Does sensitivity to cashflow news explain the value premium on European stock markets?

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Abstract

The decomposition of a European market return into cashflow and discount rate news components suggests that returns on European and country value portfolios react more sensitive to news about the European market return´s cashflows than the corresponding growth portfolios. This evidence is substantially weaker when the receptiveness of country value and growth returns to cashflow and discount rate news components of the respective national market return is in question. Moreover, I show that national news series are more important than international news series in explaining the variation in European value and growth returns. Even though European cashflow news play a marginally significant role in explaining returns on value portfolios, there is no persuasive evidence of the notion that high cashflow betas explain relatively high average returns on European countries´ value portfolios.

1 Introduction

The premium on value stocks, defined as stocks with high book value relative to market value (B/M), high earnings-to-price ratio (E/P), high cashflow-to-price ratio (C/P) and high dividend- to-price ratio (D/P), is not a unique observation on U.S. stock markets but by now well documented in international data (e.g. Chan et al. (1991), Capaul et al. (1995), Fama and French (1998)). However, with the exception of Fama and French (1998), so far little effort has been made to examine if recently discovered explanations for the value premium in the U.S. also pertain to international stock markets. This paper aims at filling this gap in the empirical literature.

Fama and French (1998) do not only confirm that the value premium is an international phenomenon but also assess if an international capital asset pricing model rationalizes higher average returns on value stocks compared to growth stocks on several international stock markets. They find the international CAPM to fail in this respect and provide evidence for the ability of a two-factor model to explain the risk premium on international value stocks. The two factors are an international market return and an international version of the Fama and French high-minus-low book-to-market factor, HML, which is the return on a portfolio consisting of a long position in value and a short position in growth stocks (Fama and French (1993)). Fama and French (1995) and Lakonishok et al. (1994) argue that the value premium reflects compensation for distress risk. In line with this reasoning, international growth stocks are negatively or at least weaker positively correlated with the international distress factor than value stocks, which explains the value premium on international stock markets.

More recently, Cohen, Polk and Vuolteenaho (2003) demonstrate empirically that long-horizon returns on value stocks react more sensitive to cashflow news than growth stocks in the U.S. Furthermore, they show that sensitivity to cashflow news is rewarded with a higher risk premium than receptiveness to discount rate news. Thus Cohen at al. are able to explain prices and long-term returns on U.S. value and growth portfolios. Lettau and Wachter (2004) theoretically underline that growth stocks should covary strongly with discount rate news whereas value stocks should be positively correlated to cashflow news to reconcile the behaviour of prices and long-horizon returns on book-to-market ratio sorted portfolios.

Campbell and Vuolteenaho (2004) explain the inability of the Sharpe (1964) and Lintner (1965) capital asset pricing model (CAPM) to capture the value premium on the U.S. stock market by decomposing the CAPM market beta into a cashflow ("bad") and discount rate ("good") variety. Intuitively, bad news about the market´s future cashflows reflect a decrease of wealth and hence lead to a fall in the value of the market but leave future investment opportunities unaffected. The value of the market portfolio could also decline because investors increase the discount rate applied to cashflows, which at the same time mirrors better future investment opportunities. Moreover, in an intertemporal CAPM (ICAPM) as proposed by Merton (1973), sensitivity to cashflow news should be associated with a higher price of risk than receptiveness to discount rate news. Campbell and Vuolteenaho (2004) thus show that value stocks´ market betas in U.S. post-war data contain a substantially higher cashflow component than growth stocks´ market beta which rationalizes seemingly abnormally high average returns on value portfolios.

In this paper, I assess if relatively high average returns on value stocks compensate their high sensitivity to the market return´s cashflow news on international stock markets. Therefore, I employ the VAR framework proposed by Campbell (1991) to decompose the return on a stock portfolio covering ten European countries as well as national market returns into discount rate and cashflow news series.

The success of the VAR in identifying cashflow and discount rate news components of a stock return relies on the choice of state variables, which have to explain stock market returns. Cashflow, i.e.dividend, news components are obtained as residual from the VAR. A major problem in applying this approach to international stock markets is to find predictive variables of international stock returns.

By employing a simple manipulation of the cointegration framework suggested by Lettau and Ludvigson (2001,2004), Nitschka (2005) shows that the U.S. consumption-wealth ratio echoes a common, transitory component in international stock markets. Short-run fluctuations of the ratio of consumption to aggregate wealth in the U.S. - henceforth abbreviated by *cay* - predict time-varying excess returns on U.S. and foreign stock markets at business cycle frequency with considerable success. Hence, I use *cay* constructed as in Nitschka (2005) as state variable. Furthermore, Kothari and Shanken (1997) and Pontiff and Schall (1998) provide evidence that the aggregate book-to-market ratio of U.S stock indexes predicts market returns in the time series. Pontiff and Schall show that the time series forecast ability of the book-to-market ratio stems from its predictive power for expected future cashflows, i.e. fundamentals. Liew and Vassalou (2000) show that national HML factors forecast GDP growth (macroeconomic fundamentals) in international data. Hence, I conjecture that national HML factors could be informative about variation in national market returns as well as about variation in the return on a European stock portfolio and use international versions of the Fama and French book-to-market factor as state variable to obtain cashflow and discount rate components of market returns.

I restrict my analysis to ten European countries for two reasons. First, I attempt to provide out-of-sample evidence for an explanation of the value premium in U.S. data. That is why I use a dataset that excludes the U.S. Secondly, international stock portfolios excluding the U.S. are typically dominated by the Japanese stock market since it is the second largest stock market worldwide. This creates an issue considering my state variable *cay*. Nitschka (2005) provides evidence that *cay* does not predict returns on the Japanese stock market which seems to reflect that variation in returns on this stock market is only to a negligible extent influenced by the common, transitory stock market component mirrored in *cay*.

In order to measure the sensitivity of value and growth portfolios to a European stock market´s cashflow and discount rate news series and to news series of the respective country market return, I follow Campbell and Vuolteenaho (2004) in identifying "bad" cashflow and "good" discount rate betas.

The main results are easily summarized. Portfolios sorted by book-to-market and cashflow-to-price ratio display that high average returns on value portfolios are associated with relatively high cashflow betas when cashflow and discount rate news components of a European market portfolio return are considered. This finding crucially relies on the state variable *cay* whereas the European book-to-market factor seems to be of negligible importance in this context. This picture drastically changes when I estimate bad and good betas of country value and growth portfolios with respect to national market return news series. Even though statistically insignificant in the respective VAR, national HML factors in Austria, Ireland, Netherlands and Switzerland seem to contain information pertinent to the four countries´ value and growth portfolio returns. This latter finding reflects that growth portfolios are negatively correlated with the national distress factor while value stocks are positively related to the HML factor as suggested by Fama and French (1998). Furthermore, the evidence in this paper underscores the point made by Griffin (2002) and Moersman (2005) that the Fama and French high minus low book-to-market portfolio rather mirrors a country-specific than an international risk factor. In addition, the dominant part of variation in European countries´ value and growth portfolio returns must be attributed to national news series. Even though European cashflow news seem to be of marginally significant importance for value and growth portfolios, there is no clearcut evidence of high cashflow betas being associated with high average returns on European countries´ value portfolios.

The remainder of this paper is organized as follows. In section two, I sketch the framework of Campbell (1991) and Campbell and Vuolteenaho (2004) used to identify cashflow and discount rate betas. Thereafter, I briefly discuss the choice of state variables in section three and provide details of the data employed in this paper in section four. Section five discusses the empirical evidence with respect to the decomposition of a European market portfolio return whereas section six focuses on national market returns. Section seven assesses the question if national or international news series are more important for returns on value and growth portfolios. Section eight concludes and discusses the main results.

2 Identification of cashflow and discount rate betas

I follow Campbell (1991) in identifying cashflow and discount rate news components of a market portfolio return and Campbell and Vuolteenaho (2004) in measuring the sensitivity of value and growth stocks to the market return´s news components.

The identification of cash flow and discount rate news driven components in simple and excess stock returns is based on the relationship between prices, dividends and returns as formulated in the dividend ratio model of Campbell and Shiller (1988). Campbell (1991) shows that unexpected changes in stock returns obey[1]

$$r_{t+1} - E_t r_{t+1} = (E_{t+1} - E_t) \sum_{j=0}^{\infty} \rho^j \Delta d_{t+1+j} - (E_{t+1} - E_t) \sum_{j=1}^{\infty} \rho^j \Delta r_{t+1+j} \quad (1)$$

where lower-case letters denote logarithms, Δ the difference operator, E_t rational expectations at time t. Revisions of expected future dividend

[1] An alternative derivation is presented in Campbell, Lo, MacKinlay (1997) chapter 7.

growth are written as $(E_{t+1} - E_t) \sum_{j=0}^{\infty} \rho^j \Delta d_{t+1+j}$, and changes of future stock returns as $(E_{t+1} - E_t) \sum_{j=1}^{\infty} \rho^j \Delta r_{t+1+j}$. The parameter ρ can be interpreted as discount coefficient reflecting the average dividend yield or average consumption-wealth ratio (Campbell and Vuolteenaho (2004)).

Equation (1) states that unexpected changes of stock returns have to be associated with revisions of expectations of future cashflows or discount rates or both. Following Campbell (1991), (1) can be written in more compact notation as

$$v_{r,t+1} = \eta_{CF,t+1} - \eta_{DR,t+1} \tag{2}$$

with

$$v_{r,t+1} \equiv r_{t+1} - E_t r_{t+1}$$

the unexpected component of the stock return,

$$\eta_{CF,t+1} \equiv (E_{t+1} - E_t) \sum_{j=0}^{\infty} \rho^j \Delta d_{t+1+j}$$

representing news about dividend changes, i.e. cash flows and

$$\eta_{DR,t+1} \equiv (E_{t+1} - E_t) \sum_{j=1}^{\infty} \rho^j \Delta r_{t+1+j}$$

which represents news about returns, i.e. discount rates.

In order to identify cash flow and discount rate components in stock returns, Campbell (1991) suggests to use a VAR of the form

$$\mathbf{z}_{t+1} = \boldsymbol{\mu} + \boldsymbol{\Gamma} \mathbf{z}_t + \mathbf{u}_{t+1} \tag{3}$$

where $\mathbf{z}_{t+1}$ is a k-by-1 state vector with the stock return, r_{t+1}, as first element and variables which predict stock returns, $\boldsymbol{\mu}$ is a k-by-1 vector of constants and $\boldsymbol{\Gamma}$ a k-by-k matrix of VAR parameters. Shocks are i.i.d and represented by the k-by-1 vector $\mathbf{u}_{t+1}$.

Since the state vector, $\mathbf{z}_{t+1}$, includes variables that predict stock returns, the discount rate news component is directly estimated in the VAR whereas the cash flow news component is a residual. It is that part of the return which is not explained by the state variables.

Under the assumption that the data is generated by (3), forecasts of future returns obey

$$E_t r_{t+1+j} = \mathbf{e1}' \boldsymbol{\Gamma}^{j+1} \mathbf{z}_t \tag{4}$$

with $\mathbf{e1}$ a k-by-1 vector whose first element is one and all other elements zero. The discounted sum of changes in the expectation of future returns, i.e. the discount rate component of the return, can thus be written as

$$\begin{aligned}\eta_{DR,t+1} &\equiv (E_{t+1}-E_t)\sum_{j=1}^{\infty}\rho^j\Delta r_{t+1+j} \\ &= \mathbf{e1}'\sum_{j=1}^{\infty}\rho^j\mathbf{\Gamma}^j\mathbf{u}_{t+1} \\ &= \mathbf{e1}'\rho\mathbf{\Gamma}(\mathbf{I}-\rho\mathbf{\Gamma})^{-1}\mathbf{u}_{t+1} = \boldsymbol{\lambda}'\mathbf{u}_{t+1} \end{aligned} \tag{5}$$

with $\boldsymbol{\lambda}' \equiv \mathbf{e1}'\rho\mathbf{\Gamma}(\mathbf{I}-\rho\mathbf{\Gamma})^{-1}$. The cash flow news component is then given by

$$\eta_{CF,t+1} = (\mathbf{e1}' + \boldsymbol{\lambda}')\mathbf{u}_{t+1} \tag{6}$$

implied by equations (2) and (5) because $v_{r,t+1}$ can be picked out with $\mathbf{e1}'\mathbf{u}_{t+1}$.

