€ 290,263	€ 188,342	€ 13,951	€ 101,921	€ 6.50	22,268,118	€ 144,743
Pharming Group	€ -26,205	€ 1,421	€ -	€ -24,784	€ 49,615	€ 26,190	€ 23,534	€ 23,425	€ 0.64	97,429,854	€ 62,355
Qurius	€ -22,495	€ 3,014	€ -	€ -19,481	€ 58,702	€ 62,406	€ 3,759	€ -3,704	€ 0.24	105,432,619	€ 25,304
Sligro Food Group	€ 71,348	€ 48,280	€ 13,855	€ 105,773	€ 349,188	€ 261,154	€ 883	€ 88,034	€ 14.90	43,692,000	€ 651,011
Spyker Cars	€ -23,840	€ 1,973	€ -	€ -21,867	€ 16,531	€ 18,683	€ 907	€ -2,152	€ 2.59	15,572,476	€ 40,333
Telegraaf	€ -360,765	€ 70,103	€ 47,750	€ -338,412	€ 172,603	€ 245,932	€ 33,592	€ -73,329	€ 12.45	47,750,000	€ 594,488
TKH Group	€ 50,316	€ 19,970	€ 12,324	€ 57,962	€ 375,179	€ 245,871	€ 9,519	€ 129,308	€ 8.00	35,290,000	€ 282,320
Ajax	€ -3,410	€ 1,294	€ -	€ -2,116	€ 54,405	€ 52,037	€ 18,609	€ 2,368	€ 6.30	18,333,333	€ 115,500
Alanheri	€ -2,173	€ 225	€ -	€ -1,948	€ 5,306	€ 5,613	€ 48	€ -307	€ 8.80	769,112	€ 6,768
Amsterdam Commodities	€ 8,742	€ 185	€ 6,534	€ 2,393	€ 49,047	€ 28,116	€ 5,401	€ 20,931	€ 3.40	16,334,866	€ 55,539
AMT Holding	€ -16,919	€ 653	€ -	€ -16,266	€ 35,344	€ 4,623	€ 34,150	€ 30,721	€ 3.00	14,676,645	€ 44,030
AND Intl Publishers	€ 1,332	€ 120	€ -	€ 1,452	€ 1,920	€ 2,264	€ 765	€ -344	€ 3.15	3,249,050	€ 10,235
Batenburg	€ 6,015	€ 1,977	€ 2,890	€ 5,102	€ 49,958	€ 27,734	€ 5,382	€ 22,224	€ 19.14	4,800,000	€ 91,872
BE Semiconductor	€ -32,656	€ 27,699	€ -	€ -4,957	€ 151,256	€ 53,029	€ 74,008	€ 98,227	€ 1.66	33,728,517	€ 55,989
Brill, Kon.	€ 179	€ 1,220	€ 1,103	€ 296	€ 21,373	€ 16,560	€ 2,334	€ 4,813	€ 11.55	1,873,507	€ 21,639
Crown Van Gelder	€ -14,882	€ 9,773	€ 4,356	€ -9,465	€ 47,492	€ 27,241	€ 1,750	€ 20,251	€ 5.83	3,000,000	€ 17,490
Cryo Save Group	€ 2,568	€ 1,644	€ -	€ 4,212	€ 14,345	€ 7,442	€ 4,697	€ 6,903	€ 3.50	9,639,191	€ 33,737
Ctac	€ 4,947	€ 2,401	€ 667	€ 6,681	€ 21,254	€ 21,313	€ -1,884	€ -59	€ 2.35	11,069,062	€ 26,012
DOC Data	€ 3,676	€ 3,749	€ 1,890	€ 5,535	€ 23,512	€ 18,538	€ 6,034	€ 4,974	€ 5.61	6,668,000	€ 37,407
DPA Group	€ -13,491	€ 2,042	€ -	€ -11,449	€ 21,308	€ 25,183	€ -7,115	€ -3,875	€ 2.52	11,053,366	€ 27,854
Galapagos	€ -14,584	€ 8,909	€ -	€ -5,675	€ 59,849	€ 29,751	€ 27,316	€ 30,098	€ 3.44	21,188,829	€ 72,890
HES Beheer	€ 14,400	€ 6,564	€ 9,189	€ 11,775	€ 33,262	€ 23,599	€ 17,951	€ 9,663	€ 16.20	8,752,136	€ 141,785
HITT	€ 4,782	€ 3,023	€ 1,643	€ 6,162	€ 20,634	€ 8,760	€ 8,502	€ 11,874	€ 3.50	4,694,158	€ 16,430
Holland Colours	€ -621	€ 3,096	€ 860	€ 1,615	€ 18,542	€ 19,317	€ -2,966	€ -775	€ 14.99	860,351	€ 12,897
Hunter Douglas	\$ (34,000)	\$ 86,000	\$ 112,000	\$ (60,000)	\$ 1,771,000	\$ 771,000	\$ 36,000	\$ 1,000,000	\$ 32.74	35,366,000	\$ 1,157,883
Hydratec	€ 9,717	€ 675	€ 1,183	€ 9,209	€ 21,608	€ 2,965	€ 15,363	€ 18,643	€ 15.86	1,183,094	€ 18,764
ICT Automatisering	€ 5,395	€ 746	€ 1,151	€ 4,990	€ 37,877	€ 18,733	€ 9,209	€ 19,144	€ 4.71	8,747,544	€ 41,201

Kendrion	€ 12,900	€ 8,300	€ 3,900	€ 17,300	€ 174,000	€ 153,300	€ -9,600	€ 20,700	€ 7.20	10,272,000	€ 73,958
LBI International	90,900 kr	84,700 kr	- kr	175,600 kr	873,200 kr	722,000 kr	185,800 kr	151,200 kr	13.03 kr	62,023,276	808,163 kr
Nedap	€ 13,884	€ 5,346	€ 12,862	€ 6,368	€ 49,153	€ 23,568	€ 457	€ 25,585	€ 17.00	6,692,920	€ 113,780
Nedsense Enterprice	€ -6,177	€ 2,882	€ -	€ -3,295	€ 6,242	€ 8,300	€ 1,720	€ -2,058	€ 0.53	4,433,702	€ 2,350
Neways Electronics	€ -454	€ 4,391	€ 4,370	€ -433	€ 82,320	€ 50,578	€ 295	€ 31,742	€ 5.00	9,644,208	€ 48,221
Oce	€ 3,764	€ 188,680	€ 56,915	€ 135,529	€ 79,361	€ 804,986	€ 79,361	€ -725,625	€ 3.46	84,813,300	€ 293,454
Octopus	€ -6,209	€ 1,607	€ -	€ -4,602	€ 6,139	€ 18,372	€ -882	€ -12,233	€ 0.86	16,207,076	€ 13,938
Oranjewoud A	€ 17,186	€ 12,671	€ -	€ 29,857	€ 132,081	€ 95,809	€ 9,251	€ 36,272	€ 4.20	36,171,731	€ 151,921
Porceleyne Fles	€ 516	€ 375	€ 5,425	€ -4,534	€ 12,856	€ 8,955	€ -4,346	€ 3,901	€ 14.50	763,622	€ 11,073
Punch Graphix	€ 15,904	€ 18,393	€ -	€ 34,297	€ 92,263	€ 58,385	€ 16,668	€ 33,878	€ 1.74	28,710,370	€ 49,956
RoodMicro Tec	€ 84	€ 1,892	€ -	€ 1,976	€ 3,669	€ 6,663	€ -622	€ -2,994	€ 0.15	30,489,000	€ 4,573
Roto Smeets	€ 1,286	€ 31,407	€ 5,785	€ 26,908	€ 102,390	€ 104,441	€ 1,558	€ -2,051	€ 16.90	3,290,275	€ 55,606
Royal Dutch Shell B	\$26,476,000	\$13,656,000	\$ 9,516,000	\$ 30,616,000	\$ 116,570,000	\$ 105,529,000	\$15,188,000	\$11,041,000	\$ 25.77	2,665,893,421	\$ 68,700,073
Simac Techniek	€ 2,577	€ 3,255	€ 710	€ 5,122	€ 48,640	€ 44,136	€ 4,574	€ 4,504	€ 1.35	14,531,000	€ 19,617
Sopheon Plc	£ 29	£ 1,244	£ -	£ 1,273	£ 6,154	£ 5,734	£ 2,586	£ 420	£ 0.09	145,579,027	£ 13,102
Stern Groep	€ 4,422	€ 8,689	€ 4,620	€ 8,491	€ 224,333	€ 345,324	€ 1,016	€ -120,991	€ 13.15	5,332,500	€ 70,122
Thunderbird	\$ 33,505	\$ 14,061	\$ -	\$ 47,566	\$ 44,289	\$ 57,251	\$ 21,783	\$ (12,962)	\$ 1.85	19,653,081	\$ 36,358
Tie Holding	€ -2,098	€ 992	€ -	€ -1,106	€ 3,124	€ 4,949	€ 1,088	€ -1,825	€ 0.10	54,755,000	€ 5,476
TMC	€ 4,040	€ 564	€ -	€ 4,604	€ 13,017	€ 7,217	€ 2,123	€ 5,800	€ 8.00	3,564,845	€ 28,519
Value8	€ -875	€ 26	€ 3,527	€ -4,376	€ 708	€ 201	€ 593	€ 507	€ 5.28	1,763,000	€ 9,309
Vivenda Media Group	€ 1,183	€ 562	€ 86	€ 1,659	€ 1,371	€ 3,802	€ 33	€ -2,431	€ 4.60	75,000,000	€ 345,000
Wegener	€ 11,300	€ 24,726	€ 1,567	€ 34,459	€ 110,358	€ 395,476	€ 31,117	€ -285,118	€ 4.60	45,009,000	€ 207,041

31-Dec-2009	(amount in thousands)									
Name company	Cash and - equivalents	Bank debt	Total debt	Cash flow	SD cash flow	Net working capital	Equity (book value)	Equity (market value)	Total assets	Net assets
Ahold, Kon.	€ 2,688,000	€ 1,715,000	€ 3,700,000	€ 1,453,000	€ 1,028,194	€ 1,080,000	€ 5,440,000	€ 11,138,848	€ 13,933,000	€ 11,245,000
Air-France KLM	€ 3,751,000	€ 116,000	€ 11,163,000	€ 3,232,000	€ 1,059,144	€ -2,447,000	€ 5,418,000	€ 3,515,568	€ 27,775,000	€ 24,024,000
Akzo Nobel	€ 1,919,000	€ 216,000	€ 3,872,000	€ 467,000	€ 4,637,890	€ 1,681,000	€ 8,245,000	€ 10,776,569	€ 18,880,000	€ 16,961,000
ArcelorMittal	\$ 5,919,000	\$ 24,321	\$ 24,812,000	\$ 3,631,000	\$ 4,350,637.68	\$ 9,277,000	\$ 65,398,000	\$ 66,087,728	\$ 127,697,000	\$ 121,778,000
ASML Holding	€ 1,037,074	€ 663,102	€ 869,328	€ -97,210	€ 407,449	€ 1,704,714	€ 1,774,768	€ 10,407,335	€ 3,727,497	€ 2,690,423
BAM Groep, Kon.	€ 715,152	€ 1,388,858	€ 2,106,825	€ 70,405	€ 138,932	€ 786,561	€ 881,214	€ 980,148	€ 6,808,841	€ 6,093,689
Boskalis Westminster, Kon.	€ 593,489	€ 75,629	€ 81,430	€ 388,522	€ 89,531	€ 33,531	€ 1,304,921	€ 2,390,459	€ 2,803,550	€ 2,210,061
DSM, Kon.	€ 1,340,000	€ 128,000	€ 2,204,000	€ 787,000	€ 65,658	€ 2,257,000	€ 5,011,000	€ 5,583,806	€ 9,614,000	€ 8,274,000
Fugro	€ 59,761	€ 511,445	€ 634,721	€ 398,696	€ 91,253	€ 140,301	€ 1,199,510	€ 3,122,312	€ 2,366,317	€ 2,306,556
Heineken	€ 364,000	€ 3,467,000	€ 8,702,000	€ 1,833,000	€ 389,339	€ -1,203,000	€ 5,647,000	€ 8,151,544	€ 20,180,000	€ 19,816,000
KPN, Kon.	€ 2,690,000	€ 13,198,000	€ 13,371,000	€ 1,190,000	€ 1,676,214	€ -532,000	€ 3,841,000	€ 19,285,647	€ 24,851,000	€ 22,161,000
Philips, Kon.	€ 4,386,000	€ 3,983,000	€ 4,267,000	€ 1,259,000	€ 2,393,078	€ 3,859,000	€ 14,644,000	€ 19,179,811	€ 30,527,000	€ 26,141,000
Randstad	€ 229,500	€ 1,244,200	€ 1,284,800	€ 312,400	€ 111,600	€ 500,600	€ 2,492,500	€ 5,917,633	€ 6,458,100	€ 6,228,600
Reed Elsevier	€ 3,000	€ 10,000	€ 10,000	€ 189,000	€ 714,626	€ -61,000	€ 970,000	€ 42,321	€ 1,036,000	€ 1,033,000
Royal Dutch Shell A	\$ 9,719,000	\$ 5,675,000	\$ 35,033,000	\$ 16,650,000	\$ 9,901,034.53	\$ 11,659,000	\$ 138,135,000	\$ 104,540,187	\$ 292,181,000	\$ 282,462,000
SBM Offshore	\$ 146,712	\$ 1,545,631	\$ 1,610,705	\$ 479,900	\$ 50,606.44	\$ (137,818)	\$ 1,816,832	\$ 3,241,506	\$ 4,658,481	\$ 4,511,769
TNT	€ 910,000	€ 2,016,000	€ 2,612,000	€ 744,000	€ 200,021	€ -48,000	€ 2,080,000	€ 7,976,253	€ 7,695,000	€ 6,785,000
TOMTOM	€ 368,403	€ 175,000	€ 789,528	€ 192,722	€ 532,198	€ -33,132	€ 1,017,570	€ 1,385,738	€ 2,685,760	€ 2,317,357
Unilever	€ 2,397,000	€ 9,528,000	€ 9,971,000	€ 2,585,000	€ 705,361	€ -788,000	€ 12,536,000	€ 398,947	€ 37,016,000	€ 34,619,000
Wolters Kluwer	€ 409,000	€ 2,256,000	€ 2,417,000	€ 454,000	€ 290,576	€ -884,000	€ 1,355,000	€ 4,468,181	€ 6,053,000	€ 5,644,000
Aalberts Industries	€ 53,938	€ 549,224	€ 630,667	€ 113,921	€ 26,989	€ 68,588	€ 626,517	€ 1,070,549	€ 1,577,907	€ 1,523,969
AMG	\$ 117,016	\$ 200,833	\$ 203,776	\$ (74,472)	\$ 51,898.65	\$ 221,865	\$ 228,423	\$ 340,548	\$ 810,978	\$ 693,962
Arcadis	€ 212,552	€ 307,378	€ 374,562	€ 78,198	€ 8,201	€ 257,694	€ 351,704	€ 1,052,584	€ 1,315,153	€ 1,102,601
ASM International	€ 293,902	€ 238,867	€ 265,430	€ -27,398	€ 80,705	€ 419,535	€ 241,229	€ 918,994	€ 851,700	€ 557,798
Brunel International	€ 73,157	€ -	€ 18,687	€ 15,828	€ 7,205	€ 152,457	€ 180,875	€ 542,195	€ 254,728	€ 181,571
Crucell	€ 327,837	€ -	€ 52,300	€ 48,239	€ 64,801	€ 496,905	€ 738,265	€ 1,132,104	€ 1,011,131	€ 683,294
CSM	€ 120,400	€ 386,500	€ 448,700	€ 124,000	€ 87,106	€ 284,000	€ 997,800	€ 1,191,330	€ 2,003,700	€ 1,883,300

Draka Holding	€ 67,100	€ 348,300	€ 368,400	€ 77,100	€ 24,409	€ 211,400	€ 549,500	€ 596,130	€ 1,589,300	€ 1,522,200
Heijmans	€ 200,054	€ 143,645	€ 421,024	€ -6,251	€ 41,664	€ 322,353	€ 425,825	€ 205,748	€ 1,853,407	€ 1,653,353
Imtech	€ 58,342	€ 514,008	€ 548,494	€ 151,571	€ 36,619	€ 116,589	€ 501,128	€ 1,476,618	€ 2,853,830	€ 2,795,488
Logica	£ 110,100	£ 421,400	£ 431,100	£ 160,500	£ 51,724.10	-£ 92,300	£ 1,897,300	£ 3,645,899	£ 3,652,100	£ 3,542,000
Mediq	€ 109,737	€ 199,287	€ 279,236	€ 80,526	€ 109,374	€ 158,866	€ 454,107	€ 756,643	€ 1,139,435	€ 1,029,698
Nutreco	€ 201,000	€ 147,300	€ 455,500	€ 128,000	€ 158,347	€ 267,800	€ 740,700	€ 644,958	€ 2,125,300	€ 1,924,300
Ordina	€ 39,162	€ 72,500	€ 88,172	€ 24,653	€ 15,484	€ 9,924	€ 184,140	€ 820,845	€ 400,669	€ 361,507
Ten Cate, Kon.	€ -1,900	€ 199,800	€ 208,300	€ 66,200	€ 11,860	€ 148,800	€ 384,900	€ 461,995	€ 748,500	€ 750,400
Unit4	€ 14,709	€ 51,802	€ 249,880	€ 59,679	€ 10,396	€ -33,726	€ 134,917	€ 439,007	€ 474,397	€ 459,688
USG People	€ 24,404	€ 416,866	€ 417,372	€ 24,106	€ 63,845	€ -138,920	€ 639,341	€ 897,667	€ 1,643,630	€ 1,619,226
Vopak, Kon.	€ 172,600	€ 116,300	€ 1,206,300	€ 387,100	€ 78,499	€ 14,900	€ 1,332,800	€ 3,547,433	€ 3,136,000	€ 2,963,400
Wavin	€ 58,626	€ 9,469	€ 315,899	€ 62,591	€ 32,007	€ 128,250	€ 558,617	€ 141,200	€ 1,314,865	€ 1,256,239
Wessanen, Kon.	€ 20,200	€ 234,600	€ 235,300	€ 280,200	€ 135,206	€ -37,700	€ 155,600	€ 283,311	€ 637,900	€ 617,700
Accell Group	€ 849	€ 85,148	€ 96,328	€ 31,430	€ 6,243	€ 120,030	€ 151,756	€ 292,198	€ 337,302	€ 336,453
Antonov	£ 239	£ -	£ 1,962	-£ 1,864	£ 884.90	-£ 223	£ 681	£ 383	£ 2,643	£ 2,404
Arseus	€ 34,284	€ 145,424	€ 170,100	€ 22,549	€ 3,230	€ 63,917	€ 196,352	€ 243,229	€ 472,160	€ 437,876
Ballast Nedam	€ 111,000	€ 218,000	€ 369,000	€ 19,000	€ 14,742	€ 38,000	€ 162,000	€ 147,469	€ 1,034,000	€ 923,000
Beter Bed	€ 17,156	€ 9,000	€ 24,884	€ 19,311	€ 4,556	€ 29,356	€ 55,052	€ 336,698	€ 109,077	€ 91,921
Dockwise	\$ 51,858	\$ 2,653	\$ 679,646	\$ 132,994	\$ 61,214.15	\$ (15,722)	\$ 858,262	\$ 2,374,920	\$ 1,686,888	\$ 1,635,030
Exact Holding	€ 48,915	€ -	€ -	€ 7,556	€ 9,617	€ 15,351	€ 138,562	€ 427,781	€ 230,251	€ 181,336
Fornix BioSciences	€ 35,158	€ -	€ 1,701	€ 3,513	€ 3,799	€ 38,571	€ 54,810	€ 58,748	€ 61,191	€ 26,033
Gamma Holding	€ 25,700	€ 285,200	€ 285,200	€ -9,800	€ 206,176	€ 268,400	€ 73,900	€ 78,794	€ 537,500	€ 511,800
Grontmij	€ -19,629	€ 103,872	€ 104,592	€ 18,292	€ 9,541	€ -14,027	€ 167,830	€ 300,227	€ 596,179	€ 615,808
Innoconcepts	€ 19,505	€ 38,576	€ 45,680	€ -41,947	€ 28,233	€ 4,601	€ 66,019	€ 71,867	€ 142,260	€ 122,755
Machintosh Retail	€ 24,959	€ 82,851	€ 160,455	€ 56,789	€ 8,019	€ 83,413	€ 233,992	€ 334,726	€ 593,457	€ 568,498
Pharming Group	€ 2,338	€ 13,761	€ 23,529	€ -30,639	€ 7,395	€ -7,700	€ 13,313	€ 69,525	€ 55,883	€ 53,545
Qurius	€ 9,591	€ 13,457	€ 35,059	€ -4,682	€ 11,436	€ -4,554	€ 40,792	€ 66,611	€ 95,511	€ 85,920
Sligro Food Group	€ 24,684	€ 128,283	€ 205,837	€ 106,010	€ 16,299	€ 118,885	€ 482,323	€ 1,063,005	€ 852,196	€ 827,512
Spyker Cars	€ 1,018	€ -	€ 54,787	€ -20,561	€ 30,278	€ -31,599	€ 2,613	€ 33,709	€ 64,183	€ 63,165
Telegraaf	€ 56,506	€ -	€ 178,275	€ 114,722	€ 322,723	€ -47,316	€ 469,297	€ 627,435	€ 762,796	€ 706,290

