Predictability in Financial Markets: What Do Survey Expectations Tell Us?[1]

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Abstract

There is widespread evidence of excess return predictability in financial markets. For the foreign exchange market a number of studies have documented that the predictability of excess returns is closely related to the predictability of expectational errors of excess returns. In this paper we investigate the link between the predictability of excess returns and expectational errors in a much broader set of financial markets, using data on survey expectations of market participants in the stock market, the foreign exchange market, and the bond and money markets in various countries. Results are striking. First, in markets where there is significant excess return predictability, expectational errors of excess returns are predictable as well, with the same sign and often even with similar magnitude. This is the case for forex, stock and bond markets. Second, in the only market where excess returns are generally not predictable, the money market, expectational errors are not predictable either. These findings suggest that an explanation for the predictability of excess returns must be closely linked to an explanation for the predictability of expectational errors.

1 Introduction

There is extensive evidence in financial markets that expected returns are time varying and that excess returns are predictable. This evidence has obvious implications for portfolio allocations. It is important to understand the source of this predictability. Predictable excess returns run against some classic hypotheses made in economics like the expectations theory of the term structure of interest rates or uncovered interest parity between investments in different currencies.

For the foreign exchange market a number of studies have documented a close relationship between the predictability of excess returns and the predictability of expectational errors about excess returns, suggesting that deviations from strong rationality are behind the predictability of excess returns.[1] Since excess return predictability is a broad asset pricing phenomenon, which applies to many different types of financial markets, a natural question is whether the findings for the foreign exchange market apply to other financial markets as well. In other words, is there more generally a close link in financial markets between the predictability of excess returns and the predictability of expectational errors of excess returns? In order to address this question, we use evidence from surveys of market participants in four different financial markets: forex, stock, bond and money markets.

The results are striking. First, in markets where there is significant excess return predictability, expectational errors of excess returns are predictable as well, with the same sign and often even with similar magnitude. This is the case for the forex, stock and bond markets. Second, in the only market where excess returns are generally not predictable, the money market, expectational errors are not predictable either. The obvious implication from these results is that an explanation for excess return predictability in financial markets is likely to be closely related to an explanation for the predictability of excess returns.

One always needs to be suspicious of survey data because of potential measurement problems. This will be discussed in some detail in the paper. But the pervasiveness of the evidence across countries, time periods, financial markets and market participants makes it hard to attribute all of it to measurement error. The surveys we use all involve actual market participants, either a substantial number of big financial institutions or large numbers of wealthy individual investors. It is

[1] Strong rationality is defined as the efficient use of information such that expectational errors are orthogonal to all available information.

important to focus on actual market participants. This avoids well-known biases associated with expectations by financial analysts, especially in the stock market. Moreover, it is market participants who ultimately drive asset prices through their trades.

The methodology is simple. Consider the log excess return q_{t+n} of an investment over n periods, between t and $t+n$, in an asset such as a stock, a bond, or a foreign currency investment. The following regression measures excess return predictability:

$$q_{t+n} = \alpha + \beta x_t + u_{t+n} \tag{1}$$

where x_t is a variable or a vector of variables observable at time t. As elsewhere in the literature,[2] β is significant in most cases. In standard asset pricing models the expected excess return is a risk premium. Therefore, if there is strong rationality, predictability in equation (1) can only be explained by a correlation of x_t with the risk premium.[3] But alternatively the predictability in equation (1) can also be explained by deviations from strong rationality. To examine this, survey expectations on excess returns $E_t^s q_{t+n}$ are used to compute the expectational error $q_{t+n} - E_t^s q_{t+n}$.[4] Its predictability is measured with the following regression:

$$q_{t+n} - E_t^s q_{t+n} = \gamma + \delta x_t + v_{t+n} \tag{2}$$

Strong rationality implies that expectational errors are unpredictable by information at time t. But in most cases, δ is significant. Moreover, δ tends to be significant precisely when β is significant and the elements of δ are of the same sign and similar magnitude as the elements of β.

The similar magnitude of β and δ can be explained by a lack of responsiveness of expected excess returns, implied by surveys, to news. We find that survey

[2] E.g., see Cochrane (2006) for a summary of the evidence.

[3] There is another set explanations based on "statistical" problems estimating equation (1). The main problems are small sample bias and the bias caused by the persistence of the x_t variable. However, these problems usually can only explain a part of the evidence. See, for example, Stambaugh (1999), Liu and Maynard (2005), and Campbell and Yogo (2006). Moreover, persistence of x_t will not at all affect regressions of survey expectational errors on those variables that are discussed below. The reason is that under the null hypothesis expectational errors are white noise. Ferson et. al. (2003) have shown that bias due to persistence of the right hand side variable is only of concern when there is also persistence in the left hand side variable.