I report the receptiveness of value and growth stocks to cashflow news and discount rate news as cashflow ("bad") beta and discount rate ("good") beta. Intertemporal asset pricing theory suggests that the former type of risk should be associated with a higher risk premium than the latter one (Merton (1973)). Intuitively, bad news about the market´s future cashflows reflect a decrease of wealth and hence lead to a fall in the value of the market but leave future investment opportunities unaffected. The value of the market portfolio could also decline because investors increase the discount rate applied to cashflows, which at the same time mirrors better future investment opportunities. Hence, receptiveness to discount rate news is less risky than sensitivity to cashflow news and therefore the terminology "bad" cashflow and "good" discount rate beta first introduced by Campbell and Vuolteenaho (2004).

I obtain good and bad betas by following Campbell and Vuolteenaho (2004) and calculate cashflow betas from

$$\beta_{i,CF} = \frac{\widehat{Cov}(r_{i,t}, \eta_{CF,t})}{\widehat{Var}(r_{M,t} - E_{t-1}r_{M,t})} \tag{7}$$

Discount rate betas are obtained from

$$\beta_{i,DR} = \frac{\widehat{Cov}(r_{i,t}, -\eta_{DR,t})}{\widehat{Var}(r_{M,t} - E_{t-1}r_{M,t})} \tag{8}$$

where hats indicate sample covariances and variances, $r_{i,t}$ is the log excess return on stock i over the risk-free rate, $\eta_{CF,t}$ the estimated cashflow news term, $\eta_{DR,t}$, the estimated discount rate news component and $r_{M,t} - E_{t-1}r_{M,t}$ the unexpected return on the market portfolio. The discount rate beta is here defined as the covariance of a stock return with lower than expected discount rates, i.e. "good" news. Note that these beta definitions differ from regression estimates. Betas are measured separately and conditioned on the variance of the unexpected market return not on the variance of the estimated news term as would be the case in a regression. This definition implies that the sum of cashflow and discount rate betas equals the market beta, such that.

$$\beta_{i,M} = \beta_{i,CF} + \beta_{i,DR} \tag{9}$$

3 State Variables: Predictors of international stock market returns

Campbell and Vuolteenaho (2004) point out that the measurement of good and bad betas crucially depends on the state variables used in the VAR to back out cashflow and discount rate news components. The explanation of the U.S. value premium that returns on high book-to-market ratio portfolios are characterized by high cashflow betas hinges on the use of the small-stock value spread, i.e. the return on a small value portfolio less the return on a small growth portfolio, as state variable in the market return decomposition into news components. Unfortunately, international data on small stocks is hardly available, such that I cannot construct the small-stock value spread neither for a European market portfolio nor for national stock market portfolios. More generally, a major problem in applying the VAR framework of Campbell (1991) to international stock markets is to find variables that explain international stock returns at all.

Nitschka (2005) demonstrates that the ratio of aggregate consumption to aggregate wealth in the U.S. reflects a common, temporary component in international stock markets by employing a simple manipulation of the cointegrated framework proposed by Lettau and Ludvigson (2001,2004). Based on the idea that transitory fluctuations of wealth leave consumption unaffected, Lettau and Ludvigson provide evidence that mainly transitory market value changes of U.S. households´ stock holdings cause the U.S. consumption-wealth ratio to fluctuate temporarily. These market value changes are induced by the expectation of time-varying stock returns, which explains the predictive power of short-run variations in the U.S. consumption-wealth ratio for excess returns on the U.S. stock market. U.S. households´ stock market wealth is a prime example of the home bias in equity portfolios (Tesar and Werner (1995)). Nevertheless, U.S. households hold either directly or indirectly foreign stocks which amounts to a relatively small part of U.S. households´ stock market wealth. However, Nitschka shows that variation in the market value of U.S. households´ foreign equity holdings is induced by the expectation of time-varying returns on foreign stock markets. Hence, short-run fluctuations of the U.S. consumption-wealth ratio, *cay*, predict excess returns on international stock markets at business cycle frequency. That is why I use *cay* as state variable to decompose returns on the individual European stock markets and the return on a European market portfolio into cashflow and discount rate news components.

Additionally, I employ the return differential between European value and growth portfolios, a European version of the Fama and French book-to-market factor as a variable to decompose the European market portfolio return into cashflow and discount rate news components as well as the local book-to-market factor in the decomposition of national stock market returns. Fama and French (1995) and Lakonishok et al. (1994) relate the behaviour of value and growth portfolio returns to fundamentals by showing that value stocks tend to have persistently low earnings while a low book-to-market ratio signals strong future earnings. This finding conveys the notion that the book-to-market factor captures distress risk. Liew and Vassalou (2000) find national Fama and French HML factors to predict GDP growth in international markets while Ramchander and Simpson (2005) show that the HML factor strongly reacts to a variety of macroeconomic news in U.S.data. Kelly (2005) shows that the HML factor is positively associated with inflation and other macroecomic variables in international data. Hence, there is a well documented link between the book-to-market factor and macroeconomic fundamentals in the U.S. as well as in other countries. Kothari and Shanken (1997) and Pontiff and Schall (1998) provide evidence that aggregate book-to-market ratios forecast stock market returns in the U.S. because of their predictive power for expected future cashflows, i.e. fundamentals. I thus conjecture that international versions of the HML factor explain returns on European stock markets in the time series, which motivates their use as state variable in the VAR framework to obtain cashflow and discount rate news components of market returns. Furthermore, Campbell and Vuolteenaho (2004) motivate the use of the small-stock value spread by the inability of the Sharpe-Lintner CAPM to explain returns on this portfolio, which reflects that the value spread inherits information about systematic sources of risk not captured by the CAPM. This reasoning also applies to the Fama and French book-to-market factor and hence additionally motivates its use in the market return decompositions.

4 Data

Data on monthly and annual international value and growth returns is freely available on Kenneth French´s website.[2] Since I use *cay* as state variable, which is only observed at quarterly frequency, I construct quarterly return series from the monthly observations. Value and growth portfolios are formed using four valuation ratios: book-to-market (B/M), earnings-to-price (E/P), cashflow-to-price (C/P) and dividend-to-price ratio (D/P). The portfolios are formed at the end of December each year by sorting on one of the four ratios and then value-weighted returns are calculated for the following 12 months. The value portfolios (high) contain firms in the top 30 percent of a ratio and the growth portfolios (low) contain firms in the bottom 30 percent. Firms in the dataset I use are not required to have data on all four valuation ratios. The country market returns include all firms with book-to-market data.

I use data on returns on a portfolio consisting of Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland and the United Kingdom to investigate the sensitivity of country and European value and growth portfolios to a European market portfolio´s cashflow and discount rate news components. Returns on the European market portfolio are value-weighted averages of returns on the country portfolios. Each country is added to the portfolio when the return data for the country begins. The sample period spans the time from first quarter 1975 to fourth quarter 2004. The sample period for Austria starts first quarter 1987, the sample period for Ireland begins first quarter 1991. Furthermore, I assess the receptiveness of country value and growth portfolios to the respective national market return´s news components.

I follow Fama and French (1998) and abstract from exchange rate changes and use dollar denominated returns throughout the paper not only for the

[2] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/

European portfolio but also for the individual national stock markets. In addition, I employ the U.S. three-month treasury bill rate as risk-free rate to obtain excess returns. Using simple and/or national currency returns does not make a qualitative difference. These results are not reported but available upon request.

The state variable *cay* is the residual of the cointegrated relationship between consumption, foreign equity, domestic asset wealth and labour income in the U.S. as in Nitschka (2005). Data on consumption and labour income is from the Bureau of Economic Analysis, foreign equity and domestic asset wealth are constructed from data on household net worth published in the Z1 Flow of Funds Accounts of the Federal Board of Governor´s.

The international return series are extensively described on Kenneth French´s website. Nitschka (2005) provides details of the construction of *cay* taking foreign equity in the decomposition of aggregate wealth.explicitly into account.

5 Empirical Evidence: European market portfolio

Fama and French (1998) show that the international CAPM in the sense of Solnik (1974) fails to capture returns on international value and growth portfolios. This section assesses if the explanation of the failure of the Sharpe and Lintner CAPM to rationalize the value premium on the U.S. stock market put forward by Campbell and Vuoleenaho (2004) also applies in the context of an international CAPM. Campbell and Vuolteenaho show that value portfolios´ market betas have disproportionally high cashflow components while growth stocks´ market betas are predominantly discount rate betas.

5.1 VAR estimates

Table 1, Panel A presents OLS coefficient estimates of a VAR consisting of the return on the European market portfolio, *cay* and the European HML factor when a lag length of one quarter is applied. Allowing for more lags improves the explanatory power of *cay* for the market portfolio return but leaves the main results qualitatively unaltered. Each row of Panel A corresponds to one equation estimated in the VAR. E.g., the first row gives the coefficient estimates from the regression of the market return on the one-quarter lagged market return, lagged *cay* and the lagged HML factor. T-statistics are displayed in parenthesis below the VAR estimates. R^2 denotes the adjusted R^2. All VAR estimates rely to some extent on the parameter ρ. I follow Campbell and Vuolteenaho (2004) who use an annual value of $\rho = 0.95$ and employ $\rho = 0.95^{1/4}$ throughout the paper as I deal with quarterly data. However, letting ρ vary around reasonable values does not alter the results qualitatively.

Focusing on the return equation in the first row, the state variables predict about two percent of the variation in the one-quarter excess return on the European market portfolio which seems to be reasonable at that time horizon as the predictive power of *cay* for excess returns on international stock markets peaks at two to five year horizon (Nitschka (2005)). Moreover, lagged *cay* is the only significant explanatory variable in the return equation, neither the lagged return nor the book-to-market factor are statistically different from zero and hence do not seem to exhibit explanatory power for the European market return.

Panel B gives the standard deviations of the estimated cashflow and discount rate news components. It is apparent that the cashflow news component with a standard deviation of 6.72 percent per quarter is more volatile than the discount rate component with a standard deviation of 6.20 percent a quarter. This finding leaves the impression that the cashflow component dominates the variation in the European market return. This result is in stark contrast to the findings of Campbell (1991) and Campbell and Vuolteenaho (2004) that discount rate news predominantly cause variation in the U.S. market return in post-war data. Panel C, however, shows that the news terms are almost uncorrelated with each other. The correlation coefficient between the news series is about 0.17 at quarterly frequency. Campbell and Vuolteenaho (2004) provide evidence that shocks to the market return are positively correlated with cashflow news, which reflects that the market return reacts positively to good news about fundamentals. Moreover, they find discount rate news to be negatively correlated with the market return which seems to display mean reversion in stock prices implied by the VAR. The same reasoning applies here as panel D of table 1 mirrors. Furthermore, *cay* is strongly positively correlated with both of the news series while the book-to-market factor is almost uncorrelated with discount rate news and weakly positively correlated with the market return´s cashflow component.

Table 2 presents the same information as table 1 using *cay* as only state variable. Comparing the results displayed in the two tables leaves the impression that the inclusion of the European book-to-market factor does not affect any of the characteristics of the VAR and hence the estimated cashflow and discount rate news series.

5.2 Bad and good betas

Cashflow and discount rate news components of the European market portfolio display substantial variation but are almost uncorrelated with each other, which conveys the notion that different types of stocks could react differently to cashflow and discount rate news. Furthermore, intertemporal asset pricing theory suggests that receptiveness to the market portfolio´s cashflow news should be compensated with a higher risk premium than sensitivity to discount rate news (Merton (1973)). Cohen et al. (2003), Lettau and Wachter (2004) as well as Campbell and Vuolteenaho (2004) provide evidence that value stock returns in the U.S.have higher cashflow betas than growth stocks. These findings do not only rationalize the relatively high average returns on value stocks but also the inability of the CAPM to explain the value premium on U.S. stock markets.

5.2.1 European value and growth portfolio returns

This section presents good and bad beta estimates for European value and growth portfolios consisting of value and growth stocks of the ten countries that form the European portfolio classified according to B/M, C/P, E/P and D/P.

Table 3 summarizes the results. Panel A presents bad and good betas when *cay* and the European HML factor are used to obtain cashflow and discount rate news components of the European market portfolio return. Panel B reports cashflow and discount rate betas when *cay* is the only state variable used in the VAR to back out the news series, since the VAR estimates reveal that the HML factor does not significantly contribute to an explanation of the variation in the European market return. Value portfolios of a particular valuation ratio are indicated by leading "H", growth portfolios are indicated by leading "L". The second column gives mean quarterly excess returns on value and growth portfolios and displays that value stocks promise higher risk premia (excess returns) than growth stocks irrespective of the valuation ratio. Column three shows cashflow betas, column four presents discount rate betas.