TKH Group	€ 43,554	€ 112,944	€ 112,944	€ 17,898	€ 18,184	€ 67,753	€ 281,860	€ 506,287	€ 642,130	€ 598,576
Ajax	€ 8,050	€ 155	€ 8,128	€ -21,285	€ 15,015	€ -12,445	€ 39,228	€ 117,333	€ 95,828	€ 87,778
Alanheri	€ 69	€ 3,401	€ 4,037	€ 395	€ 1,340	€ -753	€ 3,697	€ 3,922	€ 8,952	€ 8,883
Amsterdam Commodities	€ 9,430	€ 16,133	€ 22,625	€ 5,109	€ 1,123	€ 24,621	€ 39,382	€ 89,025	€ 71,892	€ 62,462
AMT Holding	€ 22,624	€ -	€ 8,239	€ -16,487	€ 3,767	€ 18,628	€ 18,410	€ 44,886	€ 28,305	€ 5,681
AND Intl Publishers	€ 1,691	€ -	€ 549	€ 1,560	€ 352	€ 494	€ 19,277	€ 26,090	€ 23,096	€ 21,405
Batenburg	€ 16,135	€ -	€ 13,652	€ 2,358	€ 2,018	€ 22,977	€ 46,375	€ 107,952	€ 77,182	€ 61,047
BE Semiconductor	€ 73,125	€ 14,456	€ 55,197	€ 15,068	€ 11,215	€ 99,444	€ 156,276	€ 90,055	€ 269,540	€ 196,415
Brill, Kon.	€ 1,983	€ 4,919	€ 4,919	€ 3,426	€ 1,738	€ 5,485	€ 19,968	€ 19,157	€ 37,227	€ 35,244
Crown Van Gelder	€ 1,142	€ 9,297	€ 14,731	€ 10,662	€ 9,152	€ 26,261	€ 88,017	€ 24,300	€ 118,329	€ 117,187
Cryo Save Group	€ 7,485	€ 3,975	€ 4,059	€ 3,209	€ 937	€ 7,007	€ 43,807	€ 46,750	€ 68,835	€ 61,350
Ctac	€ -666	€ 4,364	€ 8,050	€ -726	€ 3,082	€ -4,632	€ 18,361	€ 26,741	€ 43,902	€ 44,568
DOC Data	€ 6,147	€ -	€ 10,951	€ 10,881	€ 3,536	€ 11,666	€ 27,411	€ 56,440	€ 49,012	€ 42,865
DPA Group	€ -2,115	€ 3,351	€ 9,293	€ -6,299	€ 6,858	€ -2,640	€ 15,614	€ 24,863	€ 39,293	€ 41,408
Galapagos	€ 47,391	€ -	€ 18,967	€ 9,965	€ 9,459	€ 53,342	€ 108,877	€ 193,609	€ 143,709	€ 96,318
HES Beheer	€ 18,445	€ 6,278	€ 12,794	€ 16,166	€ 2,710	€ 6,790	€ 80,756	€ 199,986	€ 111,488	€ 93,043
HITT	€ 6,661	€ 5,794	€ 9,165	€ 2,031	€ 1,903	€ 11,959	€ 16,607	€ 16,899	€ 26,790	€ 20,129
Holland Colours	€ -3,285	€ 9,601	€ 10,385	€ 3,746	€ 1,000	€ 5,058	€ 19,986	€ 17,637	€ 39,229	€ 42,514
Hunter Douglas	\$ 69,000	\$ 201,000	\$ 359,000	\$ 134,000	\$ 164,568.88	\$ 739,000	\$ 1,376,000	\$ 1,737,178	\$ 2,383,000	\$ 2,314,000
Hydratec	€ 13,551	€ -	€ 1,202	€ -745	€ 4,151	€ 16,567	€ 20,861	€ 16,859	€ 24,079	€ 10,528
ICT Automatisering	€ 11,113	€ 2,500	€ 9,585	€ -2,981	€ 3,275	€ 14,683	€ 41,389	€ 41,551	€ 59,715	€ 48,602
Kendrion	€ 1,000	€ 18,200	€ 18,600	€ 3,700	€ 8,430	€ 21,400	€ 96,100	€ 105,356	€ 152,800	€ 151,800
LBI International	217,400 kr	414,500 kr	471,200 kr	- 610,700 kr	383,947.36 kr	180,100 kr	1,415,600 kr	796,379 kr	2,425,800 kr	2,208,400 kr
Nedap	€ -9,658	€ 15,294	€ 30,527	€ -4,920	€ 7,423	€ 12,073	€ 46,501	€ 115,788	€ 102,337	€ 111,995
Nedsense Enterprice	€ 747	€ -	€ 2,676	€ -94	€ 4,706	€ -4,234	€ 4,316	€ 5,899	€ 12,674	€ 11,927
Neways Electronics	€ 691	€ 11,892	€ 17,755	€ -1,015	€ 8,990	€ 26,127	€ 40,423	€ 61,144	€ 91,592	€ 90,901
Oce	€ 101,765	€ 175,241	€ 543,071	€ 140,305	€ 50,975	€ -601,843	€ 579,220	€ 730,742	€ 2,207,180	€ 2,105,415
Octopus	€ 3,313	€ 11	€ 5,903	€ -187	€ 5,822	€ -467	€ 11,343	€ 47,144	€ 29,741	€ 26,428
Oranjewoud A	€ 22,362	€ 7,043	€ 61,723	€ 23,399	€ 5,959	€ 43,272	€ 121,361	€ 175,071	€ 261,537	€ 239,175
Porceleyne Fles	€ -4,376	€ 4,887	€ 4,887	€ 1,014	€ 2,466	€ 4,226	€ 10,582	€ 7,842	€ 19,470	€ 23,846

Punch Graphix	€ 39,835	€ 10,000	€ 67,849	€ 7,705	€ 17,443	€ 34,418	€ 166,964	€ 40,769	€ 285,428	€ 245,593
RoodMicro Tec	€ -416	€ 2,699	€ 4,851	€ 312	€ 707	€ -974	€ 3,115	€ 5,983	€ 12,449	€ 12,865
Roto Smeets	€ 1,220	€ -	€ 19,171	€ 2,757	€ 15,847	€ -43,408	€ 102,681	€ 33,100	€ 261,868	€ 260,648
Royal Dutch Shell B	\$ 9,719,000	\$ 5,675,000	\$ 35,033,000	\$ 16,650,000	\$ 9,901,034.53	\$ 11,659,000	\$ 138,135,000	\$ 77,546,030	\$ 292,181,000	\$ 282,462,000
Simac Techniek	€ 5,922	€ -	€ 2,710	€ 3,171	€ 1,223	€ 5,825	€ 16,438	€ 26,406	€ 63,482	€ 57,560
Sopheon Plc	£ 1,624	£ 1,712	£ 2,562	-£ 236	£ 674.25	-£ 249	£ 2,685	£ 13,102	£ 8,685	£ 7,061
Stern Groep	€ 918	€ 92,111	€ 260,515	€ 12,623	€ 5,459	€ -114,899	€ 135,355	€ 99,527	€ 503,912	€ 502,994
Thunderbird	\$ 10,898	\$ -	\$ 123,016	\$ 37,004	\$ 23,111	\$ (27,738)	\$ 30,701	\$ 22,886	\$ 241,217	\$ 230,319
Tie Holding	€ 457	€ -	€ 899	€ 699	€ 1,309	€ -1,992	€ 4,078	€ 12,995	€ 9,076	€ 8,619
TMC	€ 1,825	€ 2,000	€ 3,182	€ 411	€ 1,888	€ 2,891	€ 15,068	€ 24,861	€ 23,803	€ 21,978
Value8	€ 2,396	€ -	€ 301	€ 149	€ 2,632	€ 2,587	€ 4,710	€ 10,807	€ 5,167	€ 2,771
Vivenda Media Group	€ 11	€ 2,705	€ 3,565	€ 10,761	€ 5,131	€ -2,779	€ 4,322	€ 2,940	€ 8,687	€ 8,676
Wegener	€ 3,500	€ 110,000	€ 207,143	€ 26,807	€ 8,549	€ -146,331	€ 311,704	€ 179,586	€ 699,522	€ 696,022

31-Dec-2009											
Name company	(amount in thousands)				Current assets	Current liabilities	Cash and - equivalents	Net working capital	Closed share price 31 dec	Outstanding shares	Equity (market value)
	Net income	Deprec. & Amort.	Dividends paid	Cash flow							
Ahold, Kon.	€ 894,000	€ 771,000	€ 212,000	€ 1,453,000	€ 5,105,000	€ 4,025,000	€ 2,688,000	€ 1,080,000	€ 9.43	1,181,214,000	€ 11,138,848
Air-France KLM	€ 1,560,000	€ 1,675,000	€ 3,000	€ 3,232,000	€ 8,020,000	€ 10,467,000	€ 3,751,000	€ -2,447,000	€ 11.71	300,219,278	€ 3,515,568
Akzo Nobel	€ 362,000	€ 559,000	€ 454,000	€ 467,000	€ 6,235,000	€ 4,554,000	€ 1,919,000	€ 1,681,000	€ 46.40	232,253,633	€ 10,776,569
ArcelorMittal	\$ 75,000	\$ 4,894,000	\$ 1,338,000	\$ 3,631,000	\$ 32,807,000	\$ 23,530,000	\$ 5,919,000	\$ 9,277,000	\$ 43.78	1,509,541,518	\$ 66,087,728
ASML Holding	€ -150,925	€ 140,201	€ 86,486	€ -97,210	€ 2,748,884	€ 1,044,170	€ 1,037,074	€ 1,704,714	€ 24.00	433,638,976	€ 10,407,335
BAM Groep, Kon.	€ 36,231	€ 102,731	€ 68,557	€ 70,405	€ 4,619,572	€ 3,833,011	€ 715,152	€ 786,561	€ 7.25	135,192,833	€ 980,148
Boskalis Westminster, Kon.	€ 229,165	€ 195,677	€ 36,320	€ 388,522	€ 1,418,407	€ 1,384,876	€ 593,489	€ 33,531	€ 27.05	88,371,852	€ 2,390,459
DSM, Kon.	€ 336,000	€ 656,000	€ 205,000	€ 787,000	€ 4,229,000	€ 1,972,000	€ 1,340,000	€ 2,257,000	€ 34.46	162,037,329	€ 5,583,806
Fugro	€ 273,065	€ 184,030	€ 58,399	€ 398,696	€ 779,823	€ 639,522	€ 59,761	€ 140,301	€ 40.26	77,553,702	€ 3,122,312
Heineken	€ 1,142,000	€ 1,083,000	€ 392,000	€ 1,833,000	€ 4,153,000	€ 5,356,000	€ 364,000	€ -1,203,000	€ 33.27	245,011,848	€ 8,151,544
KPN, Kon.	€ 2,175,000	€ 54,000	€ 1,039,000	€ 1,190,000	€ 4,689,000	€ 5,221,000	€ 2,690,000	€ -532,000	€ 11.84	1,628,855,322	€ 19,285,647

Philips, Kon.	€ 424,000	€ 1,469,000	€ 634,000	€ 1,259,000	€ 11,909,000	€ 8,050,000	€ 4,386,000	€ 3,859,000	€ 20.68	927,457,000	€ 19,179,811
Randstad	€ 67,600	€ 252,200	€ 7,400	€ 312,400	€ 2,601,000	€ 2,100,400	€ 229,500	€ 500,600	€ 34.90	169,559,691	€ 5,917,633
Reed Elsevier	€ 219,000	€ 230,000	€ 260,000	€ 189,000	€ 5,000	€ 66,000	€ 3,000	€ -61,000	€ 8.60	4,921,000	€ 42,321
Royal Dutch Shell A	\$12,718,000	\$ 14,458,000	\$ 10,526,000	\$16,650,000	\$ 96,457,000	\$ 84,798,000	\$ 9,719,000	\$11,659,000	\$ 30.26	3,454,731,900	\$104,540,187
SBM Offshore	\$ 229,981	\$ 319,838	\$ 69,919	\$ 479,900	\$ 1,376,391	\$ 1,514,209	\$ 146,712	\$ (137,818)	\$ 19.71	164,459,980	\$ 3,241,506
TNT	€ 289,000	€ 489,000	€ 34,000	€ 744,000	€ 2,789,000	€ 2,837,000	€ 910,000	€ -48,000	€ 21.50	370,988,519	€ 7,976,253
TOMTOM	€ 86,386	€ 106,336	€ -	€ 192,722	€ 765,783	€ 798,915	€ 368,403	€ -33,132	€ 6.25	221,718,074	€ 1,385,738
Unilever	€ 3,659,000	€ 1,032,000	€ 2,106,000	€ 2,585,000	€ 10,811,000	€ 11,599,000	€ 2,397,000	€ -788,000	€ 22.75	17,536,148	€ 398,947
Wolters Kluwer	€ 110,000	€ 469,000	€ 125,000	€ 454,000	€ 1,514,000	€ 2,398,000	€ 409,000	€ -884,000	€ 15.30	292,038,000	€ 4,468,181
Aalberts Industries	€ 42,005	€ 82,663	€ 10,747	€ 113,921	€ 479,766	€ 411,178	€ 53,938	€ 68,588	€ 10.09	106,100,000	€ 1,070,549
AMG	\$ (98,230)	\$ 23,758	\$ -	\$ (74,472)	\$ 493,494	\$ 271,629	\$ 117,016	\$ 221,865	\$ 12.66	26,899,548	\$ 340,548
Arcadis	€ 73,808	€ 31,653	€ 27,263	€ 78,198	€ 822,258	€ 564,564	€ 212,552	€ 257,694	€ 15.83	66,493,000	€ 1,052,584
ASM International	€ -67,317	€ 39,919	€ -	€ -27,398	€ 648,367	€ 228,832	€ 293,902	€ 419,535	€ 17.76	51,745,140	€ 918,994
Brunel International	€ 32,069	€ 3,383	€ 19,624	€ 15,828	€ 225,875	€ 73,418	€ 73,157	€ 152,457	€ 23.45	23,121,312	€ 542,195
Crucell	€ 23,938	€ 24,301	€ -	€ 48,239	€ 655,071	€ 158,166	€ 327,837	€ 496,905	€ 13.90	81,446,295	€ 1,132,104
CSM	€ 86,800	€ 68,700	€ 31,500	€ 124,000	€ 674,200	€ 390,200	€ 120,400	€ 284,000	€ 18.38	64,816,665	€ 1,191,330
Draka Holding	€ 15,500	€ 67,000	€ 5,400	€ 77,100	€ 816,100	€ 604,700	€ 67,100	€ 211,400	€ 13.46	44,289,000	€ 596,130
Heijmans	€ -40,393	€ 34,142	€ -	€ -6,251	€ 1,383,487	€ 1,061,134	€ 200,054	€ 322,353	€ 12.21	16,850,809	€ 205,748
Imtech	€ 127,055	€ 53,754	€ 29,238	€ 151,571	€ 1,640,097	€ 1,523,508	€ 58,342	€ 116,589	€ 18.84	78,376,728	€ 1,476,618
Logica	£ 40,100	£ 146,400	£ 26,000	£ 160,500	£ 1,275,100	£ 1,367,400	£ 110,100	-£ 92,300	£ 113.70	32,065,950	£ 3,645,899
Mediq	€ 67,802	€ 26,221	€ 13,497	€ 80,526	€ 621,336	€ 462,470	€ 109,737	€ 158,866	€ 12.89	58,700,000	€ 756,643
Nutreco	€ 93,000	€ 64,800	€ 29,800	€ 128,000	€ 1,208,300	€ 940,500	€ 201,000	€ 267,800	€ 39.29	34,995,000	€ 644,958
Ordina	€ 180	€ 24,473	€ -	€ 24,653	€ 150,970	€ 141,046	€ 39,162	€ 9,924	€ 5.05	49,300,000	€ 820,845
Ten Cate, Kon.	€ 23,100	€ 47,600	€ 4,500	€ 66,200	€ 284,700	€ 135,900	€ -1,900	€ 148,800	€ 18.43	25,067,580	€ 461,995
Unit4	€ 19,733	€ 40,021	€ 75	€ 59,679	€ 131,902	€ 165,628	€ 14,709	€ -33,726	€ 16.65	26,366,808	€ 439,007
USG People	€ -30,826	€ 55,079	€ 147	€ 24,106	€ 471,196	€ 610,116	€ 24,404	€ -138,920	€ 12.70	70,682,433	€ 897,667
Vopak, Kon.	€ 276,500	€ 131,100	€ 20,500	€ 387,100	€ 406,000	€ 391,100	€ 172,600	€ 14,900	€ 55.50	63,917,715	€ 3,547,433
Wavin	€ 1,819	€ 62,949	€ 2,177	€ 62,591	€ 449,699	€ 321,449	€ 58,626	€ 128,250	€ 1.75	80,685,460	€ 141,200
Wessanen, Kon.	€ 221,600	€ 58,600	€ -	€ 280,200	€ 411,700	€ 449,400	€ 20,200	€ -37,700	€ 4.19	67,616,000	€ 283,311
Accell Group	€ 32,740	€ 7,401	€ 8,711	€ 31,430	€ 223,616	€ 103,586	€ 849	€ 120,030	€ 29.17	10,017,084	€ 292,198

Antonov	-£ 4,814	£ 2,950	£ -	-£ 1,864	£ 1,739	£ 1,962	£ 239	-£ 223	£ 0.54	708,500	£ 383
Arseus	€ 19,639	€ 11,983	€ 9,073	€ 22,549	€ 182,628	€ 118,711	€ 34,284	€ 63,917	€ 8.05	30,214,757	€ 243,229
Ballast Nedam	€ 6,000	€ 25,000	€ 12,000	€ 19,000	€ 682,000	€ 644,000	€ 111,000	€ 38,000	€ 15.20	9,701,918	€ 147,469
Beter Bed	€ 23,918	€ 7,750	€ 12,357	€ 19,311	€ 74,565	€ 45,209	€ 17,156	€ 29,356	€ 15.80	21,310,000	€ 336,698
Dockwise	\$ 36,581	\$ 96,413	\$ -	\$ 132,994	\$ 142,651	\$ 158,373	\$ 51,858	\$ (15,722)	\$ 180.00	13,194,000	\$ 2,374,920
Exact Holding	€ 33,841	€ 8,621	€ 34,906	€ 7,556	€ 97,781	€ 82,430	€ 48,915	€ 15,351	€ 18.75	22,815,000	€ 427,781
Fornix BioSciences	€ 11,049	€ 572	€ 8,108	€ 3,513	€ 44,658	€ 6,087	€ 35,158	€ 38,571	€ 7.30	8,047,688	€ 58,748
Gamma Holding	€ -69,000	€ 59,500	€ 300	€ -9,800	€ 281,600	€ 13,200	€ 25,700	€ 268,400	€ 10.48	7,518,535	€ 78,794
Grontmij	€ 20,409	€ 18,313	€ 20,430	€ 18,292	€ 309,104	€ 323,131	€ -19,629	€ -14,027	€ 16.90	17,764,920	€ 300,227
Innoconcepts	€ -54,906	€ 12,959	€ -	€ -41,947	€ 32,669	€ 28,068	€ 19,505	€ 4,601	€ 0.87	82,605,554	€ 71,867
Machintosh Retail	€ 31,373	€ 27,262	€ 1,846	€ 56,789	€ 274,206	€ 190,793	€ 24,959	€ 83,413	€ 14.30	23,407,421	€ 334,726
Pharming Group	€ -32,060	€ 1,421	€ -	€ -30,639	€ 28,570	€ 36,270	€ 2,338	€ -7,700	€ 0.45	154,501,037	€ 69,525
Qurius	€ -9,036	€ 4,354	€ -	€ -4,682	€ 45,586	€ 50,140	€ 9,591	€ -4,554	€ 0.37	180,030,023	€ 66,611
Sligro Food Group	€ 74,310	€ 50,580	€ 18,880	€ 106,010	€ 329,097	€ 210,212	€ 24,684	€ 118,885	€ 24.02	44,255,000	€ 1,063,005
Spyker Cars	€ -22,953	€ 2,392	€ -	€ -20,561	€ 14,146	€ 45,745	€ 1,018	€ -31,599	€ 2.13	15,825,992	€ 33,709
Telegraaf	€ 69,326	€ 62,109	€ 16,713	€ 114,722	€ 167,274	€ 214,590	€ 56,506	€ -47,316	€ 13.14	47,750,000	€ 627,435
TKH Group	€ 3,050	€ 29,257	€ 14,409	€ 17,898	€ 304,774	€ 237,021	€ 43,554	€ 67,753	€ 13.95	36,293,000	€ 506,287
Ajax	€ -22,808	€ 1,523	€ -	€ -21,285	€ 31,242	€ 43,687	€ 8,050	€ -12,445	€ 6.40	18,333,333	€ 117,333
Alanheri	€ 170	€ 225	€ -	€ 395	€ 3,952	€ 4,705	€ 69	€ -753	€ 5.10	769,112	€ 3,922
Amsterdam Commodities	€ 10,532	€ 294	€ 5,717	€ 5,109	€ 53,800	€ 29,179	€ 9,430	€ 24,621	€ 5.45	16,334,866	€ 89,025
AMT Holding	€ -17,175	€ 688	€ -	€ -16,487	€ 23,541	€ 4,913	€ 22,624	€ 18,628	€ 3.03	14,813,728	€ 44,886
AND Intl Publishers	€ 1,465	€ 95	€ -	€ 1,560	€ 2,412	€ 1,918	€ 1,691	€ 494	€ 7.00	3,727,137	€ 26,090
Batenburg	€ 3,060	€ 2,188	€ 2,890	€ 2,358	€ 52,468	€ 29,491	€ 16,135	€ 22,977	€ 22.49	4,800,000	€ 107,952
BE Semiconductor	€ 5,431	€ 9,637	€ -	€ 15,068	€ 172,800	€ 73,356	€ 73,125	€ 99,444	€ 2.67	33,728,517	€ 90,055
Brill, Kon.	€ 2,140	€ 1,286	€ -	€ 3,426	€ 20,750	€ 15,265	€ 1,983	€ 5,485	€ 10.22	1,874,444	€ 19,157
Crown Van Gelder	€ 4,565	€ 8,275	€ 2,178	€ 10,662	€ 49,195	€ 22,934	€ 1,142	€ 26,261	€ 8.10	3,000,000	€ 24,300
Cryo Save Group	€ 1,352	€ 2,319	€ 462	€ 3,209	€ 17,330	€ 10,323	€ 7,485	€ 7,007	€ 4.85	9,639,191	€ 46,750
Ctac	€ -2,115	€ 2,888	€ 1,499	€ -726	€ 14,942	€ 19,574	€ -666	€ -4,632	€ 2.32	11,526,459	€ 26,741
DOC Data	€ 7,689	€ 5,223	€ 2,031	€ 10,881	€ 32,666	€ 21,000	€ 6,147	€ 11,666	€ 8.50	6,640,000	€ 56,440
DPA Group	€ -7,595	€ 1,561	€ 265	€ -6,299	€ 13,647	€ 16,287	€ -2,115	€ -2,640	€ 2.04	12,187,678	€ 24,863

Galapagos	€ 3,010	€ 6,955	€ -	€ 9,965	€ 84,686	€ 31,344	€ 47,391	€ 53,342	€ 8.20	23,610,820	€ 193,609
HES Beheer	€ 16,725	€ 5,917	€ 6,476	€ 16,166	€ 27,903	€ 21,113	€ 18,445	€ 6,790	€ 22.85	8,752,136	€ 199,986
HITT	€ 312	€ 2,376	€ 657	€ 2,031	€ 19,926	€ 7,967	€ 6,661	€ 11,959	€ 3.60	4,694,158	€ 16,899
Holland Colours	€ 1,154	€ 2,592	€ -	€ 3,746	€ 19,237	€ 14,179	€ -3,285	€ 5,058	€ 20.50	860,351	€ 17,637
Hunter Douglas	\$ 91,000	\$ 93,000	\$ 50,000	\$ 134,000	\$ 1,454,000	\$ 715,000	\$ 69,000	\$ 739,000	\$ 49.12	35,366,000	\$ 1,737,178
Hydratec	€ -247	€ 685	€ 1,183	€ -745	€ 19,347	€ 2,780	€ 13,551	€ 16,567	€ 14.25	1,183,094	€ 16,859
ICT Automatisering	€ -1,696	€ 902	€ 2,187	€ -2,981	€ 32,043	€ 17,360	€ 11,113	€ 14,683	€ 4.75	8,747,544	€ 41,551
Kendrion	€ 4,000	€ 9,700	€ 10,000	€ 3,700	€ 52,200	€ 30,800	€ 1,000	€ 21,400	€ 9.35	11,268,000	€ 105,356
LBI International	- 684,200 kr	75,500 kr	2,000 kr	- 610,700 kr	820,000 kr	639,900 kr	217,400 kr	180,100 kr	12.84 kr	62,023,276	796,379 kr
Nedap	€ 1,114	€ 6,447	€ 12,481	€ -4,920	€ 45,750	€ 33,677	€ -9,658	€ 12,073	€ 17.30	6,692,920	€ 115,788
Nedsense Enterprice	€ -1,680	€ 1,586	€ -	€ -94	€ 4,036	€ 8,270	€ 747	€ -4,234	€ 0.60	9,831,354	€ 5,899
Neways Electronics	€ -5,740	€ 4,725	€ -	€ -1,015	€ 72,572	€ 46,445	€ 691	€ 26,127	€ 6.34	9,644,208	€ 61,144
Oce	€ -47,134	€ 189,399	€ 1,960	€ 140,305	€ 101,765	€ 703,608	€ 101,765	€ -601,843	€ 8.61	84,871,320	€ 730,742
Octoplus	€ -2,957	€ 2,770	€ -	€ -187	€ 7,615	€ 8,082	€ 3,313	€ -467	€ 1.41	33,435,432	€ 47,144
Oranjewoud A	€ 13,019	€ 10,380	€ -	€ 23,399	€ 166,352	€ 123,080	€ 22,362	€ 43,272	€ 4.84	36,171,731	€ 175,071
Porceleyne Fles	€ 87	€ 927	€ -	€ 1,014	€ 12,122	€ 7,896	€ -4,376	€ 4,226	€ 10.27	763,622	€ 7,842
Punch Graphix	€ -15,931	€ 23,636	€ -	€ 7,705	€ 90,025	€ 55,607	€ 39,835	€ 34,418	€ 1.42	28,710,370	€ 40,769
RoodMicro Tec	€ -1,742	€ 2,054	€ -	€ 312	€ 3,209	€ 4,183	€ -416	€ -974	€ 0.17	35,196,000	€ 5,983
Roto Smeets	€ -27,462	€ 30,219	€ -	€ 2,757	€ 80,040	€ 123,448	€ 1,220	€ -43,408	€ 10.06	3,290,275	€ 33,100
Royal Dutch Shell B	\$12,718,000	\$ 14,458,000	\$ 10,526,000	\$16,650,000	\$ 96,457,000	\$ 84,798,000	\$ 9,719,000	\$11,659,000	\$ 29.07	2,667,562,105	\$ 77,546,030
Simac Techniek	€ 2,560	€ 1,822	€ 1,211	€ 3,171	€ 47,853	€ 42,028	€ 5,922	€ 5,825	€ 1.84	14,351,000	€ 26,406
Sopheon Plc	-£ 1,494	£ 1,258	£ -	-£ 236	£ 4,529	£ 4,778	£ 1,624	-£ 249	£ 0.09	145,579,027	£ 13,102
Stern Groep	€ 3,028	€ 9,595	€ -	€ 12,623	€ 195,464	€ 310,363	€ 918	€ -114,899	€ 18.35	5,423,791	€ 99,527
Thunderbird	\$ 20,401	\$ 16,603	\$ -	\$ 37,004	\$ 23,897	\$ 51,635	\$ 10,898	\$ (27,738)	\$ 1.16	19,729,412	\$ 22,886
Tie Holding	€ 530	€ 360	€ 191	€ 699	€ 2,998	€ 4,990	€ 457	€ -1,992	€ 0.20	64,977,000	€ 12,995
TMC	€ -4,740	€ 6,726	€ 1,575	€ 411	€ 10,726	€ 7,835	€ 1,825	€ 2,891	€ 7.50	3,314,845	€ 24,861
Value8	€ 123	€ 26	€ -	€ 149	€ 2,973	€ 386	€ 2,396	€ 2,587	€ 22.40	482,467	€ 10,807
Vivenda Media Group	€ 6,304	€ 4,457	€ -	€ 10,761	€ 1,499	€ 4,278	€ 11	€ -2,779	€ 0.84	3,500,000	€ 2,940
Wegener	€ 7,583	€ 20,791	€ 1,567	€ 26,807	€ 61,263	€ 207,594	€ 3,500	€ -146,331	€ 3.99	45,009,000	€ 179,586

Appendix 2: Ratio's data collection

For both the dependent variable cash-to-total-assets ratio and cash-to-net-assets ratio for the variable cash ratio, firm size, leverage, bank debt, cash flow, cash flow volatility, liquid assets some ratios are calculated. The measurement is described below each variable. Market-to-book-ratio is calculated by the book value of assets minus the book value of equity plus the market value of equity. The dividend dummy is set to one if the firm has paid out dividend and zero if not.

31-Dec-2006	Cash ratio		Firm size	Leverage		Bank debt	Cash flow		Cash flow volatility		Liquid assets		Investment opportunity	Dividend payment
Name company	Cash/ Total assets	Cash/ Net assets	Log total assets	Total debt/ Total assets	Total debt/ Net assets	Total bank borr/Total debt	Cash flow/ Total assets	Cash flow/ Net assets	SD cash flow/ Total assets	SD cash flow/ Net assets	NWC/ Total assets	NWC/ Net assets	Market-to- book/Total assets	Dividend dummy
Ahold, Kon.	0.09999	0.11110	16.73014	0.35137	0.39041	0.63920	0.09950	0.11056	0.05575	0.06195	-0.05471	-0.06079	1.39414	0
Air-France KLM	0.12613	0.14434	17.09905	0.32433	0.37115	0.01538	0.09708	0.11109	0.03971	0.04545	-0.11586	-0.13258	1.04084	1
Akzo Nobel	0.12757	0.14623	16.36378	0.23160	0.26547	0.08713	0.09261	0.10615	0.36276	0.41581	0.23934	0.27434	1.70486	1
ArcelorMittal	0.05454	0.05769	18.54007	0.23577	0.24937	0.35311	0.07953	0.08412	0.03861	0.04084	0.07727	0.08173	1.04680	1
ASML Holding	0.41879	0.72055	15.19021	0.17917	0.30828	0.53640	0.17847	0.30706	0.10305	0.17730	0.14891	0.25621	2.77256	0
BAM Groep, Kon.	0.08484	0.09270	15.68682	0.30118	0.32910	0.60684	0.02810	0.03070	0.02138	0.02337	0.00693	0.00757	1.11155	1
Boskalis Westminster, Kon.	0.13011	0.14957	14.27541	0.04508	0.05182	0.52566	0.10871	0.12496	0.05653	0.06498	-0.13141	-0.15106	1.93370	1
DSM, Kon.	0.05470	0.05787	16.12715	0.15003	0.15872	0.10502	0.07829	0.08282	0.00651	0.00688	0.09176	0.09708	1.10360	1
Fugro	0.02004	0.02045	14.15604	0.31435	0.32078	0.32334	0.14711	0.15012	0.06492	0.06624	0.08722	0.08900	2.37027	1
Heineken	0.04824	0.05069	16.38023	0.25637	0.26936	0.49220	0.14111	0.14826	0.02996	0.03147	-0.03062	-0.03217	1.25450	1
KPN, Kon.	0.03777	0.03926	16.87224	0.46919	0.48761	0.99449	0.15124	0.15717	0.07885	0.08195	-0.07498	-0.07793	1.77968	1
Philips, Kon.	0.15290	0.18049	17.46609	0.10050	0.11864	0.90282	0.14728	0.17387	0.06216	0.07338	-0.00140	-0.00166	1.22409	1
Randstad	0.09710	0.10754	14.76245	0.03732	0.04133	0.00000	0.12445	0.13783	0.04329	0.04795	0.10548	0.11682	3.05336	1
Reed Elsevier	0.09629	0.10655	14.24534	0.00520	0.00576	1.00000	0.12882	0.14255	0.46495	0.51449	-0.04489	-0.04968	0.12236	1
Royal Dutch Shell A	0.03826	0.03978	19.27627	0.06704	0.06971	0.15850	0.16541	0.17199	0.04208	0.04376	0.02608	0.02711	1.04943	1
SBM Offshore	0.11553	0.13062	14.89403	0.31702	0.35842	0.98583	0.12500	0.14133	0.01721	0.01946	-0.06659	-0.07529	2.26666	1
TNT	0.04363	0.04562	15.73361	0.28114	0.29396	0.81818	0.10385	0.10859	0.02938	0.03072	-0.10532	-0.11012	2.67886	1
TOMTOM	0.48485	0.94117	13.71344	0.30948	0.60075	0.71570	0.26620	0.51675	0.58939	1.14410	0.07176	0.13931	3.89872	0

Unilever	0.01915	0.01953	17.42837	0.23832	0.24297	0.95948	0.09158	0.09337	0.01903	0.01940	-0.13738	-0.14006	0.69368	1
Wolters Kluwer	0.02441	0.02502	15.54770	0.38475	0.39438	0.99908	0.07819	0.08015	0.05140	0.05269	-0.30196	-0.30952	1.96794	1
Aalberts Industries	0.09190	0.10121	14.06153	0.40078	0.44134	0.71071	0.11752	0.12942	0.02110	0.02324	-0.04067	-0.04479	1.95428	1
AMG	0.09570	0.10583	13.25451	0.45778	0.50622	0.99955	0.04244	0.04693	0.09095	0.10057	0.07752	0.08572	1.04160	0
Arcadis	0.13780	0.15983	13.50962	0.35820	0.41545	0.45910	0.07986	0.09263	0.01114	0.01292	0.04077	0.04728	2.03111	1
ASM International	0.23294	0.30367	13.63194	0.27454	0.35791	0.99328	0.16886	0.22013	0.09697	0.12641	0.22508	0.29343	1.69488	0
Brunel International	0.14057	0.16357	12.09229	0.15060	0.17523	0.00000	0.12770	0.14859	0.04037	0.04697	0.43003	0.50037	3.56518	1
Crucell	0.24163	0.31862	13.38966	0.07105	0.09369	0.84989	0.21404	0.28224	0.09920	0.13081	0.10560	0.13925	2.16724	0
CSM	0.03604	0.03739	14.61531	0.30219	0.31349	0.76710	0.05874	0.06094	0.03915	0.04061	0.10975	0.11385	1.55239	1
Draka Holding	0.00579	0.00582	14.37227	0.29014	0.29183	0.68596	0.04837	0.04865	0.01399	0.01407	0.09307	0.09361	1.27423	0
Heijmans	0.09058	0.09961	14.57157	0.32412	0.35640	0.51935	0.03590	0.03948	0.01956	0.02151	0.14900	0.16385	2.18960	1
Imtech	0.01225	0.01240	14.26478	0.06731	0.06815	0.57859	0.04119	0.04170	0.02337	0.02366	0.09909	0.10031	1.59843	1
Logica	0.04348	0.04545	15.05990	0.21182	0.22145	0.98857	0.03028	0.03166	0.01490	0.01558	-0.01276	-0.01334	1.06382	1
Mediq	0.02022	0.02064	13.86511	0.15595	0.15916	0.50485	0.08960	0.09145	0.10408	0.10623	0.10163	0.10373	1.80035	1
Nutreco	0.27564	0.38052	14.40280	0.18015	0.24870	0.00216	-0.10355	-0.14296	0.08801	0.12151	0.04914	0.06783	1.43123	1
Ordina	0.01141	0.01154	13.03252	0.18137	0.18346	0.54287	0.08799	0.08900	0.03388	0.03427	-0.02161	-0.02186	2.00561	1
Ten Cate, Kon.	-0.04580	-0.04379	13.10032	0.19199	0.18358	0.94462	0.19096	0.18260	0.02425	0.02319	0.35187	0.33646	1.50206	1
Unit4	-0.04560	-0.04361	12.84531	0.28091	0.26865	0.60743	0.10253	0.09806	0.02743	0.02623	-0.06651	-0.06361	1.86616	0
USG People	0.00663	0.00667	14.45725	0.34253	0.34482	0.92112	0.08413	0.08469	0.03361	0.03383	-0.00806	-0.00812	1.68031	1
Vopak, Kon.	0.04856	0.05103	14.41468	0.29858	0.31382	0.28274	0.10969	0.11529	0.04312	0.04532	-0.06350	-0.06674	1.20659	1
Wavin	0.01164	0.01178	14.19681	0.42185	0.42682	0.99532	0.08834	0.08938	0.02186	0.02212	0.09604	0.09717	3.35333	1
Wessanen, Kon.	0.01304	0.01322	13.76495	0.17166	0.17393	0.95343	0.00452	0.00458	0.14222	0.14410	0.27054	0.27411	1.26731	1
Accell Group	0.00048	0.00048	12.41133	0.39332	0.39351	0.86711	0.08676	0.08680	0.02542	0.02544	0.28038	0.28052	1.60525	1
Antonov	0.06971	0.07493	8.08395	0.38772	0.41678	0.00000	-0.98242	-1.05603	0.27295	0.29340	-0.25108	-0.26989	6.25112	0
Arseus	0.00887	0.00895	12.56185	0.38180	0.38521	0.03704	0.06090	0.06145	0.01132	0.01142	-0.05806	-0.05858	0.64684	0
Ballast Nedam	0.07809	0.08470	13.58484	0.28463	0.30874	0.29646	0.06927	0.07514	0.01857	0.02014	-0.09572	-0.10383	1.21372	1
Beter Bed	0.10299	0.11482	11.32608	0.18301	0.20402	0.09333	0.18097	0.20175	0.05492	0.06123	0.09013	0.10048	5.52052	1
Dockwise	0.09341	0.10303	12.82765	0.26217	0.28918	1.00000	0.11117	0.12262	0.16439	0.18133	-0.32685	-0.36052	0.43649	1
Exact Holding	0.45542	0.83628	12.54486	0.01363	0.02503	0.79169	0.06106	0.11212	0.03427	0.06292	-0.07810	-0.14342	2.43810	1
Fornix BioSciences	0.36366	0.57149	10.95179	0.08401	0.13201	0.00000	0.17506	0.27510	0.06658	0.10462	0.07938	0.12474	2.98796	1