When regarding portfolios sorted by book-to-market and casflow-to-price ratio, it is apparent that the value portfolios´ bad betas are higher than their growth portfolio counterparts. Thus, the evidence from U.S. studies seems to be corroborated by this finding. However, the discount rate betas of value and growth stocks are of the same order of magnitude, such that the implied market betas of the book-to-market and cashflow-to-price sorted value portfolios are higher than the respective growth portfolios which suggests that the international CAPM would be able to explain the value premium in this context. This contradicts the evidence presented in Fama and French (1998) who show that the market beta of value portfolios is slightly lower than the market beta of growth portfolios in an international dataset with monthly returns. Nevertheless, the higher market beta of value stocks is the result of a higher cashflow beta compared to growth stocks.

However, bad and good beta estimates for European value and growth portfolios classified according to E/P or D/P do not support the reasoning that value stocks have higher cashflow betas than growth stocks. These findings are not influenced by the inclusion of the European HML factor in the estimation of the news components.

5.2.2 Country value and growth portfolio returns

As the European value and growth portfolio returns are value-weighted averages of the individual country returns, the results from the previous subsection could be the outcome of the dominant role of few major stock markets in these value and growth portfolios and might not be representative for the full sample of national stock markets. Hence, I examine the sensitivity of national value and growth stock returns to European market return news in this subsection.

Tables 4 and 5 present bad and good betas for value and growth portfolios of the ten countries that are included in the European portfolio as well as their mean quarterly excess returns. Table 4 reports beta estimates conditional on cashflow and discount rate news series obtained with *cay* and the European HML factor as state variables which only slightly differ from estimates of cashflow and discount rate betas when *cay* is the only state variable. Results for the latter specification are presented in table 5.

The picture that emerges from the results shown in tables 4 and 5 is that country value and growth stock returns´ bad and good beta estimates corroborate the results of the European portfolios. High average returns on book-to-market ratio sorted country portfolios are associated with relatively high cashflow betas except for Ireland and Spain. Noteworthy is Italy for which the low book-to-market portfolio promises a higher average return than the corresponding high B/M portfolio, which is consistent with the higher cashflow beta estimate of the growth portfolio. Hence, the notion that high returns on value portfolios are associated with higher cashflow betas compared to the growth portfolios applies for most country returns classified according to book-to-market ratio. This evidence is even stronger when considering cashflow-to-price ratio sorted portfolios. Here in nine of ten cases, high cashflow betas correspond with high average returns on countries´ value portfolios. Only Spain is the exception from the rule. The results for E/P sorted portfolios are less clearcut and there is no incidence of a positive relationship between cashflow betas and returns for D/P ratio sorted portfolios.

Hence, country value and growth portfolios ordered by book-to-market and cashflow-to-price ratio display higher sensitivity to a European market portfolio return´s cashflow news component than the corresponding growth stocks, which seems to explain the value premium on European stock markets and the inability of the international CAPM to capture the international value premium. Evidence for portfolios sorted by earnings-to-price and dividend-to-price ratio does not support this view.

6 Empirical Evidence: National market portfolios

In this section, I examine if there are qualitative differences in the sensitivity of value and growth stocks to news about the European or national market portfolio by decomposing national market returns of the ten European countries that form the European market portfolio into their national cashflow and discount rate news components. The motivation for this exercise is as follows. National stock returns should be linearily related to an international market return according to the international CAPM proposed by Solnik (1974). However, Solnik as well as Harvey (1991) highlight that country-specific factors play an important role in explaining excess returns on international stock markets. So, the sensitivity of country value and growth returns to national cashflow and discount rate news could substantially differ from their receptiveness to news from the European market portfolio return.

6.1 VAR estimates

Table 6 presents estimates from VARs using *cay* and the national HML factor as state variables to obtain cashflow and discount rate news series of the respective country´s market return. At the one-quarter horizon *cay* is not a significant predictor of national market returns in six of ten countries. This picture changes once I regard higher-order VARs but does not affect the qualitative results. That is why I report the one-quarter VAR results. The national distress risk factor, HML, enters the market return equation of Austria and Ireland significantly at the 90 percent confidence level, but remains insignificant for the other countries. Quite in contrast to the findings for the U.S. (Pontiff and Schall (1998), Kothari and Shanken (1997)), there is a negative relation between the HML factor and the Austrian and Irish market return. However, these are the countries with the shortest sample period. That is why I am reluctant to put too much emphasis on this finding, although the correlation between the cashflow and discount rate news series for both of the two countries is remarkably high. The correlation coefficient is around 0.58 whereas the correlation between the news series in the other countries varies between -0.02 and 0.29. Furthermore, the VARs imply that variation in national stock market returns is in most cases dominated by cashflow news since the standard deviation of the cashflow return component is higher than the standard deviation of the respective country´s discount rate news series with the exception of Ireland and the Netherlands.

Table 6a shows the correlation of shocks to the individual market return, *cay* and the national HML factor to the estimated national news series. Market return shocks are positively correlated with the corresponding cashflow news component and negatively correlated with the discount rate component. This finding does not pertain to Austria but to the other countries under consideration. There is a positive correlation of the *cay* shock with the countries´ cashflow and discount rate news terms and a rather mixed picture when the national HML factors are in question. These results are very similar to the ones obtained from the decomposition of the European market return.

Tables 7 and 7a report VAR estimates and correlations when only *cay* is used in the estimation of the national market return news components. Note that the characteristics of the respective VARs are not materially affected by the exclusion of the national HML factor compared to the findings summarized in tables 6 and 6a except for minor differences in the VARs of Austria and Ireland.

6.2 Bad and good betas

Bad and good betas of country value and growth portfolios conditional on the respective market return´s cashflow and discount rate news components are reported in table 8 when *cay* as well as the national HML factor are employed as VAR state variables. Concentrating first on the B/M sorted country portfolios reveals that high cashflow betas of value stocks compared to the respective growth portfolios can only be found for five countries. The beta estimates for cashflow-to-price ratio sorted portfolios are slightly more favourable in this respect. The results for earnings-to-price and dividend-to-price ratio ordered value and growth stocks are more or less the same as in the cashflow and discount rate beta estimation with respect to the European market portfolio return. The cashflow and discount rate beta estimates for Austria and Ireland, the countries for which the national HML factor enters the market return equation in the VAR at a marginally significant level, appear to be quite extreme. Growth portfolios are substantially more sensitive to cashflow news than the value portfolios, whereas the value portfolios have higher discount rate betas. This finding could be the outcome of the high correlation between the news terms for these two countries that is implied by the respective VARs.

In a nutshell, the notion that relatively high average returns on value portfolios are rationalized by their relatively high cashflow betas is less pertinent when cashflow and discount rate news series of national market returns instead of news components of a European market portfolio are considered.

Table 9 presents bad and good beta estimates conditional on the respective market return news components when only *ca*y is used as state variable in the VARs since the national HML factor is insignificant in most of the VAR return equations. Apparently, the evidence that high cashflow betas are associated with high average returns now seems to pertain to national stock markets as well. This evidence is strongest for portfolios ordered by B/M and C/P. Additionally, this finding applies to the same countries as in the analysis of country value and growth returns´ receptiveness to the two news components of the European market portfolio. Again, these results are not corroborated by D/P and E/P sorted portfolios.

How can these changes in bad and good beta estimates be explained? First, remember that the discount rate news component is directly estimated in the VARs whereas the cashflow component is a residual. All variation in the market returns not explained by the state variables is attributed to cashflow news. Now focus on the book-to-market ratio sorted portfolios in tables 8 and 9, in particular on the bad and good betas of Switzerland and the Netherlands. When the national HML factor is excluded from the VAR of these two countries, the beta estimates of the growth portfolio returns remain relatively stable whereas the beta estimates of the value portfolios vary drastically. Exclusion of the national HML factor increases the cashflow and decreases the discount rate beta of Swiss and Dutch value stock returns. Although the national HML factor is not significant in the market return equation of the respective VAR, it contains information that is important for value stocks in the Netherlands and Switzerland. The decrease in the discount rate beta of value stocks reflects that the HML factor explains some variation of the national market return which is induced by a fundamental source of risk pertinent to value stocks exclusively as the growth portfolio betas remain stable. Fama and French (1995) and Lakonishok et al. (1994) associate the HML factor with relative distress risk, which seems to be of negligible importance for Dutch and Swiss growth stocks but crucial for the respective value stocks. Furthermore, Fama and French (1992,1993,1996,1998) argue that value stocks should be positively related to the distress factor to rationalize the value premium. This reasoning is also reflected in the change of the cashflow and discount rate beta estimates. Value stocks are supposed to be positively correlated with the distress factor. The distress factor seems to explain returns on the aggregate market and thus the information inherent in the risk factor is mirrored in the discount rate beta. Hence, excluding the HML factor leaves the distress risk information unrevealed and shifts it from the discount rate to the (residual) cashflow news component. Since value stocks should be positively correlated with distress risk, the sensitivity to cashflow news increases while the good beta decreases, because the information the HML factor contains is no longer included in the discount rate news series. The same reasoning applies to Austria and Ireland for which the national distress factor is a marginally significant predictor of the national market return. However, for these two countries, the HML factor seems to reflect that distress risk is important for value and growth portfolios because the bad and good beta estimates of value and growth portfolios vary. Excluding the significant variable HML leads to decreasing cashflow betas and increasing discount rate betas of the growth portfolios. According to the Fama and French studies, growth stocks should be negatively related to the HML factor and thus provide insurance against distress risk in order to explain their low average returns. This argument could also explain changes in beta estimates of Austrian and Irish growth portfolios. The exclusion of the HML factor shifts the distress risk information from the discount rate to the cashflow news component. As there is a negative relation between the HML factor and the return on a growth portfolio, the cashflow beta of the Austrian and Irish growth portfolio decreases. This finding mirrors a negative beta of growth stocks with respect to the distress factor. The discount rate beta thus increases.

7 Country-specific or international news: What is more important?

Bad and good beta estimates with respect to news components obtained from a European market return support the view that high cashflow betas are associated with high average returns while cashflow and discount rate betas of national stock market returns do not. So, the question if sensitivity to national or receptiveness to international cashflow and discount rate news is more important to explain returns on country value and growth portfolios remains to be answered.

In order to shed light on this issue, I perform three different time series regressions of value and growth excess returns on the European and national cashflow and discount rate news components. In the first setting, I regress country value and growth returns, sorted according to their book-to-market value ratio, on all four news series to obtain a baseline measure of the fit of the model. I also regress the stock returns solely on the national news series. If the European cashflow and discount rate news components have important explanatory power for variation in value and growth returns, then leaving them out in the regressions should result in considerably lower R^2 statistics. Additionally, as a robustness check for the conclusions drawn from the second specification, I perform regressions on the European news series alone. The estimate equations thus are

$$
\begin{aligned}
r_t^i &= \mu + \beta_{NCF} NNCF_t + \beta_{NDR} NNDR_t \\
&\quad + \beta_{ECF} ENCF_t + \beta_{EDR} ENDR_t + \varepsilon_t
\end{aligned} \tag{10}
$$

$$
r_t^i = \kappa + \beta_{NCF} NNCF_t + \beta_{NDR} NNDR_t + \eta_t \tag{11}
$$

$$
r_t^i = \pi + \beta_{ECF} ENCF_t + \beta_{EDR} ENDR_t + \nu_t \tag{12}
$$

where r_t^i is the excess return on a country value or growth portfolio, μ, κ and π are constants, $NNCF_t$ denotes national cashflow news, $NNDR_t$ represents national discount rate news, $ENCF_t$ European cashflow news and $ENDR_t$ European discount rate news.

The regression results are summarized in table 10. Panel A reports OLS estimates from a regression of UK value and growth portfolio returns on the national news series and news series calculated from a European portfolio return excluding the UK and Ireland. Unfortunately, such European market return series are not available for the other countries in question. Since I do not have access to the raw data used to construct the different international value, growth and market returns, I have to deal with the issue that the country returns are part of the international index return, which most likely leads to an overstatement of the importance of the European news series if the respective national news series have any importance for country value and growth returns.