Gamma Holding	0.03284	0.03396	13.41935	0.34299	0.35464	1.00000	0.22500	0.23264	0.30640	0.31680	0.19587	0.20252	1.22118	1
Grontmij	0.04871	0.05120	13.18780	0.22050	0.23179	0.97612	0.04769	0.05013	0.01787	0.01879	-0.00661	-0.00695	1.47437	1
Innoconcepts	0.11587	0.13106	11.59487	0.28945	0.32739	0.12633	0.12678	0.14340	0.26012	0.29421	0.23890	0.27021	1.47420	1
Machintosh Retail	0.00837	0.00844	13.04929	0.41271	0.41619	0.44906	0.11512	0.11609	0.01725	0.01740	0.18409	0.18565	1.85775	1
Pharming Group	0.39521	0.65347	11.27820	0.15101	0.24970	0.00000	-0.21862	-0.36148	0.09352	0.15463	0.02477	0.04096	5.07231	0
Qurius	0.05492	0.05811	11.38244	0.42258	0.44714	0.09720	0.04845	0.05126	0.13030	0.13788	-0.15140	-0.16020	1.58014	0
Sligro Food Group	0.00208	0.00209	13.48599	0.39757	0.39840	0.78328	0.10090	0.10111	0.02266	0.02271	0.18866	0.18906	2.08328	1
Spyker Cars	-0.12693	-0.11264	12.13374	0.33086	0.29360	0.40699	0.00575	0.00510	0.16274	0.14441	-0.00941	-0.00835	1.18854	0
Telegraaf	0.06460	0.06906	13.85720	0.39609	0.42344	0.34192	0.08125	0.08686	0.30954	0.33092	-0.05633	-0.06022	1.46805	1
TKH Group	0.02143	0.02190	13.05041	0.17009	0.17381	0.98697	0.08940	0.09136	0.03908	0.03994	0.19107	0.19526	1.68572	1
Ajax	0.22065	0.28312	11.43476	0.13463	0.17275	0.00112	0.12755	0.16366	0.16236	0.20833	-0.12068	-0.15485	1.99604	0
Alanheri	0.00186	0.00186	9.95056	0.36467	0.36535	0.82734	-0.01989	-0.01993	0.06391	0.06403	0.11348	0.11369	1.00567	0
Amsterdam Commodities	0.05802	0.06159	10.95682	0.31688	0.33639	0.95168	0.06843	0.07264	0.01958	0.02079	0.23317	0.24753	1.59464	1
AMT Holding	0.77165	3.37933	9.81017	0.15271	0.66875	0.00000	-0.46333	-2.02909	0.20678	0.90555	-0.07059	-0.30913	1.25693	0
AND Intl Publishers	0.06654	0.07128	9.59445	0.02840	0.03042	0.00000	0.05237	0.05611	0.02398	0.02569	-0.02969	-0.03181	1.87543	0
Batenburg	0.17550	0.21285	11.16976	0.15162	0.18390	0.00000	0.06196	0.07515	0.02844	0.03450	0.15625	0.18950	1.27882	1
BE Semiconductor	0.31213	0.45377	12.65717	0.26369	0.38335	0.43163	0.06373	0.09265	0.03571	0.05192	0.14096	0.20493	0.84804	0
Brill, Kon.	0.05604	0.05937	10.48254	0.20184	0.21382	0.65278	-0.00342	-0.00362	0.04871	0.05161	0.09765	0.10345	1.61356	1
Crown Van Gelder	0.01063	0.01075	11.94872	0.14710	0.14868	0.71443	0.04906	0.04958	0.05919	0.05982	0.11966	0.12094	0.58021	1
Cryo Save Group	0.31076	0.45088	9.23494	0.09611	0.13944	0.00000	0.21466	0.31144	0.09145	0.13269	0.35964	0.52180	0.99735	0
Ctac	0.24056	0.31675	9.87329	0.21489	0.28296	0.35971	0.09168	0.12072	0.15884	0.20916	0.06040	0.07953	2.56935	1
DOC Data	0.12703	0.14552	10.73426	0.24165	0.27681	0.15308	0.05122	0.05867	0.07704	0.08825	0.02560	0.02932	1.60241	1
DPA Group	0.02413	0.02472	10.78062	0.06460	0.06620	0.32196	0.06641	0.06805	0.14263	0.14616	0.14988	0.15358	2.06962	0
Galapagos	0.32970	0.49187	11.95928	0.05961	0.08892	0.00000	-0.04223	-0.06300	0.06053	0.09031	-0.00838	-0.01251	1.51983	0
HES Beheer	0.14975	0.17612	11.34959	0.08450	0.09939	1.00000	0.12295	0.14460	0.03191	0.03752	-0.05247	-0.06171	1.78019	1
HITT	0.10131	0.11273	10.19761	0.24919	0.27728	0.73415	0.18220	0.20274	0.07091	0.07890	0.24833	0.27633	1.53055	1
Holland Colours	-0.06023	-0.05680	10.74596	0.29058	0.27407	0.69811	0.07960	0.07508	0.02154	0.02031	0.39714	0.37458	1.45514	1
Hunter Douglas	0.02927	0.03016	14.90475	0.15983	0.16464	0.16421	0.09960	0.10260	0.05537	0.05704	0.42564	0.43847	1.55891	1
Hydratec	0.09466	0.10456	9.84575	0.11087	0.12246	0.10368	0.15288	0.16886	0.21989	0.24288	0.25093	0.27716	1.54765	1
ICT Automatisering	0.29845	0.42541	10.95705	0.17656	0.25167	0.32586	0.02819	0.04018	0.05710	0.08139	0.13976	0.19921	2.40912	1

Kendrion	-0.01269	-0.01253	12.58280	0.35060	0.34621	0.90802	0.08199	0.08096	0.02892	0.02856	0.23774	0.23476	1.38662	1
LBI International	0.07909	0.08589	14.66741	0.04821	0.05235	0.18938	0.05601	0.06082	0.16379	0.17786	0.05298	0.05753	1.11946	1
Nedap	-0.03470	-0.03354	11.53333	0.22454	0.21701	0.32238	0.11186	0.10811	0.07273	0.07029	0.27757	0.26826	2.29112	1
Nedsense Enterprice	-0.12262	-0.10922	10.31533	0.39199	0.34918	0.59079	-0.03209	-0.02859	0.15588	0.13886	-0.20890	-0.18608	1.20700	0
Neways Electronics	-0.03399	-0.03287	11.56885	0.13211	0.12777	0.79679	0.13982	0.13522	0.08501	0.08221	0.35441	0.34277	1.50196	1
Oce	0.03261	0.03371	14.77341	0.28773	0.29743	0.26355	0.08061	0.08333	0.01956	0.02022	0.11752	0.12148	1.12887	1
Octopus	0.60599	1.53803	10.38177	0.14957	0.37961	0.30709	-0.23570	-0.59821	0.18043	0.45793	-0.12165	-0.30874	2.57899	0
Oranjewoud A	0.18017	0.21977	11.88009	0.20612	0.25142	0.08365	0.11436	0.13950	0.04128	0.05035	0.06917	0.08437	1.73123	0
Porceleyne Fles	-0.09969	-0.09066	8.49801	0.11458	0.10419	1.00000	0.03058	0.02781	0.50284	0.45726	0.33272	0.30256	0.96424	0
Punch Graphix	0.01768	0.01800	10.87788	0.14316	0.14573	0.92420	-0.03276	-0.03335	0.32917	0.33509	-0.06960	-0.07085	1.32012	0
RoodMicro Tec	-0.06426	-0.06038	9.32134	0.42841	0.40254	0.58826	0.11536	0.10839	0.06327	0.05945	-0.01602	-0.01505	2.28101	1
Roto Smeets	0.00551	0.00554	12.69317	0.06520	0.06556	0.00000	0.11680	0.11744	0.04868	0.04895	0.00664	0.00667	0.98739	1
Royal Dutch Shell B	0.03826	0.03978	19.27627	0.06704	0.06971	0.15850	0.16541	0.17199	0.04208	0.04376	0.02608	0.02711	0.91773	1
Simac Techniek	0.11383	0.12845	11.04819	0.14682	0.16568	0.36542	0.03465	0.03910	0.01947	0.02197	-0.07200	-0.08125	1.33114	1
Sopheon Plc	0.23049	0.29954	8.40872	0.09229	0.11993	1.00000	0.00780	0.01014	0.15030	0.19532	-0.08404	-0.10921	7.45778	0
Stern Groep	0.00331	0.00332	12.91874	0.42129	0.42269	0.12168	0.04949	0.04966	0.01338	0.01343	-0.06107	-0.06127	1.19273	1
Thunderbird	0.10912	0.12249	11.11816	0.68411	0.76790	0.23754	0.02201	0.02470	0.34297	0.38498	-0.16902	-0.18972	1.76698	0
Tie Holding	0.01737	0.01768	9.16482	0.02041	0.02077	1.00000	0.17823	0.18138	0.13696	0.13938	-0.24731	-0.25168	2.24155	0
TMC	0.49870	0.99483	9.21274	0.00020	0.00040	1.00000	0.19344	0.38587	0.18839	0.37580	0.16939	0.33791	4.86012	0
Value8	0.63749	1.75856	8.71997	0.12427	0.34279	0.00000	0.26372	0.72748	0.42980	1.18564	0.07348	0.20270	9.51323	0
Vivenda Media Group	0.00541	0.00544	9.13205	0.08013	0.08057	1.00000	0.09560	0.09612	0.55489	0.55791	0.45864	0.46113	136.18001	0
Wegener	0.00710	0.00715	13.55530	0.43667	0.43979	0.45059	0.05959	0.06001	0.01109	0.01117	-0.20856	-0.21005	1.28115	1

31-Dec-2007	Cash		Firm size	Leverage		Bank debt	Cash flow		Cash flow volatility		Liquid assets		Investment opportunity	Dividend payment
Name company	Cash/ Total assets	Cash/ Net assets	Log total assets	Total debt/ Total assets	Total debt/ Net assets	Total bank borr/ Total debt	Cash flow/ Total assets	Cash flow/ Net assets	SD cash flow/ Total assets	SD cash flow/ Net assets	NWC/ Total assets	NWC/ Net assets	Market-to- book/ Total assets	Dividend dummy
Ahold, Kon.	0.23401	0.30550	16.45056	0.38576	0.50360	0.61852	0.26176	0.34173	0.07374	0.09626	-0.16989	-0.22180	1.52219	0
Air-France KLM	0.13715	0.15894	17.23945	0.26038	0.30176	0.02152	0.07341	0.08508	0.03451	0.04000	-0.10596	-0.12281	0.82789	1

Akzo Nobel	0.57512	1.35360	16.77266	0.18651	0.43897	0.15938	0.48423	1.13968	0.24102	0.56726	-0.02739	-0.06446	1.16856	1
ArcelorMittal	0.06065	0.06457	18.71055	0.22920	0.24400	0.87384	0.09481	0.10093	0.03256	0.03466	0.03752	0.03995	1.32589	1
ASML Holding	0.31220	0.45391	15.21992	0.21727	0.31589	0.68027	0.19576	0.28461	0.10003	0.14544	0.17833	0.25927	2.85230	0
BAM Groep, Kon.	0.08106	0.08821	15.75934	0.31474	0.34251	0.63169	0.05623	0.06119	0.01989	0.02164	0.07077	0.07702	1.14146	1
Boskalis Westminster, Kon.	0.15924	0.18941	14.60402	0.03958	0.04708	0.51028	0.11420	0.13583	0.04069	0.04840	-0.15372	-0.18283	2.27160	1
DSM, Kon.	0.03755	0.03901	16.10075	0.17827	0.18522	0.08505	0.06766	0.07030	0.00668	0.00694	0.12800	0.13300	1.00130	1
Fugro	0.00381	0.00382	14.34622	0.31460	0.31580	0.52059	0.18450	0.18521	0.05367	0.05388	0.09698	0.09735	2.75432	1
Heineken	0.03339	0.03454	16.37800	0.20635	0.21348	0.35650	0.09917	0.10259	0.03002	0.03106	-0.06030	-0.06239	1.37696	1
KPN, Kon.	0.04630	0.04854	17.02623	0.49357	0.51753	0.99232	0.16401	0.17197	0.06760	0.07088	-0.14780	-0.15497	1.74263	1
Philips, Kon.	0.24128	0.31802	17.40851	0.09787	0.12900	0.91847	0.12052	0.15885	0.06585	0.08679	-0.01571	-0.02071	1.26832	1
Randstad	0.09520	0.10522	15.01463	0.15926	0.17602	0.87072	0.08996	0.09942	0.03364	0.03718	0.09761	0.10788	1.64160	1
Reed Elsevier	0.00431	0.00433	14.55220	0.00431	0.00433	1.00000	0.26568	0.26683	0.34209	0.34357	-0.03255	-0.03269	0.06181	1
Royal Dutch Shell A	0.03583	0.03717	19.41197	0.06717	0.06966	0.13813	0.13399	0.13896	0.03674	0.03811	0.04215	0.04371	1.07836	1
SBM Offshore	0.07541	0.08156	15.10602	0.31788	0.34381	0.85558	0.12512	0.13532	0.01392	0.01506	-0.01901	-0.02057	1.88197	1
TNT	0.04164	0.04345	15.77349	0.35032	0.36554	0.84005	0.15314	0.15979	0.02823	0.02946	-0.13338	-0.13918	2.23671	1
TOMTOM	0.23525	0.30761	14.49334	0.16584	0.21686	0.61230	0.17299	0.22620	0.27021	0.35333	0.00818	0.01069	3.43111	0
Unilever	0.02415	0.02475	17.43456	0.25867	0.26508	0.94507	0.07766	0.07959	0.01891	0.01938	-0.12149	-0.12450	0.66770	1
Wolters Kluwer	0.02881	0.02966	15.47868	0.37036	0.38134	0.99693	0.19105	0.19672	0.05508	0.05671	-0.31710	-0.32650	1.96778	1
Aalberts Industries	0.06535	0.06992	14.17632	0.35887	0.38396	0.75780	0.12387	0.13253	0.01881	0.02013	-0.00212	-0.00227	1.59183	1
AMG	0.19247	0.23834	13.70631	0.14838	0.18375	0.96212	0.02985	0.03697	0.05789	0.07168	0.15055	0.18644	2.90681	0
Arcadis	0.10048	0.11170	13.73395	0.24553	0.27296	0.91571	0.07343	0.08163	0.00890	0.00989	0.00370	0.00412	3.90128	1
ASM International	0.18793	0.23142	13.64155	0.22245	0.27394	0.96536	0.17327	0.21337	0.09604	0.11826	0.27881	0.34333	1.69700	1
Brunel International	0.20046	0.25071	12.19538	0.13129	0.16420	0.00000	0.14287	0.17870	0.03641	0.04554	0.41515	0.51923	2.19465	1
Crucell	0.24963	0.33268	13.39080	0.08073	0.10759	0.02551	-0.02724	-0.03631	0.09909	0.13205	0.09721	0.12955	1.37815	0
CSM	0.01841	0.01875	14.53252	0.24083	0.24535	0.82283	0.14080	0.14344	0.04253	0.04332	0.11600	0.11817	1.26865	1
Draka Holding	0.00257	0.00258	14.37581	0.34925	0.35015	0.95422	0.07532	0.07551	0.01394	0.01397	0.18679	0.18727	1.31404	1
Heijmans	0.10630	0.11895	14.60627	0.27216	0.30453	0.37793	0.02594	0.02903	0.01889	0.02114	0.11527	0.12898	1.07225	1
Imtech	0.02615	0.02686	14.45269	0.11418	0.11725	0.79443	0.05139	0.05277	0.01936	0.01988	0.04692	0.04818	1.50634	1
Logica	0.02977	0.03068	15.02322	0.17772	0.18317	0.98520	0.06235	0.06426	0.01546	0.01593	-0.05332	-0.05496	0.93964	1
Mediq	0.01012	0.01023	13.97435	0.16197	0.16363	0.60021	0.07251	0.07325	0.09331	0.09426	0.10468	0.10575	1.47658	1

Nutreco	0.06795	0.07291	14.50490	0.24974	0.26794	0.00000	0.06439	0.06909	0.07947	0.08527	0.06354	0.06817	1.03886	1
Ordina	0.02203	0.02253	13.18469	0.18098	0.18506	0.00000	0.09971	0.10196	0.02910	0.02975	-0.04878	-0.04988	2.03130	1
Ten Cate, Kon.	-0.01067	-0.01055	13.48964	0.32581	0.32237	0.98639	0.10320	0.10211	0.01643	0.01626	0.28605	0.28303	1.26408	1
Unit4	0.04142	0.04320	12.82539	0.27182	0.28357	0.39091	0.09858	0.10284	0.02798	0.02919	-0.04379	-0.04568	1.93373	1
USG People	0.02222	0.02272	14.48817	0.31874	0.32598	0.92419	0.08096	0.08280	0.03258	0.03332	0.03241	0.03314	1.25323	1
Vopak, Kon.	0.05171	0.05453	14.57309	0.32736	0.34521	0.16855	0.12011	0.12666	0.03680	0.03881	-0.07726	-0.08147	1.72345	1
Wavin	0.01304	0.01322	14.21530	0.37798	0.38298	0.99663	0.08335	0.08445	0.02146	0.02174	0.07369	0.07467	1.23370	1
Wessanen, Kon.	0.05489	0.05807	13.72427	0.23258	0.24609	0.98210	0.02881	0.03049	0.14812	0.15672	0.21724	0.22986	1.33481	1
Accell Group	0.00075	0.00075	12.53405	0.39604	0.39634	0.88488	0.07871	0.07877	0.02249	0.02250	0.33375	0.33400	1.46092	1
Antonov	0.01487	0.01510	8.79331	0.36070	0.36614	0.00000	-0.59484	-0.60382	0.13428	0.13631	-0.13930	-0.14140	1.00087	0
Arseus	0.07998	0.08693	12.75842	0.25185	0.27374	0.85215	0.07227	0.07855	0.00930	0.01010	-0.08278	-0.08998	1.19383	0
Ballast Nedam	0.05791	0.06147	13.70793	0.34076	0.36170	0.46405	0.03898	0.04137	0.01642	0.01743	0.01559	0.01655	1.12046	1
Beter Bed	-0.07887	-0.07310	11.46331	0.32223	0.29867	0.45870	0.13460	0.12477	0.04788	0.04438	0.21904	0.20303	4.56986	1
Dockwise	0.00966	0.00976	14.28751	0.58498	0.59069	0.00191	0.00454	0.00458	0.03818	0.03856	0.00180	0.00182	3.28173	0
Exact Holding	0.25100	0.33511	12.52461	0.00503	0.00671	0.49132	-0.02194	-0.02930	0.03497	0.04669	-0.09752	-0.13019	2.56215	1
Fornix BioSciences	0.56153	1.28063	10.98846	0.07902	0.18022	0.00000	0.14566	0.33219	0.06418	0.14637	0.00568	0.01295	2.47534	1
Gamma Holding	0.03999	0.04166	13.35759	0.36816	0.38350	1.00000	0.24312	0.25325	0.32592	0.33950	0.19270	0.20072	1.34050	1
Grontmij	0.03331	0.03446	13.17919	0.19313	0.19978	0.95220	0.07113	0.07358	0.01803	0.01865	0.07171	0.07418	1.51461	1
Innoconcepts	0.09411	0.10389	11.92290	0.21348	0.23565	0.89103	0.12317	0.13597	0.18737	0.20684	0.15760	0.17397	1.43021	1
Machintosh Retail	0.00870	0.00878	12.90713	0.43485	0.43867	0.50493	0.14090	0.14213	0.01989	0.02006	0.25415	0.25638	1.78466	1
Pharming Group	0.57077	1.32973	11.64700	0.57630	1.34263	0.75522	-0.29912	-0.69687	0.06468	0.15068	-0.08843	-0.20602	1.74981	0
Qurius	0.03151	0.03253	11.84119	0.31979	0.33020	0.33726	0.03742	0.03864	0.08236	0.08504	-0.01298	-0.01341	1.01597	0
Sligro Food Group	-0.03409	-0.03297	13.66233	0.36016	0.34829	0.74318	0.12062	0.11664	0.01900	0.01837	0.09960	0.09632	1.91004	1
Spyker Cars	-0.04589	-0.04388	11.12744	0.25343	0.24231	0.41848	-1.03761	-0.99209	0.44518	0.42565	-0.17628	-0.16854	1.22658	0
Telegraaf	0.40222	0.67286	14.02513	0.20138	0.33688	0.01024	0.36411	0.60911	0.26169	0.43778	-0.06894	-0.11532	1.30219	1
TKH Group	0.01466	0.01487	13.39790	0.26445	0.26838	0.99538	0.08299	0.08423	0.02761	0.02802	0.13238	0.13434	1.38312	1
Ajax	0.15092	0.17774	11.73721	0.17356	0.20441	0.00037	0.07209	0.08490	0.11999	0.14131	-0.00689	-0.00811	1.56116	0
Alanheri	0.00273	0.00274	9.75296	0.38198	0.38303	0.86732	-0.14542	-0.14582	0.07787	0.07808	0.00349	0.00350	1.25648	0
Amsterdam Commodities	0.07526	0.08138	11.10163	0.35278	0.38149	0.87071	0.06224	0.06730	0.01694	0.01832	0.24409	0.26395	1.55648	1
AMT Holding	0.88137	7.42944	10.97231	0.06928	0.58402	0.00000	-0.25071	-2.11333	0.06468	0.54525	-0.05007	-0.42206	1.99530	0

AND Intl Publishers	0.10137	0.11280	9.73501	0.01834	0.02041	0.00000	0.07882	0.08771	0.02083	0.02318	-0.06101	-0.06789	3.25660	0
Batenburg	0.06553	0.07013	11.22789	0.16265	0.17405	0.06279	0.09641	0.10317	0.02684	0.02872	0.18894	0.20219	1.33554	1
BE Semiconductor	0.26238	0.35572	12.56026	0.23516	0.31882	0.39877	0.01392	0.01887	0.03935	0.05335	0.17944	0.24326	0.78130	0
Brill, Kon.	0.02822	0.02904	10.51759	0.14002	0.14408	0.88406	-0.00639	-0.00657	0.04704	0.04840	0.13712	0.14110	1.64574	1
Crown Van Gelder	0.00907	0.00915	11.86888	0.12003	0.12113	0.73580	0.05303	0.05351	0.06411	0.06469	0.16579	0.16731	0.56124	1
Cryo Save Group	0.76020	3.17013	10.85734	0.02745	0.11447	0.00000	0.07917	0.33015	0.01805	0.07529	0.06466	0.26966	0.99989	0
Ctac	-0.10415	-0.09432	10.30464	0.22162	0.20072	0.86103	0.07328	0.06637	0.10319	0.09346	0.12477	0.11300	1.45132	1
DOC Data	0.13157	0.15151	10.65620	0.23992	0.27628	0.20715	0.13117	0.15105	0.08329	0.09591	-0.01284	-0.01478	1.61362	1
DPA Group	-0.21655	-0.17801	11.09000	0.32601	0.26798	0.67886	0.02367	0.01946	0.10468	0.08604	0.10508	0.08637	1.57459	0
Galapagos	0.33145	0.49578	11.90985	0.04416	0.06606	0.00000	-0.08091	-0.12102	0.06360	0.09513	-0.08010	-0.11981	1.48517	0
HES Beheer	0.14419	0.16849	11.49061	0.08376	0.09787	1.00000	0.15470	0.18077	0.02771	0.03238	-0.05722	-0.06686	2.33254	1
HITT	0.15122	0.17816	10.37618	0.10765	0.12683	0.88622	0.08614	0.10149	0.05931	0.06988	0.09761	0.11500	1.32273	1
Holland Colours	-0.09137	-0.08372	10.69908	0.32885	0.30132	0.76299	0.06282	0.05756	0.02257	0.02068	0.44603	0.40869	1.24674	1
Hunter Douglas	0.02087	0.02131	15.05388	0.18754	0.19153	0.57187	0.08029	0.08200	0.04770	0.04872	0.44029	0.44967	1.33905	1
Hydratec	0.08819	0.09671	9.87606	0.08747	0.09593	0.00000	0.13670	0.14992	0.21333	0.23396	0.26543	0.29110	1.77900	1
ICT Automatisering	0.20702	0.26107	11.00200	0.17455	0.22012	0.23873	0.02774	0.03498	0.05459	0.06884	0.16408	0.20692	1.81129	1
Kendrion	0.00693	0.00698	12.62182	0.33751	0.33987	0.97752	0.04553	0.04585	0.02781	0.02801	0.19136	0.19269	1.31799	0
LBI International	0.07418	0.08013	14.88980	0.09348	0.10097	0.82316	0.05533	0.05976	0.13113	0.14164	0.04071	0.04397	0.95641	0
Nedap	-0.00722	-0.00717	11.53724	0.20987	0.20836	0.28052	0.09860	0.09790	0.07245	0.07193	0.25830	0.25645	2.51975	1
Nedsense Enterprice	0.02089	0.02133	9.98225	0.13605	0.13895	0.20618	0.34955	0.35701	0.21749	0.22213	-0.04880	-0.04984	1.02530	0
Neways Electronics	-0.01620	-0.01594	11.68961	0.10859	0.10685	0.68573	0.12484	0.12285	0.07534	0.07414	0.33334	0.32803	1.56948	1
Oce	0.06713	0.07196	14.72826	0.25235	0.27051	0.28896	0.09546	0.10232	0.02046	0.02193	0.11831	0.12683	1.12789	1
Octopus	0.12026	0.13670	9.94813	0.24157	0.27460	0.16132	-0.67197	-0.76383	0.27838	0.31643	-0.28561	-0.32465	3.17663	0
Oranjewoud A	0.11781	0.13354	12.04447	0.23392	0.26516	0.04083	0.16501	0.18704	0.03502	0.03970	0.07623	0.08641	1.71098	0
Porceleyne Fles	-0.01098	-0.01087	8.55430	0.02158	0.02135	1.00000	-0.07092	-0.07015	0.47532	0.47016	0.32819	0.32463	1.41196	1
Punch Graphix	0.13200	0.15207	12.63912	0.17059	0.19653	0.17159	0.09837	0.11333	0.05656	0.06516	-0.03116	-0.03589	0.96702	0
RoodMicro Tec	-0.08579	-0.07901	9.33212	0.42691	0.39318	0.55703	0.13803	0.12712	0.06259	0.05764	-0.07251	-0.06678	2.05342	0
Roto Smeets	0.00628	0.00632	12.62408	0.06272	0.06312	0.00000	0.11292	0.11363	0.05217	0.05250	-0.02048	-0.02060	0.89603	1
Royal Dutch Shell B	0.03583	0.03717	19.41197	0.06717	0.06966	0.13813	0.13399	0.13896	0.03674	0.03811	0.04215	0.04371	0.95480	1
Simac Techniek	0.08807	0.09657	11.22720	0.19745	0.21652	0.58060	0.04628	0.05075	0.01628	0.01785	-0.04740	-0.05198	1.28561	1

Sopheon Plc	0.25064	0.33447	9.01079	0.23770	0.31720	1.00000	0.00647	0.00863	0.08232	0.10985	-0.17885	-0.23868	3.43959	0
Stern Groep	0.00378	0.00379	13.13761	0.46264	0.46439	0.39497	0.03704	0.03718	0.01075	0.01079	-0.06800	-0.06826	1.10098	1
Thunderbird	0.33341	0.50018	12.27800	0.37475	0.56219	0.17138	0.02119	0.03179	0.10753	0.16132	-0.11436	-0.17156	0.89739	0
Tie Holding	0.03989	0.04155	8.78996	0.08009	0.08341	0.61977	-0.11739	-0.12226	0.19924	0.20752	-0.35871	-0.37361	2.06815	1
TMC	0.07139	0.07688	10.33169	0.13148	0.14158	1.00000	0.12447	0.13404	0.06153	0.06626	0.03151	0.03393	1.88591	0
Value8	0.56515	1.29966	8.81893	0.13430	0.30884	0.00000	0.06434	0.14796	0.38931	0.89528	0.20559	0.47279	9.71543	1
Vivenda Media Group	0.01147	0.01160	8.39976	0.26361	0.26667	0.23038	-0.12416	-0.12560	1.15409	1.16748	0.15969	0.16155	294.46910	0
Wegener	0.04189	0.04372	13.56169	0.45388	0.47372	0.49522	0.05472	0.05711	0.01102	0.01150	-0.18149	-0.18942	1.50064	1

31-Dec-2008	Cash		Firm size	Leverage		Bank debt	Cash flow		Cash flow volatility		Liquid assets		Investment opportunity	Dividend payment
Name company	Cash/ Total assets	Cash/ Net assets	Log total assets	Total debt/ Total assets	Total debt/ Net assets	Total bank borr/Total debt	Cash flow/ Total assets	Cash flow/ Net assets	SD cash flow/ Total assets	SD cash flow/ Net assets	NWC/ Total assets	NWC/ Net assets	Market-to- book/Total assets	Dividend dummy
Ahold, Kon.	0.21047	0.26657	16.42580	0.31177	0.39488	0.51992	0.11527	0.14600	0.07559	0.09574	-0.13703	-0.17356	1.41407	1
Air-France KLM	0.13026	0.14977	17.17495	0.33014	0.37958	0.02969	0.02554	0.02937	0.03681	0.04232	-0.24624	-0.28312	0.87067	1
Akzo Nobel	0.07735	0.08383	16.74585	0.19638	0.21284	0.04295	-0.05285	-0.05728	0.24757	0.26832	-0.04190	-0.04542	0.94167	1
ArcelorMittal	0.05690	0.06033	18.70702	0.25591	0.27135	0.99167	0.09738	0.10326	0.03267	0.03464	0.04498	0.04769	0.78535	1
ASML Holding	0.28156	0.39191	15.18654	0.21342	0.29706	0.76962	0.08471	0.11791	0.10343	0.14396	0.21722	0.30235	1.89358	1
BAM Groep, Kon.	0.07561	0.08179	15.72386	0.31593	0.34177	0.59011	0.02064	0.02232	0.02061	0.02229	0.07820	0.08460	0.99697	1
Boskalis Westminster, Kon.	0.15760	0.18708	14.75216	0.12509	0.14849	0.89341	0.10199	0.12108	0.03509	0.04166	-0.25733	-0.30547	1.21814	1
DSM, Kon.	0.06226	0.06639	16.08278	0.23754	0.25331	0.21718	0.08370	0.08926	0.00680	0.00725	0.08070	0.08606	0.82167	1
Fugro	0.03829	0.03981	14.56848	0.29033	0.30188	0.78608	0.18810	0.19559	0.04298	0.04469	-0.01188	-0.01236	1.28435	1
Heineken	0.02934	0.03023	16.84017	0.48832	0.50308	0.73699	0.05188	0.05345	0.01891	0.01948	-0.04435	-0.04569	1.02981	1
KPN, Kon.	0.05014	0.05279	16.98993	0.50353	0.53011	0.98563	0.02078	0.02188	0.07010	0.07380	-0.13486	-0.14198	1.58696	1
Philips, Kon.	0.11344	0.12796	17.27843	0.13124	0.14804	0.92407	0.02313	0.02609	0.07499	0.08459	-0.01579	-0.01782	0.91137	1
Randstad	0.09853	0.10929	15.85969	0.32009	0.35508	0.96796	0.01141	0.01265	0.01445	0.01603	0.07686	0.08526	1.00595	1
Reed Elsevier	0.02116	0.02162	13.24811	0.01764	0.01802	1.00000	-1.89418	-1.93514	1.26036	1.28761	-0.12698	-0.12973	0.21123	1
Royal Dutch Shell A	0.05378	0.05684	19.45884	0.08240	0.08708	0.24389	0.10841	0.11458	0.03506	0.03705	-0.01468	-0.01552	0.86332	1
SBM Offshore	0.05297	0.05593	15.28453	0.38994	0.41175	0.95258	0.09273	0.09792	0.01165	0.01230	-0.13082	-0.13814	1.15074	1

TNT	0.06917	0.07431	15.78751	0.38065	0.40894	0.81938	0.08838	0.09495	0.02784	0.02991	-0.10285	-0.11050	1.44494	1
TOMTOM	0.11604	0.13127	14.83316	0.50186	0.56774	0.12604	-0.28890	-0.32682	0.19236	0.21761	-0.08456	-0.09566	1.04648	0
Unilever	0.06530	0.06986	17.40297	0.31003	0.33169	0.95091	0.11626	0.12439	0.01952	0.02088	-0.13793	-0.14756	0.72087	1
Wolters Kluwer	0.05401	0.05709	15.66993	0.40654	0.42975	0.91875	0.06137	0.06487	0.04549	0.04808	-0.22605	-0.23895	1.37966	1
Aalberts Industries	0.06324	0.06751	14.34816	0.44926	0.47959	0.81999	0.09445	0.10082	0.01584	0.01691	-0.00772	-0.00825	0.96228	1
AMG	0.12696	0.14543	13.93775	0.19962	0.22865	0.98248	0.03152	0.03610	0.04593	0.05261	0.05078	0.05816	0.95174	0
Arcadis	0.10552	0.11796	13.87223	0.26597	0.29734	0.97344	0.06848	0.07656	0.00775	0.00866	0.05873	0.06566	1.33766	1
ASM International	0.20484	0.25761	13.55128	0.20016	0.25172	0.95716	0.13099	0.16473	0.10511	0.13219	0.27970	0.35175	1.02140	0
Brunel International	0.24543	0.32526	12.00913	0.07322	0.09703	0.00000	0.19783	0.26218	0.04387	0.05814	0.63506	0.84163	1.18712	1
Crucell	0.26869	0.36742	13.36342	0.09686	0.13244	0.00000	0.07456	0.10195	0.10184	0.13926	0.05194	0.07102	1.41551	0
CSM	0.03969	0.04133	14.56054	0.29039	0.30239	0.81200	0.04548	0.04736	0.04135	0.04306	0.13083	0.13624	0.90674	1
Draka Holding	0.03602	0.03737	14.32064	0.35524	0.36851	0.95957	0.06185	0.06416	0.01473	0.01528	0.15804	0.16394	0.89826	1
Heijmans	0.16563	0.19851	14.61294	0.31464	0.37710	0.40140	-0.00075	-0.00090	0.01877	0.02249	0.08486	0.10170	0.86988	1
Imtech	0.03110	0.03210	14.72107	0.22556	0.23281	0.95110	0.04810	0.04964	0.01481	0.01528	-0.00051	-0.00053	1.21443	1
Logica	0.02931	0.03019	15.23756	0.13653	0.14065	0.97862	0.02376	0.02448	0.01248	0.01285	0.01995	0.02055	0.95759	1
Mediq	0.52966	1.12610	13.92622	0.27505	0.58478	0.73557	-0.11807	-0.25103	0.09791	0.20817	-0.37262	-0.79223	1.14719	1
Nutreco	0.06938	0.07456	14.59841	0.27215	0.29244	0.50605	0.06157	0.06616	0.07238	0.07777	0.07556	0.08119	0.94729	1
Ordina	-0.10050	-0.09133	13.04001	0.23223	0.21102	0.00000	0.04089	0.03716	0.03363	0.03056	-0.04515	-0.04102	1.35396	1
Ten Cate, Kon.	-0.01574	-0.01550	13.69808	0.37843	0.37256	0.96166	0.09525	0.09378	0.01334	0.01313	0.28869	0.28421	0.83016	1
Unit4	-0.01819	-0.01786	13.07457	0.59133	0.58077	0.20940	0.09691	0.09518	0.02181	0.02142	-0.09211	-0.09047	1.23024	1
USG People	0.04154	0.04334	14.49214	0.32208	0.33603	0.92312	0.05369	0.05602	0.03245	0.03386	-0.02796	-0.02917	0.96337	1
Vopak, Kon.	-0.00934	-0.00925	14.78413	0.39707	0.39340	0.47390	0.10576	0.10478	0.02980	0.02952	-0.03952	-0.03915	1.60178	1
Wavin	0.03551	0.03681	14.13452	0.38022	0.39422	0.01660	0.06187	0.06414	0.02327	0.02412	0.04157	0.04310	0.89326	1
Wessanen, Kon.	0.02868	0.02953	13.71735	0.28616	0.29461	0.98574	0.00165	0.00170	0.14915	0.15356	0.17639	0.18160	0.95295	1
Accell Group	0.00191	0.00191	12.72314	0.33227	0.33291	0.88059	0.09897	0.09916	0.01861	0.01865	0.34317	0.34383	1.13083	1
Antonov	0.10598	0.11854	8.45914	0.34972	0.39118	0.00000	-0.53031	-0.59317	0.18756	0.20979	0.29271	0.32741	1.13810	0
Arseus	0.04429	0.04635	12.94260	0.32096	0.33584	0.89363	0.05347	0.05595	0.00773	0.00809	0.10547	0.11036	1.01489	1
Ballast Nedam	0.09163	0.10088	13.81950	0.29382	0.32346	0.50847	0.03486	0.03838	0.01468	0.01616	-0.02191	-0.02412	0.96863	1
Beter Bed	-0.11488	-0.10304	11.48224	0.33807	0.30323	0.49831	0.08632	0.07742	0.04698	0.04214	0.19915	0.17863	2.43044	1
Dockwise	0.12395	0.14149	14.37724	0.57099	0.65178	0.02199	0.06930	0.07910	0.03491	0.03984	-0.15642	-0.17855	1.22646	0

Exact Holding	0.18756	0.23086	12.38238	0.00266	0.00328	0.00000	0.03825	0.04709	0.04031	0.04962	-0.11148	-0.13721	1.72058	1
Fornix BioSciences	0.53017	1.12841	11.00871	0.04134	0.08799	0.00000	0.03661	0.07792	0.06289	0.13386	0.05472	0.11647	1.03448	1
Gamma Holding	0.03642	0.03780	13.42306	0.46017	0.47757	0.10232	-0.42108	-0.43700	0.30526	0.31680	-0.22298	-0.23141	1.04955	1
Grontmij	-0.01040	-0.01030	13.35617	0.18415	0.18226	0.99562	0.05947	0.05886	0.01510	0.01495	0.03128	0.03096	1.21548	1
Innoconcepts	0.02923	0.03012	11.83019	0.34415	0.35451	0.93380	-0.11881	-0.12239	0.20558	0.21177	0.00080	0.00083	0.69508	1
Machintosh Retail	0.02226	0.02277	13.34835	0.36768	0.37605	0.57899	0.06376	0.06522	0.01279	0.01308	0.14035	0.14355	0.90941	1
Pharming Group	0.29149	0.41142	11.29894	0.61616	0.86965	0.98022	-0.30698	-0.43327	0.09160	0.12929	-0.00135	-0.00191	1.61710	0
Qurius	0.03170	0.03274	11.68336	0.37625	0.38857	0.33460	-0.16428	-0.16966	0.09644	0.09960	-0.06294	-0.06500	0.80278	0
Sligro Food Group	0.00101	0.00101	13.68215	0.29132	0.29162	0.69208	0.12086	0.12098	0.01862	0.01864	0.09958	0.09968	1.25709	1
Spyker Cars	0.01498	0.01521	11.01109	0.44990	0.45675	0.00000	-0.36119	-0.36668	0.50011	0.50772	-0.05053	-0.05130	1.25469	0
Telegraaf	0.04408	0.04612	13.54372	0.24830	0.25976	0.00423	-0.44410	-0.46458	0.42351	0.44304	-0.14031	-0.14678	1.23575	1
TKH Group	0.01319	0.01337	13.48917	0.27207	0.27570	0.99649	0.08033	0.08140	0.02520	0.02554	0.16601	0.16823	0.98452	1
Ajax	0.14785	0.17350	11.74296	0.10696	0.12551	0.00617	-0.01681	-0.01973	0.11930	0.14000	-0.12904	-0.15142	1.42674	0
Alanheri	0.00480	0.00482	9.21054	0.41502	0.41702	0.80800	-0.19476	-0.19570	0.13395	0.13460	-0.03549	-0.03566	1.32405	0
Amsterdam Commodities	0.08412	0.09184	11.06987	0.32003	0.34942	0.81701	0.03727	0.04069	0.01749	0.01910	0.24187	0.26409	1.32145	1
AMT Holding	0.84995	5.66429	10.60110	0.08465	0.56411	0.00000	-0.40484	-2.69796	0.09376	0.62483	-0.08534	-0.56875	1.22213	0
AND Intl Publishers	0.04111	0.04287	9.83135	0.05820	0.06070	0.00000	0.07803	0.08138	0.01892	0.01973	-0.05960	-0.06215	0.76104	0
Batenburg	0.07155	0.07706	11.22824	0.15003	0.16159	0.00000	0.06782	0.07305	0.02683	0.02889	0.22389	0.24114	1.60782	1
BE Semiconductor	0.30471	0.43825	12.40032	0.26452	0.38044	0.36734	-0.02041	-0.02935	0.04617	0.06641	0.09972	0.14342	0.62823	0
Brill, Kon.	0.06326	0.06753	10.51589	0.16923	0.18066	1.00000	0.00802	0.00856	0.04712	0.05030	0.06719	0.07172	1.10185	1
Crown Van Gelder	0.01464	0.01486	11.69141	0.14337	0.14550	0.73480	-0.07918	-0.08035	0.07656	0.07769	0.15477	0.15707	0.41175	1
Cryo Save Group	0.07322	0.07901	11.06895	0.00315	0.00340	0.73762	0.06566	0.07085	0.01461	0.01577	0.03439	0.03711	0.85478	0
Ctac	-0.03739	-0.03604	10.82751	0.17040	0.16426	0.34743	0.13259	0.12781	0.06117	0.05897	0.03622	0.03491	1.08012	1
DOC Data	0.14753	0.17306	10.61889	0.24313	0.28521	0.16844	0.13533	0.15875	0.08646	0.10142	-0.02592	-0.03040	1.39634	1
DPA Group	-0.13771	-0.12104	10.85257	0.23278	0.20460	0.59159	-0.22159	-0.19477	0.13273	0.11666	0.06271	0.05512	1.12796	0
Galapagos	0.22985	0.29845	11.68555	0.16802	0.21817	0.00000	-0.04775	-0.06200	0.07959	0.10335	0.02341	0.03040	0.90378	0
HES Beheer	0.17441	0.21125	11.54178	0.14521	0.17588	0.49625	0.11440	0.13857	0.02633	0.03189	-0.08052	-0.09753	1.69523	1
HITT	0.30751	0.44406	10.22731	0.22895	0.33062	0.78278	0.22287	0.32184	0.06883	0.09940	0.12196	0.17612	0.99557	1
Holland Colours	-0.07330	-0.06830	10.60812	0.30997	0.28880	0.92481	0.03991	0.03719	0.02472	0.02303	0.05415	0.05045	0.85803	1
Hunter Douglas	0.01325	0.01343	14.81504	0.26610	0.26968	0.67635	-0.02208	-0.02238	0.06057	0.06138	0.35480	0.35957	0.95653	1