The first two lines of panel A of table 10 report cashflow and discount rate betas estimated from (10). The estimated national cashflow and discount rate betas are higher than their European counterparts and statistically significant while the European bad and good beta estimates are relatively low and statistically not distinguishable from zero. Hence national news series are more important for returns on UK value (H B/M) and growth (L B/M) portfolios than the European news series. Lines three and four of panel A underline this impression. The regression (11) on the national news series provides evidence that the fit of the regression adjusted for the number of regressors is the same as in the case of all four news series. The estimates and most important the R^2 statistics in rows five and six of panel A witness the robustness of this finding. Excluding the national news series substantially lowers the R^2 statistic in the OLS regression of UK value and growth returns on the estimated news series. Still a caveat is in order. The individual cashflow and discount rate beta estimates in table 10 are all close to one and thus far higher than expected. They differ from the previous beta estimates in that they are not calculated separately and not normalized with the variance of the unexpected market return. However, the high cashflow betas from OLS regressions are not a feature of this particular study but also reported in Cohen et al. (2003) for cashflow betas of U.S. stock portfolios obtained from long-horizon regressions.

Panel B of table 10 largely corroborates the results from panel A for the other countries, although European market news seem to influence in particular value returns. But the impact of the European cashflow and discount rate news series on value and growth stock returns is in most cases lower than the influence of the national news series. Exceptions are the Netherlands and Switzerland. European cashflow news seem to be of crucial importance for returns on Dutch and Swiss value portfolios. Note also that the European market return includes the respective national market return in the regressions reported in panel B.

Summarizing the evidence reported in panel A and B of table 10 leaves the impression that national news series are in general more important for fluctuations of returns on country value and growth portfolios than the news components obtained from a European market return. This finding is also corroborated considering value and growth stocks classified according to C/P, E/P and D/P.[3]

I also perform the OLS regressions (10), (11) and (12) in a GMM setting, calculating standard errors and t-statistics using the Newey-West formula to correct for potential bias in the OLS standard errors because the news series are generated regressors. The results from the GMM exercise qualitatively corroborate the findings from the time series OLS regressions. As the R^2 statistic in time series regressions is easily interpretable and perfectly suited to answer the question of concern, I report only the time series results. The GMM t-statistics and implied R^2 statistics are not reported but available upon request.

8 Summary and Discussion

Employing the framework of Campbell (1991) and Campbell and Vuolteenaho (2004), I show that European and country value portfolio returns have higher cashflow betas than the corresponding growth portfolios with respect to

[3] Results are not reported but available upon request

cashflow and discount rate news of a European market return. This finding is more pronounced for book-to-market and cashflow-to-price ratio than earnings-to-price and dividend-to-price ratio ordered portfolios and in line with studies by Cohen et al. (2003), Lettau and Wachter (2004) and Campbell and Vuolteenaho (2004) for book-to-market ratio sorted portfolios in the U.S.

Since country-specific factors could play an important role in explaining variation in returns on international stock markets, I also assess the receptiveness of value and growth stock returns to news about national market returns´ cashflows and discount rates.

The decomposition of national stock market returns into news series reveals that the choice of state variables is crucial for measures of the sensitivity of country value and growth stocks to national market return cashflow and discount rate news components. When short-run fluctuations of the U.S. consumption-wealth ratio, *cay*, are used as only explanatory variable for stock returns, the results of the analysis of the European market portfolio are corroborated. The inclusion of the national Fama and French book-to-market factor materially affects "good" discount rate and "bad" cashflow beta estimates with respect to the national market return, whereas the European HML factor has only negligible impact on cashflow and discount rate beta estimates when the European market portfolio return is decomposed. This finding underscores Griffin (2002) and Moerman (2005) who argue that the Fama and French HML factor is rather a country-specific than an international risk factor.

Furthermore, empirical evidence suggests that value and growth portfolio returns react more strongly to national than to international cashflow and discount rate news, which leaves the impression that sensitivity to cashflow news cannot rationalize the relatively high average returns on European value stocks.

This finding is not necessarily a contradiction to Campbell and Vuolteenaho (2004) since I do not use national small-stock value spreads to decompose market returns into news series. The results in Campbell and Vuolteenaho crucially rely on the inclusion of the value spread as explanatory variable for the market return. They argue that the return on a portfolio consisting of a long position in small value and a short position in small growth stocks is not priced by the traditional CAPM and thus has to provide additional information. But the portfolio returns forming the Fama and French book-to-market factor cannot be priced by the CAPM as well. Furthermore, e.g.

Liew and Vassalou (2000) show that the HML factor reflects news about economic fundamentals, i.e. GDP growth. So, the question remains what the underlying economic forces of the small-stock value spread´s predictive power for the U.S. market return are.

Admittedly, even the Fama and French three-factor model has difficulties to explain average returns on the small growth portfolio, which supports the view that this portfolio contains information about economic fundamentals that is not captured by the HML factor. However, Liu and Zhang (2005) suggest that the value spread mixes information that is contained in the book-to-market and market-to-book spread and hence cast doubt on the usefulness of the value spread as predictive variable for market returns. Thus it is not clear if the use of the value spread in decompositions of market returns into news components is appropriate since its predictive power for market returns is not persuasive so far.

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Table 1: VAR estimates and correlations of international portfolio return (cay and HML)

Panel A: VAR estimates				
	r_M	cay	HML	R^2
r_M	-0.0673 (-0.7381)	0.9413 (2.3587)	-0.0639 (-0.3848)	0.0229
cay	-0.0771 (-8.9949)	0.9401 (25.0603)	0.0086 (0.5514)	0.8383
HML	-0.0453 (-0.8900)	-0.1214 (-0.5456)	0.1467 (1.5831)	0.6969
Panel B:Standard Deviations of the news terms				
σ_{CF}:	0.0672	σ_{DR}:	0.0620	
Panel C: Bivariate correlations				
$\rho_{DR,CF}$:	0.1668		$\rho_{cay,HML}$:	0.1710
Panel D: Correlations of r_M , cay and HML shocks with news terms				
	η_{CF}	η_{DR}		
r_M	0.6811	-0.6084		
cay	0.7945	0.7308		
HML	0.2466	0.0386		

Notes: Panel A provides OLS estimates from a VAR consisting of the excess return on a European market portfolio, r_M ,short-run fluctuations of the U.S. consumption-wealth ratio, cay, and the difference between the return on the European high book-to-market ratio portfolio and the return on the European low book-to-market ratio, a European version of the Fama and French HML factor. T-statistics in parenthesis are shown below the coefficient estimates. Each row presents one forecasting equation in the VAR. R^2 denotes the adjusted R^2.
Panel B gives the standard deviations of the cashflow and discount rate news components of r_M estimated in the VAR. Panel C shows the correlation between the news terms, $\rho_{DR,CF}$, and the correlation between shocks to cay and HML, $\rho_{cay,HML}$. Panel D reports the correlation of shocks to r_M, cay and HML with the estimated cashflow and discount rate news components.

Table 2: VAR estimates and correlations (cay only state variable)

Panel A: VAR estimates			
	r_M	cay	R^2
r_M	-0.0717 (-0.7953)	0.9419 (2.3690)	0.0301
cay	-0.0765 (-9.0236)	0.9400 (25.1338)	0.8428
Panel B: Standard deviations of news terms			
σ_{CF}:	0.0672	σ_{DR}:	0.0624
Panel C: Bivariate correlations			
$\rho_{r,cay}$:	0.0710	$\rho_{DR,CF}$:	0.1690
Panel D: Correlations of cay and r_M shocks with news terms			
	η_{CF}	η_{DR}	
r_M	0.6777	-0.6102	
cay	0.7963	0.7308	

Notes: Panel A provides OLS estimates from a VAR consisting of the excess return on a European market portfolio, r_M and short-run fluctuations of the U.S. consumption-wealth ratio, cay. T-statistics in parenthesis are shown below the coefficient estimates. Each row presents one forecasting equation in the VAR. R^2 denotes the adjusted R^2.

Panel B gives the standard deviations of the cashflow and discount rate news components of r_M estimated in the VAR. Panel C shows the correlation between the news terms, $\rho_{DR,CF}$, and the correlation between shocks to cay and r_M, $\rho_{cay,r}$. Panel D reports the correlation of shocks to r_M and cay with the estimated cashflow and discount rate news components.

Table 3: Cashflow and discount rate betas of European portfolios

Panel A: cay and HML state variables			
	Mean excess return (in % per quarter)	β_{CF}	β_{DR}
H B/M	2.21	0.6306 (0.1059)	0.4410 (0.1696)
L B/M	1.31	0.5190 (0.0955)	0.4571 (0.1558)
H C/P	2.27	0.6306 (0.1035)	0.4477 (0.1336)
L C/P	1.07	0.5333 (0.0951)	0.4347 (0.1237)
H D/P	2.18	0.5442 (0.1028)	0.4564 (0.1628)
L D/P	1.00	0.5837 (0.1021)	0.4813 (0.1677)
H E/P	2.17	0.5645 (0.1072)	0.4868 (0.1707)
L E/P	1.28	0.5500 (0.0945)	0.4448 (0.1558)
Panel B: cay only state variable			
	Mean excess return (in % per quarter)	β_{CF}	β_{DR}
H B/M	2.21	0.6224 (0.1067)	0.4471 (0.1694)
L B/M	1.31	0.5177 (0.0956)	0.4593 (0.1553)
H C/P	2.27	0.6224 (0.1042)	0.4503 (0.1335)
L C/P	1.07	0.5321 (0.0952)	0.4369 (0.1233)
H D/P	2.18	0.5377 (0.1034)	0.4606 (0.1624)
L D/P	1.00	0.5814 (0.1024)	0.4845 (0.1673)
H E/P	2.17	0.5587 (0.1077)	0.4909 (0.1703)
L E/P	1.28	0.5478 (0.0947)	0.4479 (0.1554)

This table reports cashflow and discount rate betas for European value (indicated with leading „H“) and growth (indicated with leading „L“) portfolios sorted by book-to-market value ratio (B/M), cashflow-to-price ratio (C/P), dividend-to-price ratio (D/P) and earnings-to-price ratio (E/P). Value portfolios contain stocks in the top 30 percent, growth portfolios stock in the bottom 30 percent of the respective valuation ratio. Firms in this sample do not have to have data on all ratios. Betas measure the sensitivity to either cashflow or discount rate news components of the excess return on the European market portfolio. Panel A reports betas with respect to news series that are obtained using short-run fluctuations of the U.S. consumption-wealth ratio, cay, and the difference between the return on the European high book-to-market ratio portfolio and the return on the European low book-to-market ratio, a European version of the Fama and French HML factor, as state variables. Panel B shows cashflow and discount rate betas employing only cay as state variable. Standard errors in parenthesis are conditional on the fitted value of the respective news series.

Table 4: Cashflow and discount rate betas of country portfolio returns with respect to European market portfolio return (cay and HML state variables)

		H B/M	L B/M	H C/P	L C/P	H D/P	L D/P	H E/P	L E/P
AUT	r (%)	3.07	0.56	4.27	0.09	2.88	0.62	2.49	0.65
	β_{CF}	0.2838	0.2154	0.2838	0.2040	0.2657	0.1896	0.2510	0.2205
		(0.3052)	(0.2563)	(0.3278)	(0.2444)	(0.2888)	(0.2699)	(0.2858)	(0.2713)
	β_{DR}	0.5449	0.4456	0.4737	0.4021	0.4628	0.4148	0.4868	0.5299
		(0.2621)	(0.2182)	(0.2467)	(0.1856)	(0.2425)	(0.2233)	(0.2425)	(0.2371)
BEL	r (%)	2.98	1.55	3.27	1.74	2.78	1.47	2.97	1.85
	β_{CF}	0.6389	0.5352	0.6389	0.5341	0.5203	0.5588	0.5831	0.5120
		(0.1450)	(0.1243)	(0.1315)	(0.1247)	(0.1348)	(0.1271)	(0.1350)	(0.1150)
	β_{DR}	0.3944	0.4262	0.3211	0.4045	0.3305	0.4322	0.3927	0.3560
		(0.1979)	(0.1764)	(0.1559)	(0.1504)	(0.1766)	(0.1807)	(0.1855)	(0.1608)
FRA	r (%)	2.45	1.09	2.60	0.90	2.72	0.40	2.18	0.91
	β_{CF}	0.6651	0.4997	0.6651	0.5701	0.5789	0.5830	0.6336	0.5575
		(0.1754)	(0.1460)	(0.1774)	(0.1431)	(0.1549)	(0.1609)	(0.1734)	(0.1461)
	β_{DR}	0.6101	0.5499	0.5987	0.4984	0.5055	0.6071	0.6287	0.5511
		(0.2444)	(0.2048)	(0.2134)	(0.1732)	(0.2122)	(0.2274)	(0.2428)	(0.2081)
GER	r (%)	2.35	1.00	2.35	0.39	1.75	0.75	1.36	1.07
	β_{CF}	0.6071	0.5734	0.6363	0.5717	0.6371	0.6059	0.6178	0.6025
		(0.1408)	(0.1428)	(0.1241)	(0.1416)	(0.1327)	(0.1555)	(0.1369)	(0.1464)
	β_{DR}	0.4903	0.5133	0.3394	0.5081	0.4632	0.6025	0.4776	0.5753
		(0.2006)	(0.2024)	(0.1502)	(0.1723)	(0.1934)	(0.2238)	(0.1968)	(0.2134)
IRL	r (%)	3.47	0.47	2.56	0.57	4.67	1.20	2.44	1.05
	β_{CF}	0.3543	0.4646	0.3543	0.3254	0.2709	0.3843	0.4547	0.3963
		(0.3466)	(0.3292)	(0.3265)	(0.3088)	(0.2938)	(0.2940)	(0.3016)	(0.3018)
	β_{DR}	0.6897	0.3486	0.3158	0.5012	0.7157	0.4343	0.5815	0.5380
		(0.3053)	(0.2624)	(0.2406)	(0.2342)	(0.2771)	(0.2443)	(0.2702)	(0.2616)
ITA	r (%)	0.57	1.04	1.65	-0.53	1.51	0.13	1.02	0.98
	β_{CF}	0.6294	0.6557	0.6294	0.5900	0.5135	0.6931	0.4841	0.6554
		(0.1940)	(0.1666)	(0.1940)	(0.1737)	(0.1907)	(0.1758)	(0.1900)	(0.1735)
	β_{DR}	0.5299	0.5021	0.4265	0.5201	0.5401	0.5347	0.4805	0.5114
		(0.2515)	(0.2264)	(0.2229)	(0.2047)	(0.2439)	(0.2394)	(0.2371)	(0.2332)
NL	r (%)	2.47	1.70	0.66	1.64	2.52	0.79	2.34	1.21
	β_{CF}	0.8117	0.5803	0.8117	0.5782	0.5755	0.6782	0.6005	0.5898
		(0.1479)	(0.1084)	(0.2068)	(0.1111)	(0.1360)	(0.1286)	(0.1528)	(0.1170)
	β_{DR}	0.3125	0.3343	0.5700	0.3541	0.4250	0.3365	0.5010	0.3207
		(0.2075)	(0.1583)	(0.2432)	(0.1360)	(0.1886)	(0.1825)	(0.2112)	(0.1650)
ESP	r (%)	1.82	0.61	1.62	-0.08	0.91	0.22	1.74	0.25
	β_{CF}	0.4306	0.5438	0.4306	0.5816	0.4111	0.6453	0.5119	0.6116
		(0.1940)	(0.1906)	(0.2028)	(0.1851)	(0.1597)	(0.1922)	(0.1754)	(0.1749)
	β_{DR}	0.2221	0.4284	0.2847	0.3476	0.3193	0.3850	0.3606	0.3551
		(0.2235)	(0.2365)	(0.2277)	(0.2103)	(0.1934)	(0.2403)	(0.2158)	(0.2203)
CH	r (%)	1.93	1.29	1.46	1.21	1.70	1.17	1.53	1.18
	β_{CF}	0.7093	0.4281	0.7093	0.5008	0.5182	0.5914	0.5174	0.5176
		(0.1570)	(0.1186)	(0.1470)	(0.1309)	(0.1486)	(0.1317)	(0.1402)	(0.1273)
	β_{DR}	0.5835	0.3939	0.4623	0.3739	0.5691	0.4443	0.5114	0.3907
		(0.2292)	(0.1623)	(0.1722)	(0.1545)	(0.2099)	(0.1877)	(0.1969)	(0.1747)
UK	r (%)	2.24	1.47	2.81	1.46	2.27	1.31	2.76	1.51
	β_{CF}	0.5912	0.4887	0.5912	0.4949	0.5178	0.5348	0.5360	0.5046
		(0.1220)	(0.1203)	(0.1244)	(0.1242)	(0.1173)	(0.1251)	(0.1267)	(0.1181)
	β_{DR}	0.3722	0.4494	0.4390	0.4255	0.4184	0.4559	0.4625	0.4049
		(0.1734)	(0.1725)	(0.1513)	(0.1501)	(0.1688)	(0.1799)	(0.1819)	(0.1674)

Notes: This table presents cashflow and discount rate beta estimates of value and growth stocks of Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland and the United Kingdom conditional of cashflow and discount rate components of the excess return on a European market portfolio obtained by using cay and a European HML factor as state variables. Betas are calculated from

Cashflow beta: $$\beta_{i,CF} = \frac{\text{cov}(r_{i,t}, \eta_{CF})}{\text{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

Discount rate beta: $$\beta_{i,DR} = \frac{\text{cov}(r_{i,t}, -\eta_{DR})}{\text{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

where cov and var denote sample covariances and variances. The cashflow component is abbreviated with η_{CF}, the discount rate news component with η_{DR}, $r_{i,t}$ denotes the individual value or growth stock excess return and $r_{M,t} – E_{t-1}(r_{M,t})$ represents the unexpected market return. The discount rate beta is here defined as the covariance of a stock return with lower than expected discount rates. Standard errors in parenthesis are estimated conditional on the fitted value of the respective news term.

Table 5: Cashflow and discount rate betas of country portfolio returns with respect to European market portfolio return (cay only state variable)

		H B/M	L B/M	H C/P	L C/P	H D/P	L D/P	H E/P	L E/P
AUT	r (%)	3.07	0.56	4.27	0.09	2.88	0.62	2.49	0.65
	β_{CF}	0.2492	0.1971	0.2492	0.1704	0.2651	0.1699	0.2488	0.1972
		(0.3012)	(0.2524)	(0.3223)	(0.2409)	(0.2836)	(0.2657)	(0.2807)	(0.2672)
	β_{DR}	0.5818	0.4648	0.4981	0.4399	0.4791	0.4393	0.5085	0.5621
		(0.2634)	(0.2179)	(0.2444)	(0.1849)	(0.2416)	(0.2233)	(0.2423)	(0.2385)
BEL	r (%)	2.98	1.55	3.27	1.74	2.78	1.47	2.97	1.85
	β_{CF}	0.6335	0.5335	0.6335	0.5321	0.5163	0.5568	0.5786	0.5105
		(0.1455)	(0.1245)	(0.1320)	(0.1249)	(0.1352)	(0.1273)	(0.1354)	(0.1152)
	β_{DR}	0.3964	0.4249	0.3244	0.4034	0.3361	0.4311	0.3955	0.3547
		(0.1971)	(0.1754)	(0.1555)	(0.1497)	(0.1761)	(0.1797)	(0.1848)	(0.1599)
FRA	r (%)	2.45	1.09	2.60	0.90	2.72	0.40	2.18	0.91
	β_{CF}	0.6564	0.4983	0.6564	0.5680	0.5717	0.5798	0.6261	0.5543
		(0.1760)	(0.1461)	(0.1780)	(0.1433)	(0.1554)	(0.1612)	(0.1739)	(0.1464)
	β_{DR}	0.6139	0.5524	0.6015	0.5006	0.5100	0.6117	0.6342	0.5557
		(0.2436)	(0.2041)	(0.2128)	(0.1725)	(0.2116)	(0.2268)	(0.2422)	(0.2075)
GER	r (%)	2.35	1.00	2.35	0.39	1.75	0.75	1.36	1.07
	β_{CF}	0.6001	0.5711	0.6001	0.5701	0.6300	0.6020	0.6125	0.5994
		(0.1414)	(0.1430)	(0.1247)	(0.1418)	(0.1334)	(0.1558)	(0.1373)	(0.1467)
	β_{DR}	0.4929	0.5136	0.3394	0.5060	0.4664	0.6044	0.4783	0.5764
		(0.1999)	(0.2014)	(0.1498)	(0.1714)	(0.1927)	(0.2229)	(0.1959)	(0.2125)
ITA	r (%)	0.57	1.04	1.65	-0.53	1.51	0.13	1.02	0.98
	β_{CF}	0.6174	0.6486	0.6174	0.5848	0.5027	0.6860	0.4742	0.6491
		(0.1947)	(0.1671)	(0.1947)	(0.1741)	(0.1913)	(0.1764)	(0.1906)	(0.1740)
	β_{DR}	0.5457	0.5170	0.4372	0.5308	0.5538	0.5474	0.4944	0.5248
		(0.2516)	(0.2266)	(0.2225)	(0.2043)	(0.2439)	(0.2394)	(0.2370)	(0.2332)
IRL	r (%)	3.47	0.47	2.56	0.57	4.67	1.20	2.44	1.05
	β_{CF}	0.3686	0.4596	0.3686	0.3276	0.3102	0.3821	0.4785	0.4048
		(0.3340)	(0.3188)	(0.3164)	(0.2983)	(0.2814)	(0.2844)	(0.2893)	(0.2911)
	β_{DR}	0.6883	0.3570	0.3458	0.5066	0.6931	0.4400	0.5561	0.5368
		(0.2988)	(0.2572)	(0.2363)	(0.2292)	(0.2681)	(0.2396)	(0.2612)	(0.2559)
NL	r (%)	2.47	1.70	0.66	1.64	2.52	0.79	2.34	1.21
	β_{CF}	0.8028	0.5797	0.8028	0.5779	0.5670	0.6751	0.5906	0.5869
		(0.1488)	(0.1084)	(0.2077)	(0.1111)	(0.1367)	(0.1289)	(0.1535)	(0.1172)
	β_{DR}	0.3169	0.3342	0.5858	0.3538	0.4332	0.3396	0.5146	0.3224
		(0.2067)	(0.1576)	(0.2431)	(0.1353)	(0.1884)	(0.1818)	(0.2114)	(0.1643)
ESP	r (%)	1.82	0.61	1.62	-0.08	0.91	0.22	1.74	0.25
	β_{CF}	0.4270	0.5393	0.4270	0.5796	0.4072	0.6421	0.5067	0.6089
		(0.1942)	(0.1910)	(0.2031)	(0.1853)	(0.1599)	(0.1925)	(0.1757)	(0.1751)
	β_{DR}	0.2136	0.4292	0.2784	0.3451	0.3199	0.3843	0.3609	0.3520
		(0.2220)	(0.2353)	(0.2265)	(0.2092)	(0.1924)	(0.2390)	(0.2148)	(0.2190)
CH	r (%)	1.93	1.29	1.46	1.21	1.70	1.17	1.53	1.18
	β_{CF}	0.7029	0.4270	0.7029	0.4989	0.5122	0.5890	0.5136	0.5157
		(0.1575)	(0.1187)	(0.1473)	(0.1310)	(0.1490)	(0.1319)	(0.1405)	(0.1275)
	β_{DR}	0.5858	0.3952	0.4618	0.3766	0.5726	0.4464	0.5126	0.3935
		(0.2283)	(0.1616)	(0.1715)	(0.1539)	(0.2093)	(0.1870)	(0.1961)	(0.1740)
UK	r (%)	2.24	1.47	2.81	1.46	2.27	1.31	2.76	1.51
	β_{CF}	0.5823	0.4888	0.5823	0.4950	0.5120	0.5343	0.5313	0.5038
		(0.1228)	(0.1203)	(0.1249)	(0.1243)	(0.1178)	(0.1252)	(0.1271)	(0.1182)
	β_{DR}	0.3818	0.4505	0.4403	0.4280	0.4217	0.4580	0.4658	0.4071
		(0.1734)	(0.1718)	(0.1510)	(0.1494)	(0.1683)	(0.1792)	(0.1814)	(0.1668)

Notes: This table presents cashflow and discount rate beta estimates of value and growth stocks of Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland and the United Kingdom conditional of cashflow and discount rate components of the excess return on a European market portfolio obtained by using cay as state variable. Betas are calculated from

Cashflow beta: $$\beta_{i,CF} = \frac{\text{cov}(r_{i,t}, \eta_{CF})}{\text{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

Discount rate beta: $$\beta_{i,DR} = \frac{\text{cov}(r_{i,t}, -\eta_{DR})}{\text{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

where cov and var denote sample covariances and variances. The cashflow component is abbreviated with η_{CF}, the discount rate news component with η_{DR}, $r_{i,t}$ denotes the individual value or growth stock excess return and $r_{M,t} - E_{t-1}(r_{M,t})$ represents the unexpected market return. The discount rate beta is here defined as the covariance of a stock return with lower than expected discount rates. Standard errors in parenthesis are conditional on the fitted value of the respective news term.