Hydratec	0.60465	1.52942	10.14282	0.04802	0.12145	0.00000	0.36244	0.91677	0.16338	0.41325	0.12909	0.32653	0.86516	1
ICT Automatisering	0.14120	0.16441	11.08554	0.13686	0.15936	0.28008	0.07651	0.08909	0.05021	0.05847	0.15233	0.17737	0.93786	1
Kendrion	-0.03422	-0.03309	12.54433	0.30588	0.29576	0.99068	0.06168	0.05963	0.03005	0.02906	0.10802	0.10445	0.93033	1
LBI International	0.05592	0.05923	15.01629	0.13959	0.14785	0.88034	0.05285	0.05598	0.11555	0.12240	-0.01041	-0.01103	0.60528	0
Nedap	0.00443	0.00445	11.54404	0.20721	0.20813	0.28144	0.06173	0.06200	0.07195	0.07227	0.24358	0.24467	1.54093	1
Nedsense Enterprice	0.11846	0.13438	9.58328	0.25764	0.29227	0.00000	-0.22693	-0.25742	0.32413	0.36768	-0.26019	-0.29516	0.88305	0
Neways Electronics	0.00289	0.00290	11.53381	0.17296	0.17346	0.52919	-0.00424	-0.00425	0.08804	0.08829	0.30797	0.30886	1.01948	1
Oce	0.03114	0.03214	14.75117	0.26148	0.26988	0.29989	0.05317	0.05488	0.02000	0.02064	-0.31582	-0.32597	0.84815	1
Octopus	-0.02927	-0.02843	10.31354	0.48815	0.47427	0.20752	-0.15270	-0.14836	0.19317	0.18767	-0.37663	-0.36593	1.09115	0
Oranjewoud A	0.04217	0.04402	12.29859	0.18523	0.19338	0.10838	0.13609	0.14208	0.02716	0.02836	0.12317	0.12859	1.19686	0
Porceleyn Fles	-0.21153	-0.17459	9.93042	0.23202	0.19151	1.00000	-0.22068	-0.18215	0.12005	0.09909	0.40139	0.33131	1.02762	1
Punch Graphix	0.05629	0.05964	12.59856	0.20223	0.21429	0.17817	0.11582	0.12272	0.05890	0.06242	0.05812	0.06158	0.54933	0
RoodMicro Tec	-0.04239	-0.04066	9.59390	0.40893	0.39230	0.36627	0.13465	0.12918	0.04817	0.04621	-0.16164	-0.15506	1.03007	0
Roto Smeets	0.00540	0.00543	12.57290	0.06927	0.06965	0.00000	0.09323	0.09373	0.05491	0.05520	-0.01250	-0.01257	0.74080	1
Royal Dutch Shell B	0.05378	0.05684	19.45884	0.08240	0.08708	0.24389	0.10841	0.11458	0.03506	0.03705	-0.01468	-0.01552	0.78695	1
Simac Techniek	0.06932	0.07448	11.09717	0.06386	0.06862	0.00000	0.07762	0.08341	0.01854	0.01992	-0.00106	-0.00114	1.06926	1
Sopheon Plc	0.23283	0.30349	9.31533	0.19654	0.25619	1.00000	0.11461	0.14940	0.06071	0.07913	-0.19501	-0.25420	1.79536	0
Stern Groep	0.00188	0.00188	13.20165	0.52825	0.52925	0.38153	0.01569	0.01572	0.01009	0.01010	-0.22541	-0.22584	0.88687	1
Thunderbird	0.08425	0.09200	12.46281	0.56999	0.62243	0.00000	0.18398	0.20090	0.08939	0.09761	-0.13439	-0.14675	0.95067	0
Tie Holding	0.14641	0.17153	8.91342	0.14426	0.16901	0.40578	-0.14884	-0.17437	0.17610	0.20631	-0.39201	-0.45925	1.44294	0
TMC	0.06437	0.06879	10.40375	0.09141	0.09770	0.00000	0.13959	0.14919	0.05725	0.06119	0.11148	0.11915	1.15586	0
Value8	0.83757	5.15652	6.56244	0.28390	1.74783	0.00000	-6.18079	-38.05217	3.71769	22.88802	-0.12147	-0.74783	13.43169	1
Vivenda Media Group	0.00212	0.00212	9.65471	0.76787	0.76950	0.61929	0.10638	0.10661	0.32902	0.32972	-0.15800	-0.15833	22.94697	1
Wegener	0.03951	0.04114	13.57668	0.34169	0.35575	0.00000	0.04375	0.04555	0.01085	0.01130	-0.40154	-0.41806	0.87412	1

31-Dec-2009	Cash		Firm size	Leverage		Bank debt	Cash flow		Cash flow volatility		Liquid assets		Investment opportunity	Dividend payment
Name company	Cash/ Total assets	Cash/ Net assets	Log total assets	Total debt/ Total assets	Total debt/ Net assets	Total bank borr/Total debt	Cash flow/ Total assets	Cash flow/ Net assets	SD cash flow/ Total assets	SD cash flow/ Net assets	NWC/ Total assets	NWC/ Net assets	Market-to- book/Total assets	Dividend dummy
Ahold, Kon.	0.19292	0.23904	16.44977	0.26556	0.32904	0.46351	0.10428	0.12921	0.07380	0.09144	-0.11541	-0.14300	1.40902	1
Air-France KLM	0.13505	0.15614	17.13965	0.40191	0.46466	0.01039	0.11636	0.13453	0.03813	0.04409	-0.22315	-0.25799	0.93151	1
Akzo Nobel	0.10164	0.11314	16.75361	0.20508	0.22829	0.05579	0.02474	0.02753	0.24565	0.27344	-0.01261	-0.01403	1.13409	1
ArcelorMittal	0.04635	0.04860	18.66517	0.19430	0.20375	0.00098	0.02843	0.02982	0.03407	0.03573	0.02630	0.02757	1.00540	1
ASML Holding	0.27822	0.38547	15.13125	0.23322	0.32312	0.76278	-0.02608	-0.03613	0.10931	0.15144	0.17911	0.24815	3.31592	1
BAM Groep, Kon.	0.10503	0.11736	15.73373	0.30942	0.34574	0.65922	0.01034	0.01155	0.02040	0.02280	0.01049	0.01172	1.01453	1
Boskalis Westminster, Kon.	0.21169	0.26854	14.84640	0.02905	0.03685	0.92876	0.13858	0.17580	0.03194	0.04051	-0.19973	-0.25337	1.38720	1
DSM, Kon.	0.13938	0.16195	16.07873	0.22925	0.26638	0.05808	0.08186	0.09512	0.00683	0.00794	0.09538	0.11083	1.05958	1
Fugro	0.02525	0.02591	14.67685	0.26823	0.27518	0.80578	0.16849	0.17285	0.03856	0.03956	0.03404	0.03492	1.81257	1
Heineken	0.01804	0.01837	16.82020	0.43122	0.43914	0.39841	0.09083	0.09250	0.01929	0.01965	-0.07765	-0.07908	1.12411	1
KPN, Kon.	0.10825	0.12138	17.02841	0.53805	0.60336	0.98706	0.04789	0.05370	0.06745	0.07564	-0.12965	-0.14539	1.62149	1
Philips, Kon.	0.14368	0.16778	17.23412	0.13978	0.16323	0.93344	0.04124	0.04816	0.07839	0.09155	-0.01726	-0.02016	1.14858	1
Randstad	0.03554	0.03685	15.68085	0.19894	0.20627	0.96840	0.04837	0.05016	0.01728	0.01792	0.04198	0.04353	1.53036	1
Reed Elsevier	0.00290	0.00290	13.85088	0.00965	0.00968	1.00000	0.18243	0.18296	0.68979	0.69180	-0.06178	-0.06196	0.10456	1
Royal Dutch Shell A	0.03326	0.03441	19.49288	0.11990	0.12403	0.16199	0.05699	0.05895	0.03389	0.03505	0.00664	0.00687	0.88502	1
SBM Offshore	0.03149	0.03252	15.35420	0.34576	0.35700	0.95960	0.10302	0.10637	0.01086	0.01122	-0.06108	-0.06306	1.30582	1
TNT	0.11826	0.13412	15.85608	0.33944	0.38497	0.77182	0.09669	0.10965	0.02599	0.02948	-0.12450	-0.14119	1.76624	1
TOMTOM	0.13717	0.15898	14.80347	0.29397	0.34070	0.22165	0.07176	0.08316	0.19816	0.22966	-0.14951	-0.17327	1.13708	0
Unilever	0.06476	0.06924	17.42686	0.26937	0.28802	0.95557	0.06983	0.07467	0.01906	0.02037	-0.08604	-0.09200	0.67211	1
Wolters Kluwer	0.06757	0.07247	15.61606	0.39931	0.42824	0.93339	0.07500	0.08044	0.04801	0.05148	-0.21361	-0.22909	1.51432	1
Aalberts Industries	0.03418	0.03539	14.27161	0.39969	0.41383	0.87086	0.07220	0.07475	0.01710	0.01771	0.00928	0.00961	1.28141	1
AMG	0.14429	0.16862	13.60600	0.25127	0.29364	0.98556	-0.09183	-0.10731	0.06400	0.07479	0.12929	0.15109	1.13826	0

Arcadis	0.16162	0.19277	14.08946	0.28480	0.33971	0.82063	0.05946	0.07092	0.00624	0.00744	0.03432	0.04094	1.53293	1
ASM International	0.34508	0.52690	13.65499	0.31165	0.47585	0.89992	-0.03217	-0.04912	0.09476	0.14468	0.14751	0.22523	1.79578	0
Brunel International	0.28720	0.40291	12.44795	0.07336	0.10292	0.00000	0.06214	0.08717	0.02829	0.03968	0.31131	0.43674	2.41845	1
Crucell	0.32423	0.47979	13.82658	0.05172	0.07654	0.00000	0.04771	0.07060	0.06409	0.09484	0.16721	0.24743	1.38950	0
CSM	0.06009	0.06393	14.51051	0.22394	0.23825	0.86138	0.06189	0.06584	0.04347	0.04625	0.08165	0.08687	1.09659	1
Draka Holding	0.04222	0.04408	14.27880	0.23180	0.24202	0.94544	0.04851	0.05065	0.01536	0.01604	0.09079	0.09480	1.02934	1
Heijmans	0.10794	0.12100	14.43254	0.22716	0.25465	0.34118	-0.00337	-0.00378	0.02248	0.02520	0.06599	0.07397	0.88126	0
Imtech	0.02044	0.02087	14.86417	0.19220	0.19621	0.93713	0.05311	0.05422	0.01283	0.01310	0.02041	0.02084	1.34182	1
Logica	0.03015	0.03108	15.11081	0.11804	0.12171	0.97750	0.04395	0.04531	0.01416	0.01460	-0.05542	-0.05714	1.47879	1
Mediq	0.09631	0.10657	13.94604	0.24507	0.27118	0.71369	0.07067	0.07820	0.09599	0.10622	0.04312	0.04771	1.26551	1
Nutreco	0.09457	0.10445	14.56942	0.21432	0.23671	0.32338	0.06023	0.06652	0.07451	0.08229	0.03143	0.03471	0.95495	1
Ordina	0.09774	0.10833	12.90089	0.22006	0.24390	0.82226	0.06153	0.06820	0.03865	0.04283	-0.07297	-0.08088	2.58910	0
Ten Cate, Kon.	-0.00254	-0.00253	13.52583	0.27829	0.27759	0.95919	0.08844	0.08822	0.01585	0.01580	0.20134	0.20083	1.10300	1
Unit4	0.03101	0.03200	13.06980	0.52673	0.54359	0.20731	0.12580	0.12983	0.02191	0.02262	-0.10210	-0.10536	1.64100	1
USG People	0.01485	0.01507	14.31242	0.25393	0.25776	0.99879	0.01467	0.01489	0.03884	0.03943	-0.09937	-0.10087	1.15717	1
Vopak, Kon.	0.05504	0.05824	14.95846	0.38466	0.40707	0.09641	0.12344	0.13063	0.02503	0.02649	-0.05029	-0.05322	1.70620	1
Wavin	0.04459	0.04667	14.08924	0.24025	0.25146	0.02997	0.04760	0.04982	0.02434	0.02548	0.05295	0.05542	0.68254	1
Wessanen, Kon.	0.03167	0.03270	13.36594	0.36887	0.38093	0.99703	0.43925	0.45362	0.21195	0.21889	-0.09077	-0.09373	1.20021	0
Accell Group	0.00252	0.00252	12.72873	0.28558	0.28630	0.88394	0.09318	0.09342	0.01851	0.01856	0.35334	0.35423	1.41637	1
Antonov	0.09043	0.09942	7.87967	0.74234	0.81614	0.00000	-0.70526	-0.77537	0.33481	0.36810	-0.17480	-0.19218	0.88709	0
Arseus	0.07261	0.07830	13.06507	0.36026	0.38847	0.85493	0.04776	0.05150	0.00684	0.00738	0.06276	0.06767	1.09928	1
Ballast Nedam	0.10735	0.12026	13.84895	0.35687	0.39978	0.59079	0.01838	0.02059	0.01426	0.01597	-0.07060	-0.07909	0.98595	1
Beter Bed	0.15728	0.18664	11.59981	0.22813	0.27071	0.36168	0.17704	0.21008	0.04177	0.04957	0.11185	0.13272	3.58208	1
Dockwise	0.03074	0.03172	14.33840	0.40290	0.41568	0.00390	0.07884	0.08134	0.03629	0.03744	-0.04006	-0.04133	1.89909	0
Exact Holding	0.21244	0.26975	12.34693	0.00000	0.00000	0.00000	0.03282	0.04167	0.04177	0.05303	-0.14577	-0.18509	2.25610	1
Fornix BioSciences	0.57456	1.35052	11.02176	0.02780	0.06534	0.00000	0.05741	0.13494	0.06208	0.14591	0.05578	0.13110	1.06436	1
Gamma Holding	0.04781	0.05021	13.19468	0.53060	0.55725	1.00000	-0.01823	-0.01915	0.38358	0.40284	0.45153	0.47421	1.00911	1
Grontmij	-0.03292	-0.03188	13.29830	0.17544	0.16985	0.99312	0.03068	0.02970	0.01600	0.01549	0.00940	0.00910	1.22208	1
Innoconcepts	0.13711	0.15889	11.86541	0.32110	0.37212	0.84448	-0.29486	-0.34171	0.19846	0.23000	-0.10477	-0.12141	1.04111	0
Machintosh Retail	0.04206	0.04390	13.29372	0.27037	0.28224	0.51635	0.09569	0.09989	0.01351	0.01410	0.09850	0.10282	1.16974	1

Pharming Group	0.04184	0.04366	10.93102	0.42104	0.43942	0.58485	-0.54827	-0.57221	0.13234	0.13812	-0.17963	-0.18747	2.00590	0
Qurius	0.10042	0.11163	11.46700	0.36707	0.40804	0.38384	-0.04902	-0.05449	0.11974	0.13311	-0.14810	-0.16463	1.27033	0
Sligro Food Group	0.02897	0.02983	13.65557	0.24154	0.24874	0.62323	0.12440	0.12811	0.01913	0.01970	0.11054	0.11384	1.68140	1
Spyker Cars	0.01586	0.01612	11.06949	0.85361	0.86736	0.00000	-0.32035	-0.32551	0.47174	0.47934	-0.50819	-0.51638	1.48450	0
Telegraaf	0.07408	0.08000	13.54475	0.23371	0.25241	0.00000	0.15040	0.16243	0.42308	0.45693	-0.13611	-0.14700	1.20731	1
TKH Group	0.06783	0.07276	13.37255	0.17589	0.18869	1.00000	0.02787	0.02990	0.02832	0.03038	0.03769	0.04043	1.34950	1
Ajax	0.08400	0.09171	11.47031	0.08482	0.09260	0.01907	-0.22212	-0.24249	0.15669	0.17106	-0.21387	-0.23349	1.81506	0
Alanheri	0.00771	0.00777	9.09963	0.45096	0.45446	0.84246	0.04412	0.04447	0.14966	0.15082	-0.09182	-0.09254	1.02519	0
Amsterdam Commodities	0.13117	0.15097	11.18292	0.31471	0.36222	0.71306	0.07106	0.08179	0.01562	0.01798	0.21130	0.24320	1.69052	1
AMT Holding	0.79929	3.98240	10.25079	0.29108	1.45027	0.00000	-0.58248	-2.90213	0.13309	0.66310	-0.14118	-0.70340	1.93537	0
AND Intl Publishers	0.07322	0.07900	10.04741	0.02377	0.02565	0.00000	0.06754	0.07288	0.01524	0.01645	-0.05183	-0.05592	1.29498	0
Batenburg	0.20905	0.26430	11.25392	0.17688	0.22363	0.00000	0.03055	0.03863	0.02615	0.03306	0.08865	0.11208	1.79782	1
BE Semiconductor	0.27130	0.37230	12.50447	0.20478	0.28102	0.26190	0.05590	0.07672	0.04161	0.05710	0.09764	0.13400	0.75432	0
Brill, Kon.	0.05327	0.05626	10.52479	0.13214	0.13957	1.00000	0.09203	0.09721	0.04670	0.04933	0.09407	0.09936	0.97821	0
Crown Van Gelder	0.00965	0.00975	11.68122	0.12449	0.12571	0.63112	0.09010	0.09098	0.07734	0.07809	0.21228	0.21435	0.46153	1
Cryo Save Group	0.10874	0.12200	11.13947	0.05897	0.06616	0.97931	0.04662	0.05231	0.01362	0.01528	-0.00694	-0.00779	1.04276	1
Ctac	-0.01517	-0.01494	10.68972	0.18336	0.18062	0.54211	-0.01654	-0.01629	0.07021	0.06916	-0.09034	-0.08899	1.19089	1
DOC Data	0.12542	0.14340	10.79982	0.22344	0.25548	0.00000	0.22201	0.25384	0.07215	0.08250	0.11261	0.12875	1.59228	1
DPA Group	-0.05383	-0.05108	10.57880	0.23651	0.22443	0.36059	-0.16031	-0.15212	0.17453	0.16561	-0.01336	-0.01268	1.23538	1
Galapagos	0.32977	0.49203	11.87555	0.13198	0.19692	0.00000	0.06934	0.10346	0.06582	0.09821	0.04141	0.06178	1.58961	0
HES Beheer	0.16544	0.19824	11.62167	0.11476	0.13751	0.49070	0.14500	0.17375	0.02431	0.02912	-0.10454	-0.12526	2.06945	1
HITT	0.24864	0.33092	10.19578	0.34211	0.45531	0.63219	0.07581	0.10090	0.07104	0.09454	0.19776	0.26320	1.01090	1
Holland Colours	-0.08374	-0.07727	10.57717	0.26473	0.24427	0.92451	0.09549	0.08811	0.02550	0.02353	0.21267	0.19624	0.94013	0
Hunter Douglas	0.02896	0.02982	14.68387	0.15065	0.15514	0.55989	0.05623	0.05791	0.06906	0.07112	0.28116	0.28954	1.15156	1
Hydratec	0.56277	1.28714	10.08910	0.04992	0.11417	0.00000	-0.03094	-0.07076	0.17240	0.39429	0.12525	0.28647	0.83380	1
ICT Automatisering	0.18610	0.22865	10.99734	0.16051	0.19721	0.26082	-0.04992	-0.06133	0.05484	0.06738	0.05978	0.07345	1.00271	1
Kendrion	0.00654	0.00659	11.93689	0.12173	0.12253	0.97849	0.02421	0.02437	0.05517	0.05554	0.13351	0.13439	1.06057	1
LBI International	0.08962	0.09844	14.70167	0.19425	0.21337	0.87967	-0.25175	-0.27654	0.15828	0.17386	-0.01538	-0.01689	0.74474	1
Nedap	-0.09437	-0.08624	11.53603	0.29830	0.27257	0.50100	-0.04808	-0.04393	0.07253	0.06628	0.21235	0.19404	1.67704	1
Nedsense Enterprice	0.05894	0.06263	9.44731	0.21114	0.22436	0.00000	-0.00742	-0.00788	0.37134	0.39460	-0.39301	-0.41762	1.12489	0

Neways Electronics	0.00754	0.00760	11.42510	0.19385	0.19532	0.66978	-0.01108	-0.01117	0.09815	0.09890	0.27771	0.27982	1.22623	0
Oce	0.04611	0.04833	14.60723	0.24605	0.25794	0.32269	0.06357	0.06664	0.02310	0.02421	-0.31878	-0.33419	1.06865	1
Octopus	0.11140	0.12536	10.30028	0.19848	0.22336	0.00186	-0.00629	-0.00708	0.19575	0.22028	-0.12710	-0.14303	2.20376	0
Oranjewoud A	0.08550	0.09350	12.47433	0.23600	0.25807	0.11411	0.08947	0.09783	0.02279	0.02492	0.07995	0.08743	1.20536	0
Porceleyne Fles	-0.22476	-0.18351	9.87663	0.25100	0.20494	1.00000	0.05208	0.04252	0.12668	0.10343	0.44181	0.36073	0.85929	0
Punch Graphix	0.13956	0.16220	12.56175	0.23771	0.27627	0.14739	0.02699	0.03137	0.06111	0.07102	-0.01898	-0.02206	0.55787	0
RoodMicro Tec	-0.03342	-0.03234	9.42940	0.38967	0.37707	0.55638	0.02506	0.02425	0.05679	0.05495	-0.04482	-0.04337	1.23041	0
Roto Smeets	0.00466	0.00468	12.47560	0.07321	0.07355	0.00000	0.01053	0.01058	0.06052	0.06080	-0.17042	-0.17122	0.73429	0
Royal Dutch Shell B	0.03326	0.03441	19.49288	0.11990	0.12403	0.16199	0.05699	0.05895	0.03389	0.03505	0.00664	0.00687	0.79263	1
Simac Techniek	0.09329	0.10288	11.05851	0.04269	0.04708	0.00000	0.04995	0.05509	0.01927	0.02125	-0.00153	-0.00169	1.15702	1
Sopheon Plc	0.18699	0.23000	9.06935	0.29499	0.36284	0.66823	-0.02717	-0.03342	0.07763	0.09549	-0.21566	-0.26526	2.19944	0
Stern Groep	0.00182	0.00183	13.13016	0.51699	0.51793	0.35357	0.02505	0.02510	0.01083	0.01085	-0.22984	-0.23026	0.92890	0
Thunderbird	0.04518	0.04732	12.39345	0.50998	0.53411	0.00000	0.15341	0.16066	0.09581	0.10034	-0.16017	-0.16775	0.96760	0
Tie Holding	0.05035	0.05302	9.11339	0.09905	0.10430	0.00000	0.07702	0.08110	0.14419	0.15183	-0.26983	-0.28414	1.98253	1
TMC	0.07667	0.08304	10.07757	0.13368	0.14478	0.62854	0.01727	0.01870	0.07933	0.08592	0.04478	0.04850	1.41143	1
Value8	0.46371	0.86467	8.55005	0.05825	0.10863	0.00000	0.02884	0.05377	0.50941	0.94988	0.03697	0.06893	2.18004	0
Vivenda Media Group	0.00127	0.00127	9.06958	0.41038	0.41090	0.75877	1.23875	1.24032	0.59066	0.59141	-0.32117	-0.32158	0.84091	0
Wegener	0.00500	0.00503	13.45815	0.29612	0.29761	0.53103	0.03832	0.03851	0.01222	0.01228	-0.21419	-0.21527	0.81113	1

Appendix 3: List of the industry of each firm

	Name firm	Industry		Name firm	Industry
AEX	Ahold, Kon.	Consumer services	Local	Ajax	Consumer services
	Air-France KLM	Consumer services		Alanheri	Consumer goods
	Akzo Nobel	Basic materials		Amsterdam Commodities	Consumer goods
	ArcelorMittal	Basic materials		AMT Holding	Health care
	ASML Holding	Technology		AND Intl Publishers	Technology
	BAM Groep, Kon.	Industrials		Batenburg	Industrials
	Boskalis Westminster, Kon.	Industrials		BE Semiconductor	Technology
	DSM, Kon.	Basic materials		Brill, Kon.	Consumer services
	Fugro	Oil and gas		Crown Van Gelder	Basic materials
	Heineken	Consumer goods		Cryo Save Group	Health care
	KPN, Kon.	Telecommunications		Ctac	Technology
	Philips, Kon.	Consumer goods		DOC Data	Consumer goods
	Randstad	Industrials		DPA Group	Industrials
	Reed Elsevier	Consumer services		Galapagos	Health care
	Royal Dutch Shell A	Oil and gas		HES Beheer	Industrials
	SBM Offshore	Oil and gas		HITT	Industrials
	TNT	Industrials		Holland Colours	Basic materials
	TOMTOM	Technology		Hunter Douglas	Consumer goods
	Unilever	Consumer goods		Hydratec	Industrials
	Wolters Kluwer	Consumer services		ICT Automatisering	Technology
AMX	Aalberts Industries	Industrials	Kendrion	Industrials	
	AMG	Industrials	LBI International	Technology	
	Arcadis	Industrials	Nedap	Industrials	
	ASM International	Technology	Nedsense Enterprice	Technology	
	Brunel International	Industrials	Neways Electronics	Industrials	
	Crucell	Technology	Oce	Technology	
	CSM	Consumer services	Octoplus	Health care	
	Draka Holding	Technology	Oranjewoud A	Industrials	
	Heijmans	Industrials	Porceleyne Fles	Consumer goods	
	Imtech	Industrials	Punch Graphix	Industrials	
	Logica	Technology	RoodMicro Tec	Technology	
	Mediq	Consumer services	Roto Smeets	Consumer services	
	Nutreco	Consumer goods	Royal Dutch Shell B	Oil and gas	
	Ordina	Technology	Simac Techniek	Technology	
	Ten Cate, Kon.	Industrials	Sopheon Plc	Technology	
	Unit4	Technology	Stern Groep	Consumer services	
	USG People	Industrials	Thunderbird	Tourism and recreation	
	Vopak, Kon.	Industrials	Tie Holding	Technology	
	Wavin	Industrials	TMC	Technology	
	Wessanen, Kon.	Consumer goods	Value8	Industrials	
AScX	Accell Group	Consumer goods	Vivenda Media Group	Consumer services	
	Antonov	Consumer goods	Wegener	Consumer services	

Arseus	Health care
Ballast Nedam	Industrials
Beter Bed	Consumer services
Dockwise	Oil and gas
Exact Holding	Technology
Fornix BioSciences	Health care
Gamma Holding	Industrials
Grontmij	Industrials
Innoconcepts	Industrials
Machintosh Retail	Consumer services
Pharming Group	Health care
Qurius	Technology
Sligro Food Group	Consumer services
Spyker Cars	Consumer goods
Telegraaf	Consumer services
TKH Group	Industrials

Consumer Services
Ahold (food retailer or wholesale)
Air-France KLM (Air traffic industry/ airline)
Reed Elsevier (publishing)
Wolters Kluwer (media/ publishing)
CSM (food & beverage)
Mediq (drug retailers)
Beter Bed (retail, home improvement retailers)
Macintosh Retail (retail)
Sligro Food Group (drug & food retailers)
Telegraaf Media Group (media, publishing)
Ajax (travel & leisure)
Koninklijke Brill (media/ publishing)
Roto Smeets (media)
Stern Groep (retail)
Vivenda Media Group (media)
Wegener (media)
Basic materials
Akzo Nobel (chemicals)
ArcelorMittal (steel)
DSM (speciality chemicals)
Crown Van Gelder (basic resources/ paper)
Holland Colours (speciality chemicals)
Industrials
BAM Groep (construction and materials/ heavy constructions)
Boskalis Westminster (construction and materials/ heavy

Technology
ASML Holding (Semiconductors)
TOMTOM (technology hardware and equipment)
ASM International (hardware & equipment)
Crucell (biopharmaceutical)
Draka Holding (energy and infrastructure)
Logica (software & computer services)
Ordina (software & computer services)
Unit4 (software & computer services)
Exact Holding (software & computer services)
Qurius (software & computer services)
AND Intl Publishers (software & computer services)
BE Semiconductor (technology hardware and equipment)
Ctac (software & computer services)
ICT Automatisering (software & computer services)
LBI International (software & computer services)
Nedsense Enterprise (software & computer services)
Oce (technology hardware and equipment)
RoodMicro Tec (technology hardware and equipment)
Simac Techniek (software & computer services)
Sopheon Plc (software & computer services)
Tie Holding (software & computer services)
TMC
Oil and gas
Fugro (Oil equipment and services)
Royal Dutch Shell A
SBM Offshore (Oil equipment and services)

constructions)	
Randstad (business training & employment agencies)	Dockwise
TNT (industrial goods & services/ industrial transportation/ delivery services)	Royal Dutch Shell B
Aalberts Industries (industrial goods & services)	
AMG (industrial goods & services)	Consumer goods
Arcadis (industrial goods & services)	Heineken (brewers)
Brunel International (industrial goods & services)	Philips (personal/ consumer electronics)
Heijmans (construction & materials)	Unilever (foods & beverage/ food products)
Imtech (industrial goods & services)	Nutreco (foods & beverage)
Ten Cate (industrial goods & services)	Wessanen (foods & beverage)
USG People (industrial goods & services)	Accell Group (Leisure goods, recreational products)
Vopak (industrial goods & services)	Antonov (automobiles & parts)
Wavin (construction and materials)	Spyker Cars (automobiles & parts)
Ballast Nedam (construction & materials, heavy construction)	
Gamma Holding (industrial goods & services/ industrial engineering)	Alanheri (foods & beverage)
Grontmij (construction & materials, heavy construction)	Amsterdam Commodities (foods & beverage)
InnoConcepts (industrial goods & services)	DOC Data (personal/leisure goods/ consumer electronics)
TKH Group (industrial goods & services, electrical & electrical equipment)	Hunter Douglas (personal/ household goods & home construction)
Batenburg Beheer (construction and materials)	Porceleyne Fles (personal/ household goods & home construction)
DPA Group (industrial goods & services)	
HES Beheer (industrial goods & services/ industrial transportation)	Telecommunications
HITT (industrial goods & services/ electrical equipments)	KPN (fixed line communications)
Hydratec Industries (industrial goods & services/ industrial engineering)	
Kendrion (industrial goods & services/ industrial engineering)	Health care
Nedap (industrial goods & services, electrical & electrical equipment)	Arseus (health care equipment & services)
Neways Electronics (industrial goods & services, electrical & electrical equipment)	Fornix BioSciences (pharmaceuticals & biotechnology)
Oranjewoud A (industrial goods & services)	Pharming Group (pharmaceuticals & biotechnology)
Punch Graphix (industrial goods & services/ industrial engineering)	AMT Holding (pharmaceuticals & biotechnology)
Value8 (industrial goods & services/ electrical & electrical equipment)	Cryo Save Group (pharmaceuticals & biotechnology)
	Galapagos (pharmaceuticals & biotechnology)
	Octoplus (pharmaceuticals & biotechnology)
Tourism and recreation	
Thunderbird	

Appendix 4: Advantages and disadvantages regression tests

Method	Reference	Advantages	Disadvantages
Fama and MacBeth (1973) methodology	(Opler et al., 1999) (Pinkowitz & Williamson, 2001) (Ferreira & Vilela, 2004)	1. Treats each year as an independent cross-section. 2. Eliminates the problem of serial correlation in the residuals of a time-series cross-sectional regression.	1. Does not include annual dummy variables, so macroeconomic factors will be not eliminated.
Cross-sectional regression using means	(Opler et al., 1999) (Ferreira & Vilela, 2004)	1. Eliminates the problem of serial correlation in the residuals of a time-series cross-sectional regression.	1. Does not include annual dummy variables, so macroeconomic factors will be not eliminated.
Pooled OLS regression	(Stimson, 1985) (Menard, 2008) (Wooldridge, 2009)	1. Analyzes both the cross-sectional and time-series data. 2. With few unites but many time periods will increase the sample size. 3. Potential result of panel heteroskeasticity. 4. Get more precise estimators and increases the power of the test statistics. 5. Includes annual dummy variables to eliminate any macroeconomic factors. 6. Capturing a larger portion of variability of the data, making the parameter estimates more robust.	1. Raises a number of issues that frequently-used statistical techniques are unequipped to address (such as OLS regression). 2. When apply OLS to cross-sectional datase, it requires no concern with autocorrelation, when data are not independent along the time dimensions. 3. Heteroskedasticity results (when error variance is not constant across units) and steps must be taken to correct it. 4. Heterogeneity (when all units are affected by a shock during the same time period).
Least Square Dummy Variables regression (Fixed Effects regression)	(Menard, 2008)	1. Incorporate a fixed increment to the model for each group. 2. Include dummy variables for N-1 units, with the coefficient on the dummies representing the individual-specific effects for each case. 3. Makes use of all of the over-time variation in the independent variables in its calculation. 4. Includes firm specific effects and time effects (unobserved effects) in the model.	1. Any time-invariant observed variables will drop out in the substraction.

Appendix 5: Normality tests

The data is tested on normality by running the Shapiro-Wilk test (when the sample size is smaller than 50) and Kolmogorov-Smirnov test (when the sample size is bigger than 50). Since the sample size is bigger than 50 the Kolmogorov-Smirnov test is used. The null hypothesis of this test is that normality is present. When significance is smaller than 0.05, you reject the null hypothesis of normality. And when significant is larger than 0.05, you accept the null hypothesis of normality.

Test of normality using cash-to-total-assets ratio as dependent variable:

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cash_ratio	.129	338	.000	.869	338	.000
Firm_size	.051	338	.033	.985	338	.002
Leverage	.035	338	.200 [*]	.986	338	.003
Bank_debt	.125	338	.000	.901	338	.000
Cash_flow	.235	338	.000	.564	338	.000
Cash_flow_volatility	.270	338	.000	.543	338	.000
Liquid_assets	.034	338	.200 [*]	.994	338	.230
Market_to_book_ratio	.455	338	.000	.067	338	.000
Dividend_dummy	.457	338	.000	.556	338	.000

Seeing from the results only the market-to-book-ratio is not normally distributed. All the other variables are normally distributed. This non-normal distribution is corrected.

Test of normality using cash-to-net-assets ratio as dependent variable:

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cash_ratio	.205	338	.000	.630	338	.000
Firm_size	.051	338	.033	.985	338	.002
Leverage	.061	338	.004	.925	338	.000
Bank_debt	.125	338	.000	.901	338	.000
Cash_flow	.236	338	.000	.605	338	.000
Cash_flow_volatility	.270	338	.000	.556	338	.000
Liquid_assets	.119	338	.000	.895	338	.000
Market_to_book_ratio	.455	338	.000	.067	338	.000
Dividend_dummy	.457	338	.000	.556	338	.000

Seeing from the results all the variables is normally distributed.

Appendix 6: White's test (heteroskedasticity)

To test for the presence of heteroskedasticity first new variables are created in SPSS which are the square of unstandardized residuals and the square of each explanatory variable. The cross-product of the explanatory variables is only created when you want to formally test more than one explanatory variable in one time for heteroskedasticity. Then a linear regression is run to predict the squared residual, the explanatory variable and its squares. In the model (in SPSS) the unadjusted R-square is multiplied with the sample size ($R^2 * N$). The outcome of $R^2 * N$ is called the White statistic. This White statistic is compared with the critical value of the Chi-square distribution with the amount of degrees of freedom (with an alpha level of 5%) which is showed also in the model (in the ANOVA table). If the White statistic is smaller than the critical value of the Chi-square distribution (χ_c) then heteroskedasticity cannot be confirmed. On the other side if the White statistic is larger than the critical value of the Chi-square distribution, then heteroskedasticity can be confirmed.

Test on heteroskedasticity using cash-to-total-assets as dependent variable:

White test $\rightarrow N * R^2 = 338 * 0.175 = 59.15$

$\chi^2 \rightarrow 5\% \rightarrow df = 16 \rightarrow 26.296$

$N * R^2 > \chi^2 \rightarrow$ Heteroskedasticity can be confirmed.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.419 ^a	.175	.134	.01856

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.024	16	.001	4.269	.000 ^a
	Residual	.111	321	.000		
	Total	.134	337			

Test on heteroskedasticity using cash-to-net-assets as dependent variable:White test $\rightarrow N \cdot R^2 = 338 \cdot 0.229 = 77.402$ $\chi^2 \rightarrow 5\% \rightarrow df = 16 \rightarrow 26.296$ $N \cdot R^2 > \chi^2 \rightarrow$ Heteroskedasticity can be confirmed.**Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.478 ^a	.229	.190	.04624315

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.204	16	.013	5.956	.000 ^a
	Residual	.686	321	.002		
	Total	.890	337			

Appendix 7: Pearson's Correlation

In order to test if there is presence of collinearity, a Pearson correlation is applied. When two independent variables have a Pearson correlation of more than 0.808, then collinearity is present at those two independent variables and this can bias the results. The solution for this problem is to drop one of these highly correlated variables. For both the dependent variables cash-to-total-assets ratio and cash-to-net-assets ratio the Pearson correlation is run.

Pearson's Correlation using cash-to-total-assets as dependent variable:

		Correlations								
		Cash_ratio	Firm_size	Leverage	Bank_debt	Cash_flow	Cash_flow_volatility	Liquid_assets	Market_to_book_ratio	Dividend_dummy
Cash_ratio	Pearson	1	-.152**	-.270**	-.124*	-.226**	.230**	-.080	-.016	-.204**
	Correlation									
	Sig. (2-tailed)		.002	.000	.022	.000	.000	.111	.753	.000
	N	400	400	400	338	400	400	400	400	400
Firm_size	Pearson	-.152**	1	.073	-.060	.219**	-.274**	-.077	-.143**	.407**
	Correlation									
	Sig. (2-tailed)	.002		.145	.271	.000	.000	.125	.004	.000
	N	400	400	400	338	400	400	400	400	400
Leverage	Pearson	-.270**	.073	1	-.018	-.058	-.004	-.211**	-.011	-.057
	Correlation									
	Sig. (2-tailed)	.000	.145		.744	.246	.936	.000	.834	.254
	N	400	400	400	338	400	400	400	400	400
Bank_debt	Pearson	-.124*	-.060	-.018	1	.032	-.008	.169**	-.029	.117*
	Correlation									
	Sig. (2-tailed)	.022	.271	.744		.552	.881	.002	.592	.032
	N	338	338	338	338	338	338	338	338	338

Cash_flow	Pearson	-.226**	.219**	-.058	.032	1	-.787**	.134**	-.045	.082
	Correlation									
	Sig. (2-tailed)	.000	.000	.246	.552	.000	.007	.374	.100	
	N	400	400	400	338	400	400	400	400	400
Cash_flow_volatility	Pearson	.230**	-.274**	-.004	-.008	-.787**	1	-.086	.289**	-.119*
	Correlation									
	Sig. (2-tailed)	.000	.000	.936	.881	.000	.085	.000	.017	
	N	400	400	400	338	400	400	400	400	400
Liquid_assets	Pearson	-.080	-.077	-.211**	.169**	.134**	-.086	1	.087	.182**
	Correlation									
	Sig. (2-tailed)	.111	.125	.000	.002	.007	.085	.083	.000	
	N	400	400	400	338	400	400	400	400	400
Market_to_book_ratio	Pearson	-.016	-.143**	-.011	-.029	-.045	.289**	.087	1	-.102*
	Correlation									
	Sig. (2-tailed)	.753	.004	.834	.592	.374	.000	.083	.041	
	N	400	400	400	338	400	400	400	400	400
Dividend_dummy	Pearson	-.204**	.407**	-.057	.117*	.082	-.119*	.182**	-.102*	1
	Correlation									
	Sig. (2-tailed)	.000	.000	.254	.032	.100	.017	.000	.041	
	N	400	400	400	338	400	400	400	400	400

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Pearson's Correlation using cash-to-net-assets as dependent variable:

		Correlations								
		Cash_ratio	Firm_size	Leverage	Bank_debt	Cash_flow	Cash_flow_volatility	Liquid_assets	Market_to_book_ratio	Dividend_dummy
Cash_ratio	Pearson	1	-.191**	.355**	-.094	-.465**	.436**	-.250**	.002	-.175**
	Correlation									
	Sig. (2-tailed)		.000	.000	.084	.000	.000	.000	.967	.000
	N	400	400	400	338	400	400	400	400	400
Firm_size	Pearson	-.191**	1	-.037	-.060	.162**	-.177**	-.042	-.143**	.407**
	Correlation									
	Sig. (2-tailed)	.000		.458	.271	.001	.000	.397	.004	.000
	N	400	400	400	338	400	400	400	400	400
Leverage	Pearson	.355**	-.037	1	-.040	-.447**	.413**	-.359**	-.002	-.138**
	Correlation									
	Sig. (2-tailed)	.000	.458		.461	.000	.000	.000	.968	.006
	N	400	400	400	338	400	400	400	400	400
Bank_debt	Pearson	-.094	-.060	-.040	1	.016	-.030	.158**	-.029	.117*
	Correlation									
	Sig. (2-tailed)	.084	.271	.461		.764	.586	.004	.592	.032
	N	338	338	338	338	338	338	338	338	338
Cash_flow	Pearson	-.465**	.162**	-.447**	.016	1	-.982**	.249**	-.035	.005
	Correlation									
	Sig. (2-tailed)	.000	.001	.000	.764		.000	.000	.481	.915
	N	400	400	400	338	400	400	400	400	400
Cash_flow_volatility	Pearson	.436**	-.177**	.413**	-.030	-.982**	1	-.207**	.085	-.011
	Correlation									
	Sig. (2-tailed)	.000	.000	.000	.586	.000		.000	.088	.828

	N	400	400	400	338	400	400	400	400	400
Liquid_assets	Pearson	-.250**	-.042	-.359**	.158**	.249**	-.207**	1	.071	.176**
	Correlation									
	Sig. (2-tailed)	.000	.397	.000	.004	.000	.000		.157	.000
	N	400	400	400	338	400	400	400	400	400
Market_to_book_ratio	Pearson	.002	-.143**	-.002	-.029	-.035	.085	.071	1	-.102*
	Correlation									
	Sig. (2-tailed)	.967	.004	.968	.592	.481	.088	.157		.041
	N	400	400	400	338	400	400	400	400	400
Dividend_dummy	Pearson	-.175**	.407**	-.138**	.117*	.005	-.011	.176**	-.102*	1
	Correlation									
	Sig. (2-tailed)	.000	.000	.006	.032	.915	.828	.000	.041	
	N	400	400	400	338	400	400	400	400	400

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

As noted in the Pearson correlation output from SPSS, cash flow and cash flow volatility are highly correlated only when using cash-to-net-assets ratio as dependent variables. So for each regression analysis by using cash-to-net-assets ratio as dependent variable, it is tested to see the results what if either cash flow or cash flow volatility is dropped because of collinearity. Outputs of SPSS and STATA are showed. In order to see if the result of a variable is significant you have to divide the Sig. or the P column by 2 since the significance showed in SPSS and STATA are all one-tailed and two tailed significance is needed, because two-tailed test is used when you want to test whether there is a positive or negative relation between the dependent and independent variable.