Table 6: VAR estimates with respect to national market returns (cay and national HML)

AUT

	r_M	cay	HML	R^2
r_M	0.1778 (1.4452)	0.5573 (1.0181)	-0.2446 (-1.8862)	0.0472
cay	-0.0173 (-1.3728)	0.8834 (15.7406)	-0.0322 (-2.4193)	0.9778
HML	-0.0088 (-0.0756)	-0.0905 (-0.1741)	-0.0683 (-0.5545)	0.8198
σ_{CF}:	0.1288	σ_{DR}:	0.0678	
$\rho_{DR,CF}$	0.5815			

BEL

	r_M	cay	HML	R^2
r_M	-0.0520 (-0.5549)	0.9924 (2.0629)	-0.1215 (-0.8574)	0.0156
cay	-0.0424 (-4.9296)	0.9079 (20.5588)	-0.0105 (-0.8041)	0.7475
HML	-0.1375 (-2.2045)	-0.0356 (-0.1111)	-0.0753 (-0.7978)	0.8577
σ_{CF}:	0.0986	σ_{DR}:	0.0662	
$\rho_{DR,CF}$	0.2899			

FRA

	r_M	cay	HML	R^2
r_M	-0.0274 (-0.2933)	0.9827 (1.7581)	-0.0471 (-0.3501)	0.0018
cay	-0.0461 (-6.7802)	0.8993 (22.1483)	0.0082 (0.8440)	0.9952
HML	-0.0493 (-0.7485)	0.0520 (0.1320)	0.1232 (1.3010)	0.6684
σ_{CF}:	0.0998	σ_{DR}:	0.0638	
$\rho_{DR,CF}$	-0.0252			

GER

	r_M	cay	HML	R^2
r_M	-0.0363 (-0.3885)	1.1660 (2.1883)	-0.0596 (-0.4135)	0.0225
cay	-0.0571 (-8.1940)	0.9498 (23.8962)	0.0164 (1.5286)	0.7255
HML	0.1058 (1.7915)	-1.1498 (-3.4114)	-0.1061 (-1.1651)	0.9824
σ_{CF}:	0.0936	σ_{DR}:	0.0793	
$\rho_{DR,CF}$	0.2142			

IRL

	r_M	cay	HML	R^2
r_M	-0.4190 (-3.1591)	1.1019 (2.3656)	-0.1348 (-1.8873)	0.1873
cay	-0.0762 (-4.6133)	0.9543 (16.4619)	-0.0091 (-1.0221)	0.9308
HML	-0.0806 (-0.3440)	-0.1427 (-0.1735)	0.4391 (3.4817)	0.9864
σ_{CF}:	0.0856	σ_{DR}:	0.0929	
$\rho_{DR,CF}$	0.5778			

ITA

	r_M	cay	HML	R^2
r_M	0.0283 (0.3024)	0.8118 (1.2868)	0.0278 (0.2049)	0.0091
cay	-0.0316 (-4.9408)	0.8854 (20.5494)	0.0184 (1.9806)	0.8213
HML	-0.0550 (–0.8871)	0.1213 (0.2899)	0.2494 (2.7709)	0.9253
σ_{CF}:	0.1287	σ_{DR}:	0.0548	
$\rho_{DR,CF}$	0.0854			

NL

	r_M	cay	HML	R^2
r_M	-0.1975 (-2.1750)	1.2453 (2.8411)	-0.0609 (-0.7220)	0.0625
cay	-0.0664 (-8.3913)	0.9475 (24.8065)	-0.0128 (-1.7349)	0.9398
HML	-0.0155 (-0.1535)	0.0673 (0.1378)	0.0546 (0.5811)	0.8905
σ_{CF}:	0.0721	σ_{DR}:	0.0810	
$\rho_{DR,CF}$	0.2890			

ESP

	r_M	cay	HML	R^2
r_M	0.0743 (-0.7702)	1.1594 (1.9647)	0.1484 (1.4946)	0.0334
cay	-0.0399 (-5.6737)	0.9117 (21.2076)	-0.0033 (-0.4589)	0.6917
HML	0.1433 (1.5585)	-0.1703 (-0.3028)	0.0096 (0.1011)	0.9377
σ_{CF}:	0.1125	σ_{DR}:	0.0785	
$\rho_{DR,CF}$	0.1861			

CH

	r_M	cay	HML	R^2
r_M	-0.0413 (-0.4322)	1.0332 (2.2236)	-0.0257 (-0.2357)	0.0167
cay	-0.0316 (-3.6302)	0.9033 (21.3727)	-0.0394 (-3.9750)	0.8119
HML	-0.0616 (-0.7388)	0.1694 (0.4184)	-0.0424 (-0.4465)	0.6681
σ_{CF}:	0.0980	σ_{DR}:	0.0682	
$\rho_{DR,CF}$	0.3459			

UK

	r_M	cay	HML	R^2
r_M	-0.0663 (-0.8030)	0.7652 (1.7493)	0.0069 (0.0531)	0.0028
cay	-0.0536 (-6.9616)	0.9126 (22.3555)	0.0027 (0.2229)	0.8248
HML	-0.0562 (-0.9516)	0.0078 (0.0250)	0.0828 (0.8886)	0.9874
σ_{CF}:	0.0804	σ_{DR}:	0.0518	
$\rho_{DR,CF}$	0.0700			

Notes: This table provides OLS estimates from VARs consisting of the excess return on the country market portfolio of either Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland or the United Kingdom, r_M , short-run fluctuations of the U.S. consumption-wealth ratio, cay, and the difference between the return on the respective country´s high book-to-market ratio portfolio and the return on the country´s low book-to-market ratio portfolio, the respective country´s HML factor, as state variables. T-statistics in parenthesis are shown below the coefficient estimates. Each row presents one forecasting equation in the VAR. R^2 denotes the adjusted R^2.

σ_{CF} denotes the standard deviation of the respective cashflow news term, σ_{DR} denotes the standard deviation of the respective discount rate news term. The correlation coefficient between the news terms is $\rho_{DR,CF}$.

Table 6a : Shock correlations in VARs with respect to national market returns

AUT	η_{CF}	η_{DR}
r_M	0.8509	0.0674
cay	0.4168	0.8086
HML	-0.1667	-0.5716

BEL	η_{CF}	η_{DR}
r_M	0.7819	-0.3700
cay	0.6951	0.8735
HML	0.0655	-0.0518

FRA	η_{CF}	η_{DR}
r_M	0.8466	-0.5534
cay	0.5304	0.8336
HML	0.2418	-0.0565

GER	η_{CF}	η_{DR}
r_M	0.7035	-0.5435
cay	0.7886	0.7626
HML	0.1086	0.1589

IRL	η_{CF}	η_{DR}
r_M	0.3881	-0.5279
cay	0.8817	0.7661
HML	-0.4109	-0.3482

ITA	η_{CF}	η_{DR}
r_M	0.9154	-0.3229
cay	0.4373	0.8883
HML	0.1259	0.1680

NL	η_{CF}	η_{DR}
r_M	0.5317	-0.5631
cay	0.8447	0.7148
HML	0.0193	-0.1176

ESP	η_{CF}	η_{DR}
r_M	0.7857	-0.4617
cay	0.6954	0.8255
HML	-0.0120	0.3413

CH	η_{CF}	η_{DR}
r_M	0.7580	-0.3499
cay	0.6730	0.8440
HML	0.0241	-0.3742

UK	η_{CF}	η_{DR}
r_M	0.8296	-0.4988
cay	0.6281	0.8197
HML	0.0621	0.2068

Notes: This table provides correlations of the VAR shocks of the respective country´s market excess return, cay and the respective country´s distress factor with the news series that are obtained from the VAR using the three variables as state variables.

Table 7: VAR estimates with respect to national stock market returns (cay only)

AUT

	r_M	cay	R^2
r_M	0.1388	0.5980	0.0113
	(1.1242)	(1.0733)	
cay	-0.0224	0.8887	0.8816
	(-1.7431)	(15.3113)	
σ_{CF}:	0.1269	σ_{DR}:	0.0560
$\rho_{DR,CF}$	0.5376		

BEL

	r_M	cay	R^2
r_M	-0.0555	0.9749	0.0179
	(-0.5937)	(2.0307)	
cay	-0.0427	0.9064	0.7354
	(-4.9772)	(20.5745)	
σ_{CF}:	0.0973	σ_{DR}:	0.0639
$\rho_{DR,CF}$	0.2548		

FRA

	r_M	cay	R^2
r_M	-0.0344	0.9804	0.0093
	(-0.3777)	(1.7607)	
cay	-0.0448	0.8997	0.9919
	(-6.7635)	(22.1875)	
σ_{CF}:	0.0997	σ_{DR}:	0.0641
$\rho_{DR,CF}$	-0.0236		

GER

	r_M	cay	R^2
r_M	-0.0357	1.2169	0.0295
	(-0.3841)	(2.3559)	
cay	-0.0572	0.9357	0.7401
	(-8.1693)	(24.0600)	
σ_{CF}:	0.0927	σ_{DR}:	0.0803
$\rho_{DR,CF}$	0.2123		

IRL

	r_M	cay	R^2
r_M	-0.3977	1.1796	0.1472
	(-2.9380)	(2.4820)	
cay	-0.0747	0.9595	0.8832
	(-4.5409)	(16.6102)	
σ_{CF}:	0.0829	σ_{DR}:	0.0906
$\rho_{DR,CF}$	0.5225		

ITA

	r_M	cay	R^2
r_M	0.0292	0.8120	-0.0008
	(0.3144)	(1.2924)	
cay	-0.0309	0.8855	0.8117
	(-4.7879)	(20.2976)	
σ_{CF}:	0.1299	σ_{DR}:	0.0539
$\rho_{DR,CF}$	0.1004		

NL

	r_M	cay	R^2
r_M	-0.2036	1.2301	0.0664
	(-2.2574)	(2.8154)	
cay	-0.0677	0.9443	0.9204
	(-8.5186)	(24.5400)	
σ_{CF}:	0.0729	σ_{DR}:	0.0790
$\rho_{DR,CF}$	0.2718		

ESP

	r_M	cay	R^2
r_M	-0.1087	1.2223	0.0232
	(-1.1544)	(2.0656)	
cay	-0.0391	0.9103	0.7112
	(-5.7494)	(21.3015)	
σ_{CF}:	0.1111	σ_{DR}:	0.0788
$\rho_{DR,CF}$	0.1552		

CH

	r_M	cay	R^2
r_M	-0.0468	1.0331	0.0247
	(-0.5067)	(2.2324)	
cay	-0.0400	0.9031	0.7957
	(-4.4635)	(20.1220)	
σ_{CF}	0.0977	σ_{DR}:	0.0671
$\rho_{DR,CF}$	0.3369		

UK

	r_M	cay	R^2
r_M	-0.0665	0.7676	0.0114
	(-0.8104)	(1.7714)	
cay	-0.0537	0.9136	0.8261
	(-7.0121)	(22.5866)	
σ_{CF}:	0.0804	σ_{DR}:	0.0519
$\rho_{DR,CF}$	0.0729		

Notes: This table provides OLS estimates from VARs consisting on the excess return on the country market portfolio of either Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland or the United Kingdom, r_M ,that are obtained using short-run fluctuations of the U.S. consumption-wealth ratio, cay, as state variable. T-statistics in parenthesis are shown below the coefficient estimates. Each row presents one forecasting equation in the VAR. R^2 denotes the adjusted R^2.

σ_{CF} denotes the standard deviation of the respective cashflow news term, σ_{DR} denotes the standard deviation of the respective discount rate news term. The correlation coefficient between the news terms is $\rho_{DR,CF}$.

Table 7a : Shock correlations with respect to national stock market returns

	AUT			BEL	
	η_{CF}	η_{DR}		η_{CF}	η_{DR}
r_M	0.8988	0.1135	r_M	0.7949	-0.3841
cay	0.4857	0.9982	cay	0.6912	0.8749

	FRA			GER	
	η_{CF}	η_{DR}		η_{CF}	η_{DR}
r_M	0.8451	-0.5544	r_M	0.6943	-0.5559
cay	0.5308	0.8348	cay	0.7954	0.7611

	IRL			ITA	
	η_{CF}	η_{DR}		η_{CF}	η_{DR}
r_M	0.4181	-0.5561	r_M	0.9184	-0.3013
cay	0.9411	0.7800	cay	0.4490	0.9341

	NL			ESP	
	η_{CF}	η_{DR}		η_{CF}	η_{DR}
r_M	0.5603	-0.6448	r_M	0.7856	-0.4893
cay	0.8516	0.7360	cay	0.6949	0.8183

	CH			UK	
	η_{CF}	η_{DR}		η_{CF}	η_{DR}
r_M	0.7652	-0.3484	r_M	0.8285	-0.4982
cay	0.7083	0.9033	cay	0.6301	0.8204

Notes: This table provides correlations of the VAR shocks of the respective country´s market excess return and cay with the news series that are obtained from the VAR using cay as state variable.

Table 8: Cashflow and discount rate with respect to national stock market returns (cay and national HML as state variables)

		H B/M	L B/M	H C/P	L C/P	H D/P	L D/P	H E/P	L E/P
AUT	r (%)	3.07	0.56	4.27	0.09	2.88	0.62	2.49	0.65
	β_{CF}	0.9199	1.1140	0.9199	1.0331	1.0263	1.1267	1.0774	1.1223
		(0.1129)	(0.0765)	(0.1193)	(0.0771)	(0.1000)	(0.0828)	(0.0956)	(0.0845)
	β_{DR}	0.1691	-0.1814	0.0859	-0.1182	0.0346	-0.1869	-0.0070	-0.0711
		(0.2504)	(0.2120)	(0.2004)	(0.0327)	(0.2326)	(0.2218)	(0.2295)	(0.2182)
BEL	r (%)	2.98	1.55	3.27	1.74	2.78	1.47	2.97	1.85
	β_{CF}	0.7733	0.7310	0.7733	0.7074	0.7312	0.7181	0.7724	0.6481
		(0.0871)	(0.0676)	(0.0806)	(0.0701)	(0.0756)	(0.0726)	(0.0756)	(0.0663)
	β_{DR}	0.2598	0.2373	0.1690	0.2191	0.2241	0.2336	0.2321	0.2094
		(0.1806)	(0.1550)	(0.1238)	(0.1141)	(0.1621)	(0.1586)	(0.1667)	(0.1438)
FRA	r (%)	2.45	1.09	2.60	0.90	2.72	0.40	2.18	0.91
	β_{CF}	0.7790	0.6370	0.7790	0.6682	0.6721	0.7302	0.7719	0.6793
		(0.0898)	(0.0732)	(0.0909)	(0.0702)	(0.0809)	(0.0785)	(0.0871)	(0.0706)
	β_{DR}	0.3072	0.2860	0.3050	0.2477	0.2559	0.3094	0.3081	0.2770
		(0.2227)	(0.1854)	(0.1694)	(0.1338)	(0.1948)	(0.2054)	(0.2192)	(0.1878)
GER	r (%)	2.35	1.00	2.35	0.39	1.75	0.75	1.36	1.07
	β_{CF}	0.6301	0.5711	0.6301	0.5552	0.6104	0.6025	0.6092	0.5941
		(0.0893)	(0.0945)	(0.0783)	(0.0949)	(0.0867)	(0.1036)	(0.0889)	(0.0970)
	β_{DR}	0.3549	0.4280	0.2542	0.4151	0.3405	0.4945	0.3622	0.4644
		(0.1554)	(0.1623)	(0.1073)	(0.1306)	(0.1504)	(0.1790)	(0.1540)	(0.1698)
ITA	r (%)	0.57	1.04	1.65	-0.53	1.51	0.13	1.02	0.98
	β_{CF}	0.9218	0.8425	0.9218	0.7859	0.8502	0.9151	0.8565	0.8622
		(0.0598)	(0.0495)	(0.0697)	(0.0606)	(0.0624)	(0.0475)	(0.0597)	(0.0525)
	β_{DR}	0.0939	0.1389	0.1053	0.1338	0.1201	0.1259	0.1103	0.1345
		(0.2622)	(0.2362)	(0.1688)	(0.1564)	(0.2529)	(0.2481)	(0.2500)	(0.2434)
IRL	r (%)	3.47	0.47	2.56	0.57	4.67	1.20	2.44	1.05
	β_{CF}	0.1527	0.9078	0.1527	0.4766	0.1356	0.5470	0.4975	0.5195
		(0.2244)	(0.1892)	(0.2130)	(0.1922)	(0.1890)	(0.1828)	(0.1937)	(0.1896)
	β_{DR}	0.9136	0.2192	0.4279	0.5176	0.8187	0.4820	0.5442	0.5622
		(0.2864)	(0.2083)	(0.2049)	(0.1931)	(0.2487)	(0.2077)	(0.2212)	(0.2209)
NL	r (%)	2.47	1.70	0.66	1.64	2.52	0.79	2.34	1.21
	β_{CF}	0.4727	0.4558	0.4727	0.4474	0.3457	0.5202	0.3470	0.4520
		(0.1587)	(0.1077)	(0.2097)	(0.1106)	(0.1383)	(0.1287)	(0.1543)	(0.1164)
	β_{DR}	0.5592	0.4433	0.8502	0.4572	0.6599	0.5064	0.7376	0.4798
		(0.1805)	(0.1347)	(0.2098)	(0.1149)	(0.1730)	(0.1574)	(0.1921)	(0.1437)
ESP	r (%)	1.82	0.61	1.62	-0.08	0.91	0.22	1.74	0.25
	β_{CF}	0.7241	0.7345	0.7241	0.7090	0.5958	0.7943	0.7074	0.7505
		(0.0912)	(0.0915)	(0.0981)	(0.0913)	(0.0769)	(0.0907)	(0.0814)	(0.0806)
	β_{DR}	0.1652	0.3701	0.2011	0.2676	0.2146	0.3431	0.2409	0.2998
		(0.1779)	(0.1942)	(0.1539)	(0.1451)	(0.1530)	(0.1968)	(0.1707)	(0.1791)
CH	r (%)	1.93	1.29	1.46	1.21	1.70	1.17	1.53	1.18
	β_{CF}	0.6845	0.6635	0.6845	0.7780	0.5370	0.7630	0.6435	0.7370
		(0.1093)	(0.0670)	(0.0926)	(0.0715)	(0.1015)	(0.0789)	(0.0899)	(0.0731)
	β_{DR}	0.4276	0.2009	0.3113	0.2391	0.3831	0.2793	0.3362	0.2436
		(0.2017)	(0.1367)	(0.1430)	(0.1111)	(0.1806)	(0.1624)	(0.1696)	(0.1519)
UK	r (%)	2.24	1.47	2.81	1.46	2.27	1.31	2.76	1.51
	β_{CF}	0.7552	0.7167	0.7552	0.7273	0.6865	0.7657	0.7220	0.7321
		(0.0833)	(0.0778)	(0.0860)	(0.0812)	(0.0807)	(0.0804)	(0.0876)	(0.0747)
	β_{DR}	0.2261	0.3089	0.2787	0.2951	0.2575	0.3031	0.2915	0.2802
		(0.1973)	(0.1941)	(0.1520)	(0.1480)	(0.1885)	(0.2021)	(0.2029)	(0.1903)

Notes: This table presents cashflow and discount rate beta estimates of value and growth stocks of Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland and the United Kingdom conditional of cashflow and discount rate components of the excess return on the respective country´s market portfolio obtained by using cay and the respective national HML factor as state varaibles. Betas are calculated from

Cashflow beta: $$\beta_{i,CF} = \frac{\mathrm{cov}(r_{i,t}, \eta_{CF})}{\mathrm{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

Discount rate beta: $$\beta_{i,DR} = \frac{\mathrm{cov}(r_{i,t}, -\eta_{DR})}{\mathrm{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

where cov and var denote sample covariances and variances. The cashflow component is abbreviated with η_{CF}, the discount rate news component with η_{DR}, $r_{i,t}$ denotes the individual value or growth stock excess return and $r_{M,t} – E_{t-1}(r_{M,t})$ represents the unexpected market return. The discount rate beta is here defined as the covariance of a stock return with lower than expected discount rates. Standard errors in parenthesis are conditional on the fitted value of the respective news term.

Table 9: Cashflow and discount rate betas with respect to national market returns (cay only state variable)

		H B/M	L B/M	H C/P	L C/P	H D/P	L D/P	H E/P	L E/P
AUT	r (%)	3.07	0.56	4.27	0.09	2.88	0.62	2.49	0.65
	β_{CF}	1.1605	0.9887	1.1605	0.9686	1.1408	0.9998	1.1118	1.1020
		(0.0935)	(0.0767)	(0.1097)	(0.0755)	(0.0849)	(0.0832)	(0.0851)	(0.0762)
	β_{DR}	-0.0568	-0.0475	-0.0966	-0.0525	-0.0838	-0.0457	-0.0471	-0.0458
		(0.2979)	(0.2492)	(0.1686)	(0.0800)	(0.2827)	(0.2609)	(0.2782)	(0.2633)
BEL	r (%)	2.98	1.55	3.27	1.74	2.78	1.47	2.97	1.85
	β_{CF}	0.8164	0.7101	0.8164	0.6955	0.7493	0.7086	0.7653	0.6407
		(0.0830)	(0.0693)	(0.0801)	(0.0711)	(0.0736)	(0.0733)	(0.0760)	(0.0668)
	β_{DR}	0.2163	0.2543	0.1598	0.2261	0.2131	0.2403	0.2331	0.2141
		(0.1840)	(0.1617)	(0.1243)	(0.1192)	(0.1670)	(0.1645)	(0.1725)	(0.1491)
FRA	r (%)	2.45	1.09	2.60	0.90	2.72	0.40	2.18	0.91
	β_{CF}	0.7724	0.6386	0.7724	0.6697	0.6666	0.7302	0.7665	0.6793
		(0.0906)	(0.0729)	(0.0916)	(0.0699)	(0.0816)	(0.0784)	(0.0877)	(0.0705)
	β_{DR}	0.3111	0.2846	0.3080	0.2458	0.2602	0.3096	0.3125	0.2775
		(0.2220)	(0.1844)	(0.1695)	(0.1327)	(0.1942)	(0.2045)	(0.2186)	(0.1870)
GER	r (%)	2.35	1.00	2.35	0.39	1.75	0.75	1.36	1.07
	β_{CF}	0.5917	0.5735	0.5917	0.5561	0.5803	0.5984	0.5849	0.5868
		(0.0936)	(0.0948)	(0.0817)	(0.0954)	(0.0901)	(0.1046)	(0.0917)	(0.0982)
	β_{DR}	0.3956	0.4252	0.2766	0.4135	0.3704	0.4987	0.3855	0.4719
		(0.1574)	(0.1601)	(0.1095)	(0.1288)	(0.1513)	(0.1774)	(0.1544)	(0.1687)
ITA	r (%)	0.57	1.04	1.65	-0.53	1.51	0.13	1.02	0.98
	β_{CF}	0.8910	0.8682	0.8910	0.8118	0.8317	0.9303	0.8477	0.8850
		(0.0647)	(0.0455)	(0.0711)	(0.0573)	(0.0651)	(0.0454)	(0.0613)	(0.0492)
	β_{DR}	0.1270	0.1122	0.1160	0.1090	0.1397	0.1104	0.1194	0.1106
		(0.2680)	(0.2384)	(0.1772)	(0.1508)	(0.2581)	(0.2513)	(0.2545)	(0.2460)
IRL	r (%)	3.47	0.47	2.56	0.57	4.67	1.20	2.44	1.05
	β_{CF}	0.3968	0.7229	0.3968	0.3758	0.2804	0.4279	0.6348	0.4758
		(0.2255)	(0.2028)	(0.2139)	(0.2006)	(0.1918)	(0.1919)	(0.1896)	(0.1954)
	β_{DR}	0.5510	0.4943	0.1536	0.6806	0.6237	0.6610	0.3777	0.6685
		(0.2459)	(0.2356)	(0.1987)	(0.2084)	(0.2272)	(0.2363)	(0.2098)	(0.2412)
NL	r (%)	2.47	1.70	0.66	1.64	2.52	0.79	2.34	1.21
	β_{CF}	0.6140	0.4494	0.6140	0.4548	0.4071	0.5446	0.4102	0.4888
		(0.1478)	(0.1071)	(0.2012)	(0.1089)	(0.1337)	(0.1254)	(0.1497)	(0.1124)
	β_{DR}	0.4153	0.4518	0.7082	0.4532	0.5930	0.4866	0.6738	0.4472
		(0.1727)	(0.1388)	(0.2054)	(0.1172)	(0.1695)	(0.1593)	(0.1893)	(0.1438)
ESP	r (%)	1.82	0.61	1.62	-0.08	0.91	0.22	1.74	0.25
	β_{CF}	0.6641	0.7327	0.6641	0.6948	0.5674	0.7893	0.6866	0.7406
		(0.0964)	(0.0910)	(0.1027)	(0.0922)	(0.0792)	(0.0903)	(0.0828)	(0.0807)
	β_{DR}	0.2279	0.3692	0.2543	0.2792	0.2466	0.3542	0.2662	0.3058
		(0.1807)	(0.1936)	(0.1597)	(0.1456)	(0.1549)	(0.1973)	(0.1720)	(0.1790)
CH	r (%)	1.93	1.29	1.46	1.21	1.70	1.17	1.53	1.18
	β_{CF}	0.8558	0.6355	0.8558	0.7583	0.6418	0.8023	0.7084	0.7360
		(0.0986)	(0.0693)	(0.0904)	(0.0732)	(0.0963)	(0.0756)	(0.0857)	(0.0732)
	β_{DR}	0.2579	0.2298	0.2688	0.2593	0.2799	0.2414	0.2721	0.2453
		(0.1919)	(0.1409)	(0.1338)	(0.1161)	(0.1750)	(0.1623)	(0.1672)	(0.1544)
UK	r (%)	2.24	1.47	2.81	1.46	2.27	1.31	2.76	1.51
	β_{CF}	0.7482	0.7186	0.7482	0.7287	0.6832	0.7668	0.7201	0.7327
		(0.0841)	(0.0775)	(0.0863)	(0.0810)	(0.0811)	(0.0802)	(0.0878)	(0.0746)
	β_{DR}	0.2332	0.3068	0.2810	0.2935	0.2612	0.3019	0.2938	0.2795
		(0.1972)	(0.1932)	(0.1521)	(0.1473)	(0.1882)	(0.2014)	(0.2025)	(0.1896)