Appendix 8: Results after dropped cash flow/ cash flow volatility

Fama-MacBeth analysis (dropped cash flow):

After dropped cash flow from the Fama-MacBeth analysis, cash flow volatility became insignificant. Investment opportunity is still significant but the significance level increase from 1% to 5% level. The rest of the variables are also insignificant.

2006:

Parameter Estimates^a

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	.188	.163	-.136	.512	1.153	87.000	.252
Firm_size	9.925E-5	.010	-.019	.019	.010	87.000	.992
Leverage	-.135	.196	-.525	.255	-.688	87.000	.493
Bank_debt	-.054	.060	-.173	.065	-.909	87.000	.366
Cash_flow_volatility	.699	.198	.305	1.092	3.528	87.000	.001
Liquid_assets	-.119	.218	-.553	.315	-.546	87.000	.586
Market_to_book_ratio	-.003	.001	-.005	-.001	-2.545	87.000	.013
Dividend_dummy	-.084	.064	-.211	.043	-1.311	87.000	.193

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow_volatility + Liquid_assets + Market_to_book_ratio + Dividend_dummy

2007:

Parameter Estimates^a

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	-.279	.162	-.601	.042	-1.728	87.000	.088
Firm_size	.017	.009	-.001	.034	1.911	87.000	.059
Leverage	.617	.246	.128	1.107	2.508	87.000	.014
Bank_debt	-.085	.055	-.195	.025	-1.541	87.000	.127
Cash_flow_volatility	.921	.350	.226	1.617	2.633	87.000	.010
Liquid_assets	-.066	.116	-.297	.165	-.566	87.000	.573
Market_to_book_ratio	-.004	.001	-.006	-.001	-2.912	87.000	.005
Dividend_dummy	-.022	.049	-.119	.075	-.457	87.000	.649

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow_volatility + Liquid_assets + Market_to_book_ratio + Dividend_dummy

2008:**Parameter Estimates^a**

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	1.307E-5	.100	-.198	.199	.000	80.000	1.000
Firm_size	.002	.008	-.014	.018	.259	80.000	.796
Leverage	.195	.117	-.039	.429	1.659	80.000	.101
Bank_debt	.058	.047	-.036	.152	1.224	80.000	.225
Cash_flow_volatility	.029	.082	-.134	.193	.354	80.000	.725
Liquid_assets	-.283	.235	-.750	.184	-1.205	80.000	.232
Market_to_book_ratio	-.009	.006	-.020	.003	-1.550	80.000	.125
Dividend_dummy	-.035	.055	-.144	.074	-.638	80.000	.525

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow_volatility + Liquid_assets + Market_to_book_ratio + Dividend_dummy

2009:**Parameter Estimates^a**

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	-.122	.112	-.344	.100	-1.092	80.000	.278
Firm_size	.009	.007	-.004	.023	1.397	80.000	.166
Leverage	.077	.106	-.134	.287	.725	80.000	.470
Bank_debt	-.025	.034	-.093	.044	-.716	80.000	.476
Cash_flow_volatility	.080	.069	-.058	.218	1.151	80.000	.253
Liquid_assets	.045	.097	-.147	.237	.465	80.000	.643
Market_to_book_ratio	.066	.024	.019	.113	2.806	80.000	.006
Dividend_dummy	-.026	.040	-.106	.054	-.652	80.000	.516

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow_volatility + Liquid_assets + Market_to_book_ratio + Dividend_dummy

Fama-MacBeth analysis (dropped cash flow volatility):

After dropped cash flow volatility from the analysis, the significance level of investment opportunity increased from 1% to 5% level. The rest of the variables are all insignificant.

2006:**Parameter Estimates^a**

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	.355	.181	-.004	.714	1.964	87.000	.053
Firm_size	-.003	.009	-.022	.015	-.343	87.000	.732
Leverage	-.076	.239	-.550	.398	-.317	87.000	.752
Bank_debt	-.048	.044	-.136	.039	-1.095	87.000	.276
Cash_flow	-.069	.830	-1.719	1.580	-.083	87.000	.934
Liquid_assets	-.059	.140	-.337	.220	-.418	87.000	.677
Market_to_book_ratio	-.001	.001	-.003	.001	-1.328	87.000	.188
Dividend_dummy	-.168	.084	-.335	-.001	-1.996	87.000	.049

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow + Liquid_assets + Market_to_book_ratio + Dividend_dummy

2007:**Parameter Estimates^a**

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	.040	.135	-.228	.308	.298	87.000	.767
Firm_size	.001	.008	-.015	.016	.083	87.000	.934
Leverage	.607	.321	-.030	1.245	1.893	87.000	.062
Bank_debt	-.094	.059	-.212	.024	-1.579	87.000	.118
Cash_flow	.326	.228	-.127	.779	1.431	87.000	.156
Liquid_assets	-.215	.120	-.453	.023	-1.796	87.000	.076
Market_to_book_ratio	.000	.000	-.001	8.603E-5	-1.581	87.000	.117
Dividend_dummy	-.076	.047	-.170	.018	-1.612	87.000	.111

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow + Liquid_assets + Market_to_book_ratio + Dividend_dummy

2008:**Parameter Estimates^a**

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
			(Intercept)	.019	.098	-.177	.215	.192	80.000	.848
Firm_size	.001	.008	-.015	.017	.128	80.000	.898
Leverage	.182	.119	-.054	.419	1.532	80.000	.129
Bank_debt	.061	.047	-.032	.154	1.300	80.000	.197
Cash_flow	.048	.040	-.030	.127	1.220	80.000	.226
Liquid_assets	-.307	.234	-.772	.159	-1.312	80.000	.193
Market_to_book_ratio	-.009	.006	-.021	.002	-1.596	80.000	.115
Dividend_dummy	-.035	.054	-.143	.074	-.636	80.000	.526

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow + Liquid_assets + Market_to_book_ratio + Dividend_dummy

2009:**Parameter Estimates^a**

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
			(Intercept)	-.099	.103	-.305	.106	-.963	80.000	.339
Firm_size	.009	.007	-.005	.022	1.309	80.000	.194
Leverage	.079	.106	-.131	.290	.750	80.000	.456
Bank_debt	-.021	.035	-.090	.048	-.602	80.000	.549
Cash_flow	-.027	.040	-.107	.053	-.674	80.000	.502
Liquid_assets	.034	.095	-.156	.223	.353	80.000	.725
Market_to_book_ratio	.062	.023	.017	.107	2.718	80.000	.008
Dividend_dummy	-.028	.040	-.109	.052	-.704	80.000	.483

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow + Liquid_assets + Market_to_book_ratio + Dividend_dummy

Cross-sectional analysis using means (dropped cash flow):

After dropped cash flow from the cross-sectional analysis using means, cash flow volatility became insignificant. Investment opportunity and dividend payment are still significant at the 1% level. The other variables are still insignificant.

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	.232	.137	-.040	.503	1.696	91.000	.093
Firm_size	.003	.008	-.013	.019	.385	91.000	.701
Leverage	-.131	.211	-.549	.287	-.622	91.000	.535
Bank_debt	-.072	.064	-.199	.055	-1.122	91.000	.265
Cash_flow_volatility	.238	.194	-.147	.623	1.226	91.000	.223
Liquid_assets	.104	.129	-.153	.361	.806	91.000	.422
Market_to_book_ratio	-.002	.001	-.004	.000	-2.229	91.000	.028
Dividend_dummy	-.123	.067	-.257	.011	-1.824	91.000	.071

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow_volatility + Liquid_assets + Market_to_book_ratio + Dividend_dummy

Cross-sectional analysis using means (dropped cash flow volatility):

After dropped cash flow volatility from the cross-sectional analysis using means, all the results stay the same. Investment opportunity and dividend payment are still significant at the 1% level. The other variables are still insignificant.

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	.307	.147	.015	.600	2.085	91.000	.040
Firm_size	.000	.008	-.017	.017	-.016	91.000	.987
Leverage	-.132	.194	-.518	.254	-.680	91.000	.498
Bank_debt	-.065	.065	-.194	.064	-1.003	91.000	.318
Cash_flow	.227	.310	-.388	.842	.732	91.000	.466
Liquid_assets	.044	.117	-.188	.276	.375	91.000	.708
Market_to_book_ratio	-.002	.001	-.004	.000	-2.095	91.000	.039
Dividend_dummy	-.158	.061	-.280	-.036	-2.578	91.000	.012

a. Model: Cash_ratio = (Intercept) + Firm_size + Leverage + Bank_debt + Cash_flow + Liquid_assets + Market_to_book_ratio + Dividend_dummy

Pooled OLS analysis using year dummies (dropped cash flow):

After dropped cash flow from the pooled OLS analysis using year dummies, all the results stay the same. Firm size is significant at the 10% level, leverage and dividend payment are significant at the 5% level, cash flow volatility and investment opportunity are significant at the 1% level. The results of bank debt and liquid assets are insignificant.

Parameter Estimates^b

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	-.065	.078	-.218	.088	-.839	337.000	.402
Firm_size	.008	.004	-.001	.017	1.736	337.000	.084
Leverage	.253	.148	-.039	.545	1.707	337.000	.089
Bank_debt	-.027	.028	-.082	.028	-.970	337.000	.333
Cash_flow_volatility	.419	.159	.106	.733	2.632	337.000	.009
Liquid_assets	-.085	.098	-.278	.107	-.870	337.000	.385
Market_to_book_ratio	-.002	.001	-.003	-.001	-3.103	337.000	.002
Dividend_dummy	-.057	.029	-.114	-.001	-2.015	337.000	.045
Year_dummy_2006	.042	.028	-.013	.097	1.519	337.000	.130
Year_dummy_2007	.038	.025	-.011	.088	1.541	337.000	.124
Year_dummy_2008	-.004	.022	-.047	.039	-.188	337.000	.851
Year_dummy_2009	.000 ^a	.	.	.	.	.	.

Pooled OLS analysis using year dummies (dropped cash flow volatility):

After dropped cash flow volatility from the pooled OLS analysis using year dummies, firm size and leverage became insignificant. Dividend payment is significant at the 5% level, cash flow volatility and investment opportunity are significant at the 1% level. The results of bank debt and liquid assets are insignificant.

Parameter Estimates^b

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	.037	.074	-.108	.183	.505	337.000	.614
Firm_size	.004	.004	-.004	.012	.933	337.000	.352
Leverage	.234	.156	-.072	.541	1.503	337.000	.134
Bank_debt	-.026	.029	-.082	.031	-.888	337.000	.375
Cash_flow	.078	.131	-.181	.336	.591	337.000	.555
Liquid_assets	-.133	.100	-.330	.064	-1.331	337.000	.184
Market_to_book_ratio	.000	.000	-.001	-3.276E-5	-2.165	337.000	.031
Dividend_dummy	-.080	.030	-.138	-.021	-2.682	337.000	.008
Year_dummy_2006	.053	.032	-.010	.116	1.666	337.000	.097
Year_dummy_2007	.040	.026	-.011	.092	1.543	337.000	.124
Year_dummy_2008	.005	.022	-.039	.048	.205	337.000	.838
Year_dummy_2009	.000 ^a	.	.	.	.	.	.

Pooled OLS analysis using year and industry dummies (dropped cash flow):

After dropped cash flow from the pooled OLS analysis using year and industry dummies, all the results stay the same. Firm size, cash flow volatility and investment opportunity are significant at the 1% level and leverage is significant at the 5% level. Bank debt and liquid assets are insignificant.

Parameter Estimates^b

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	-.207	.225	-.650	.236	-.920	337.000	.358
Firm_size	.015	.004	.006	.023	3.473	337.000	.001
Leverage	.272	.135	.008	.537	2.024	337.000	.044
Bank_debt	-.024	.028	-.080	.031	-.858	337.000	.391
Cash_flow_volatility	.442	.149	.149	.735	2.966	337.000	.003
Liquid_assets	-.061	.100	-.258	.136	-.609	337.000	.543
Market_to_book_ratio	-.001	.001	-.003	.000	-2.731	337.000	.007
Dividend_dummy	-.020	.025	-.070	.029	-.811	337.000	.418
Year_dummy_2006	.043	.027	-.010	.096	1.602	337.000	.110
Year_dummy_2007	.037	.024	-.011	.085	1.499	337.000	.135
Year_dummy_2008	-.006	.022	-.049	.037	-.275	337.000	.784
Year_dummy_2009	.000 ^a	.	.	.	.	.	.
Consumer_services_dummy	-.034	.196	-.420	.351	-.174	337.000	.862
Basic_materials_dummy	.002	.211	-.413	.417	.009	337.000	.993
Technology_dummy	.091	.198	-.297	.480	.461	337.000	.645
Industrials_dummy	.002	.198	-.388	.391	.008	337.000	.994
Oil_and_gas_dummy	-.067	.198	-.456	.322	-.341	337.000	.733
Consumer_goods_dummy	-.036	.199	-.427	.354	-.182	337.000	.856
Telecommunications_dummy	-.137	.190	-.511	.238	-.718	337.000	.473
Health_care_dummy	.174	.234	-.287	.635	.744	337.000	.458
Tourism_and_recreation_dummy	.000 ^a	.	.	.	.	.	.

Pooled OLS analysis using year and industry dummies (dropped cash flow volatility):

After dropped cash flow volatility from the pooled OLS analysis using year and industry dummies, cash flow and investment opportunity became insignificant. Dividend payment became significant at the 5% level. The rest of the results stay the same. Firm size is significant at the 1% level and leverage is significant at the 5% level. Bank debt and liquid assets are insignificant.

Parameter Estimates^b

Parameter	Estimate	Std. Error	95% Confidence Interval		Hypothesis Test		
			Lower	Upper	t	df	Sig.
(Intercept)	-.036	.196	-.422	.350	-.182	337.000	.855
Firm_size	.011	.004	.002	.019	2.552	337.000	.011
Leverage	.237	.147	-.052	.526	1.610	337.000	.108
Bank_debt	-.020	.029	-.078	.037	-.692	337.000	.489
Cash_flow	.109	.120	-.127	.345	.907	337.000	.365
Liquid_assets	-.107	.106	-.315	.101	-1.012	337.000	.312
Market_to_book_ratio	-2.183E-6	.000	.000	.000	-.012	337.000	.990
Dividend_dummy	-.045	.025	-.095	.005	-1.788	337.000	.075
Year_dummy_2006	.053	.031	-.008	.113	1.717	337.000	.087
Year_dummy_2007	.038	.025	-.013	.088	1.475	337.000	.141
Year_dummy_2008	.005	.022	-.038	.048	.231	337.000	.817
Year_dummy_2009	.000 ^a	.	.	.	.	.	.
Consumer_services_dumm y	-.080	.167	-.408	.248	-.480	337.000	.631
Basic_materials_dummy	-.049	.184	-.411	.314	-.264	337.000	.792
Technology_dummy	.022	.168	-.308	.353	.132	337.000	.895
Industrials_dummy	-.073	.167	-.402	.256	-.437	337.000	.662
Oil_and_gas_dummy	-.147	.167	-.477	.182	-.881	337.000	.379
Consumer_goods_dummy	-.090	.168	-.422	.241	-.537	337.000	.592
Telecommunications_dumm y	-.192	.158	-.504	.119	-1.213	337.000	.226
Health_care_dummy	.134	.213	-.285	.554	.631	337.000	.529
Tourism_and_recreation_du mmy	.000 ^a	.	.	.	.	.	.

Least Square Dummy Variables analysis (dropped cash flow):

After dropped cash flow from the Least Square Dummy Variables, cash flow volatility is still significant but the significance level increased from 1% to 5% level. Firm size is significant at the 10% level, leverage and dividend payment is significant at the 5% level, and investment opportunity is significant at the 1% level. Bank debt and liquid assets are insignificant.

```
. regress Cash_ratio Firm_size Leverage Bank_debt Cash_flow_volatility Liquid_as
> sets Market_to_book_ratio Dividend_dummy y1 y2 y3 y4, noconstant robust
```

```
Linear regression                               Number of obs =          338
                                                F( 11,  327) =         15.79
                                                Prob > F      =         0.0000
                                                R-squared     =         0.3672
                                                Root MSE     =         .18216
```

Cash_ratio	Robust		t	P>|t|	[95% Conf. Interval]	
	Coef.	Std. Err.				
Firm_size	.0077357	.0045247	1.71	0.088	-.0011655	.0166369
Leverage	.2530154	.150476	1.68	0.094	-.0430077	.5490386
Bank_debt	-.0270721	.0283336	-0.96	0.340	-.0828112	.0286671
Cash_flow_~y	.4192828	.1616916	2.59	0.010	.1011958	.7373699
Liquid_ass~s	-.0852415	.0994151	-0.86	0.392	-.2808153	.1103323
Market_to_~o	-.0018169	.0005944	-3.06	0.002	-.0029861	-.0006476
Dividend_d~y	-.0574432	.0289455	-1.98	0.048	-.1143861	-.0005002
y1	-.0227639	.087274	-0.26	0.794	-.1944531	.1489254
y2	-.0267646	.0713383	-0.38	0.708	-.1671046	.1135754
y3	-.0693491	.0818601	-0.85	0.398	-.2303879	.0916897
y4	-.0652132	.078949	-0.83	0.409	-.2205252	.0900989

Least Square Dummy Variables analysis (dropped cash flow volatility):

After dropped cash flow from the Least Square Dummy Variables, firm size became insignificant. The rest of the results stay the same. Leverage and dividend payment is significant at the 5% level, and investment opportunity is significant at the 1% level. Bank debt, cash flow and liquid assets are insignificant.

```
. regress Cash_ratio Firm_size Leverage Bank_debt Cash_flow Liquid_assets Market
> _to_book_ratio Dividend_dummy y1 y2 y3 y4, noconstant robust
```

Linear regression

```
Number of obs =      338
F( 11,  327) =     14.86
Prob > F      =     0.0000
R-squared     =     0.3105
Root MSE     =     .19014
```

Cash_ratio	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf. Interval]	
Firm_size	.0038018	.0041368	0.92	0.359	-.0043363	.01194
Leverage	.2344245	.158362	1.48	0.140	-.0771124	.5459615
Bank_debt	-.0255398	.0292009	-0.87	0.382	-.0829851	.0319054
Cash_flow	.0776545	.1333276	0.58	0.561	-.1846336	.3399425
Liquid_ass~s	-.1332409	.1016398	-1.31	0.191	-.3331913	.0667096
Market_to_~o	-.000359	.0001684	-2.13	0.034	-.0006903	-.0000278
Dividend_d~y	-.079636	.0301396	-2.64	0.009	-.1389279	-.0203441
y1	.0905926	.0852195	1.06	0.289	-.077055	.2582403
y2	.0778106	.0696114	1.12	0.264	-.0591321	.2147532
y3	.0419805	.0796521	0.53	0.599	-.1147147	.1986757
y4	.0374293	.0752627	0.50	0.619	-.1106308	.1854894

Appendix 9: List of dropped variables in this study

In this study three variables are dropped. It is not needed to drop these variables but because the results may change after dropping it I have drop it to see what changes will occur in the analysis.

Dropped variable	Reason	My opinion
Bank debt	In order to get the whole sample size, because bank debt has too many missing values.	It is an important determinant of cash holding, so it is not a good idea to drop it. It is only a good idea for the other independent variables to get their whole sample size.
Cash flow	Higly correlated with cash flow volatility, has to delete one variable to solve the problem.	It is an important determinant of cash holding, so it is not a good idea to drop it. But when you drop cash flow, most of the time cash flow volatility will become significant.
Cash flow volatility	Higly correlated with cash flow, has to delete one variable to solve the problem.	It is an important determinant of cash holding, so it is not a good idea to drop it. But when you drop cash flow volatility, most of the time cash flow will become significant.