Notes: This table presents cashflow and discount rate beta estimates of value and growth stocks of Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland and the United Kingdom conditional of cashflow and discount rate components of the excess return on the respective country´s market portfolio obtained by using cay as state variable. Betas are calculated from

Cashflow beta:
$$\beta_{i,CF} = \frac{\operatorname{cov}(r_{i,t}, \eta_{CF})}{\operatorname{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

Discount rate beta:
$$\beta_{i,DR} = \frac{\operatorname{cov}(r_{i,t}, -\eta_{DR})}{\operatorname{var}(r_{M,t} - E_{t-1}(r_{M,t}))}$$

where cov and var denote sample covariances and variances. The cashflow component is abbreviated with η_{CF}, the discount rate news component with η_{DR}, $r_{i,t}$ denotes the individual value or growth stock excess return and $r_{M,t} - E_{t-1}(r_{M,t})$ represents the unexpected market return. The discount rate beta is here defined as the covariance of a stock return with lower than expected discount rates. Standard errors in parenthesis are estimated conditional on the fitted value of the respective news term.

Table 10: Time series regressions on national and European news series

		Constant	NNCF	NNDR	ENCF	ENDR	Adj. R^2
Panel A							
UK	H B/M	0.02 (4.80)	0.93 (11.00)	0.86 (6.18)	0.17 (1.85)	0.04 (0.37)	0.76
	L B/M	0.01 (5.35)	0.99 (20.05)	1.17 (14.29)	– 0.00 (–0.06)	– 0.08 (–1.38)	0.91
	H B/M	0.02 (4.77)	1.04 (17.65)	0.83 (9.14)			0.76
	L B/M	0.01 (5.35)	0.99 (28.96)	1.09 (20.44)			0.91
	H B/M	0.02 (2.95)			0.77 (7.74)	0.56 (4.90)	0.37
	L B/M	0.01 (1.96)			0.62 (6.33)	0.62 (5.42)	0.32
Panel B							
AUT	H B/M	0.03 (4.71)	1.17 (15.28)	2.02 (13.57)	0.60 (4.30)	– 0.32 (–2.74)	0.84
	L B/M	0.01 (0.79)	0.90 (10.66)	0.53 (3.24)	– 0.02 (–0.11)	0.06 (0.48)	0.73
	H B/M	0.03 (3.95)	1.11 (14.91)	1.63 (1.53)			0.77
	L B/M	0.01 (0.80)	0.92 (13.53)	0.58 (4.49)			0.74
	H B/M	0.03 (2.17)			0.86 (3.16)	0.81 (4.06)	0.23
	L B/M	0.01 (0.45)			0.66 (2.78)	0.66 (3.76)	0.19
BEL	H B/M	0.04 (5.74)	0.83 (8.37)	1.35 (8.80)	0.41 (2.76)	– 0.29 (–1.85)	0.78
	L B/M	0.02 (4.85)	0.97 (15.80)	0.86 (9.12)	– 0.03 (–0.33)	0.14 (1.44)	0.89
	H B/M	0.03 (5.54)	1.03 (17.92)	1.06 (12.37)			0.76
	L B/M	0.02 (4.85)	0.97 (28.39)	0.98 (18.86)			0.89
	H B/M	0.03 (3.92)			1.13 (9.82)	0.92 (7.83)	0.52
	L B/M	0.02 (2.54)			0.97 (10.55)	0.95 (9.50)	0.59
FRA	H B/M	0.02 (4.52)	1.05 (9.15)	1.09 (6.39)	0.09 (0.51)	– 0.02 (–0.14)	0.83
	L B/M	0.01 (2.93)	0.94 (11.82)	0.99 (8.40)	– 0.06 (–0.45)	– 0.04 (–0.41)	0.88
	H B/M	0.02 (4.56)	1.11 (20.45)	1.04 (12.29)			0.83
	L B/M	0.01 (2.95)	0.90 (24.26)	0.97 (16.73)			0.88
	H B/M	0.02 (2.82)			1.23 (9.39)	1.33 (9.36)	0.56
	L B/M	0.01 (1.53)			0.95 (8.84)	1.17 (10.02)	0.56
GER	H B/M	0.02 (5.63)	1.20 (11.98)	0.75 (7.44)	– 0.30 (–2.15)	0.24 (1.92)	0.85
	L B/M	0.01 (2.28)	1.00 (9.53)	1.12 (10.56)	– 0.05 (–0.36)	– 0.10 (–0.74)	0.84
	H B/M	0.02 (5.74)	1.02 (21.65)	0.93 (16.66)			0.84
	L B/M	0.01 (2.30)	0.96 (20.20)	1.05 (18.67)			0.84

Table 10 continued

		Constant	NNCF	NNDR	ENCF	ENDR	Adj. R^2
GER	H B/M	0.02 (3.51)			1.10 (10.95)	1.09 (9.96)	0.61
	L B/M	0.01 (1.42)			1.06 (9.99)	1.12 (9.78)	0.58
IRL	H B/M	0.03 (2.48)	0.43 (1.48)	0.92 (3.01)	0.84 (2.16)	0.24 (0.74)	0.44
	L B/M	0.00 (0.36)	1.47 (5.37)	0.58 (2.01)	– 0.14 (–0.38)	0.53 (1.70)	0.51
	H B/M	0.03 (2.41)	0.89 (4.27)	1.19 (6.21)			0.41
	L B/M	0.00 (0.35)	1.42 (7.38)	0.93 (5.23)			0.50
	H B/M	0.03 (2.33)			1.16 (4.02)	1.00 (4.90)	0.36
	L B/M	0.00 (0.29)			1.29 (4.12)	0.62 (2.80)	0.26
ITA	H B/M	0.01 (0.90)	1.09 (15.27)	0.37 (1.93)	– 0.24 (–1.61)	0.37 (2.40)	0.80
	L B/M	0.01 (3.35)	0.87 (24.91)	1.28 (13.89)	0.34 (4.77)	– 0.08 (–1.10)	0.94
	H B/M	0.01 (0.88)	1.05 (20.49)	0.79 (6.52)			0.79
	L B/M	0.01 (3.08)	0.97 (36.84)	1.05 (16.87)			0.93
	H B/M	0.00 (0.51)			1.15 (6.81)	1.17 (6.38)	0.38
	L B/M	0.01 (1.14)			1.19 (8.68)	1.12 (7.60)	0.49
NL	H B/M	0.02 (3.37)	– 0.22 (–0.97)	1.06 (5.15)	1.46 (6.18)	– 0.48 (–1.83)	0.64
	L B/M	0.02 (3.81)	0.87 (6.24)	0.58 (4.59)	0.18 (1.27)	0.33 (2.05)	0.75
	H B/M	0.02 (2.88)	1.09 (8.71)	0.99 (8.96)			0.50
	L B/M	0.02 (3.76)	1.00 (15.24)	0.82 (14.07)			0.74
	H B/M	0.02 (3.01)			1.38 (11.15)	0.82 (6.09)	0.54
	L B/M	0.02 (3.22)			1.02 (12.76)	0.79 (9.14)	0.64
ESP	H B/M	0.01 (0.90)	1.15 (10.73)	0.55 (3.31)	– 0.45 (–2.46)	0.11 (0.54)	0.58
	L B/M	0.00 (0.51)	1.04 (15.55)	1.30 (12.52)	0.06 (0.51)	– 0.13 (–1.00)	0.84
	H B/M	0.01 (0.88)	0.98 (11.99)	0.68 (5.80)			0.57
	L B/M	0.00 (0.51)	1.06 (21.46)	1.22 (17.19)			0.84
	H B/M	0.01 (0.62)			0.75 (3.89)	0.54 (2.58)	0.13
	L B/M	0.00 (0.24)			0.99 (5.61)	0.96 (5.02)	0.28
CH	H B/M	0.02 (3.43)	0.52 (5.65)	1.24 (8.12)	0.93 (7.27)	0.24 (1.49)	0.79
	L B/M	0.01 (3.25)	0.84 (12.88)	0.54 (4.99)	– 0.04 (–0.42)	0.39 (3.50)	0.80
	H B/M	0.02 (2.86)	1.02 (13.87)	1.39 (13.16)			0.70

Table 10 continued

		Constant	NNCF	NNDR	ENCF	ENDR	Adj. R^2
CH	L B/M	0.01 (3.11)	0.87 (19.18)	0.85 (13.02)			0.78
	H B/M	0.02 (2.69)			1.29 (11.96)	1.29 (11.02)	0.66
	L B/M	0.01 (2.09)			0.79 (8.53)	0.86 (8.51)	0.51
UK	H B/M	0.02 (4.78)	0.90 (7.44)	0.72 (3.44)	0.18 (1.20)	0.16 (0.94)	0.76
	L B/M	0.01 (5.33)	1.05 (14.78)	1.13 (9.10)	−0.08 (−0.84)	−0.05 (−0.54)	0.91
	H B/M	0.02 (4.77)	1.04 (17.65)	0.83 (9.14)			0.76
	L B/M	0.01 (5.35)	1.00 (28.95)	1.09 (20.44)			0.91
	H B/M	0.02 (3.70)			1.05 (11.45)	0.86 (8.73)	0.60
	L B/M	0.01 (2.62)			0.90 (10.67)	0.98 (10.65)	0.62

Notes: This table reports OLS estimates with t-statistics in parenthesis from regressions of the respective countries´ value (H B/M) and growth (L B/M) portfolio retuns sorted according to their book-to-market ratio on news components of a European and the corresponding national market return. The news series are obtained using cay as well as the respective HML factor as state variables.
The time series regressions take the following forms:

$$r_t^i = \mu + \beta_{NCF} NNCF + \beta_{NDR} NNDR + \beta_{ECF} ENCF + \beta_{EDR} ENDR + \varepsilon_t$$
$$r_t^i = \kappa + \beta_{NCF} NNCF + \beta_{NDR} NNDR + \eta_t$$
$$r_t^i = \pi + \beta_{ECF} ENCF + \beta_{EDR} ENDR + \nu_t$$

with NCF, national cashflow news, NDR, national discount rate news, ECF, European cashflow news, EDR, European discount rate news. The excess return on a country´s value or growth portfolio is denoted with r_t^i.