[4] We obviously assume that $E_t^s q_{t+n}$ is informative about $E_t q_{t+n}$. If $E_t^s q_{t+n} = E_t q_{t+n} + \varepsilon_{t+n}^s$, where ε_{t+n}^s is a measurement error, we assume that ε_{t+n}^s is not fully negatively correlated with $E_t q_{t+n}$.

expectations of changes in asset prices and interest rates do move with predictor variables, but not the associated expected *excess* returns. While regressing the expected excess return on x_t often yields non-zero coefficients, the magnitude of these coefficients is small, especially in comparison to β and δ. In that sense expected excess returns are not very sensitive to news. Consider the extreme case where $E_t^s q_{t+n}$ is constant. In that case β and δ would be the same. This is clearly inconsistent with strong rationality, which would imply that the coefficient in an expected excess return regression is the same as in the actual excess return regression (1).

While evidence of predictability of expectational errors violates strong rationality, one needs to be careful not to necessarily interpret this evidence as a violation of more meaningful definitions of rationality. Fama (1991) suggest that "a weaker and economically more sensible version of the efficient market hypothesis says that prices reflect information to the point where the marginal benefits of acting on information do not exceed the marginal cost". Sims (1998, 2003) has formally argued that agents may rationally only process a limited amount of information because of capacity constraints on processing information. At the same time other explanations of predictability of expectational errors cannot be ruled out, for example based on psychological behavior (see Hirshleifer (2001) for a survey).

This paper mainly documents the relationship between the predictability of excess returns and expectational errors. We do not attempt to give a definite answer to what accounts for this relationship. It is possible that the relationship is causal from the predictability of expectational errors to the predictability of excess returns. Examples of models where this is the case are Gourinchas and Tornell (2004) for the foreign exchange market and Cecchetti, Lam and Mark (2000) for the stock market. But it could also be that a third factor causes predictability of both excess returns and expectational errors. A discussion of these issues is taken up in section 5.

The remainder of the paper is organized as follows. After reviewing some related literature in Section 2, Section 3 describes the survey data sets used for each of the three financial markets. Section 4 shows the results on predictability of expectational errors and excess returns from the two regressions above. Section 5 discusses concerns about measurement error and possible explanations for the predictability of expectational errors and the link between predictable expectational errors and excess returns. Section 6 concludes.

2 Related Literature

It is the evidence from the foreign exchange market that motivates us to investigate the link between predictability of excess returns and expectational errors in other financial markets. The first papers in the foreign exchange literature include Dominguez (1986), Ito (1990), Frankel and Froot (1987) and Froot and Frankel (1989).[5] These papers all use surveys of foreign exchange experts of companies operating in the foreign exchange market (both financial and non-financial).[6] The data samples are short in these early studies, often just a couple of years. Expectational errors of exchange rate changes are regressed on variables that are in the information set at the time that expectations were formed, in particular the forward discount, past exchange rate changes and past expected exchange rate changes. Despite the short samples, these papers resoundingly reject strong rationality.[7] In particular the large negative coefficients of a regression of expectational errors on the forward discount have received a lot of attention. Froot and Frankel (1989) argue that this can explain the entire forward discount puzzle. Subsequent literature for the foreign exchange market, such as Frankel and Chinn (1993), Chinn and Frankel (1994) and Cavaglia, Verschoor and Wolff (1994) have more currencies and years but confirm the earlier findings. The most recent paper for the foreign exchange market that we are aware of, by Chinn and Frankel (2002), uses data from 1988 to 1994 for 24 currencies.

For other financial markets very little is known about the link between excess return predictability and predictability of expectational errors. For the stock market we are not aware of any evidence on this issue. For the bond market the only paper is Froot (1989). While the data are by now two decades old and the study is limited to the United States, it is nonetheless the only such study that we are aware of.

Froot (1989) uses survey data from 1969 to 1986 for the United States from the Goldsmith-Nagan Bond and Money Market Letter. It is based on a quarterly

[5] See Takagi (1991) for a review of the early literature.

[6] Ito (1990) uses survey data for individual respondents, while the other papers use surveys with only the median or average response reported.

[7] The evidence for the forward discount and past exchange rate changes as predictors of future expectational errors is most relevant in this context. Using past exchange rate expectations as a predictor for future expectational errors is not a good test of strong rationality to the extent that average expectations reflect heterogeneous information that is not publicly available.

survey of about 50 financial market participants (investors, traders and underwriters). The survey asks for expectations of the level of various short and long term interest rates, both 3 months and 6 months ahead. Froot regresses expectational errors about these future interest rates on the current forward premium (forward interest rate minus current short rate). For assets of all maturities he finds that the coefficient on the forward premium is negative. It is significant for maturities of 12 months and longer. Froot shows that the predictable expectational errors help explain the predictability of excess returns on bonds. This is especially the case for long-term bonds of 20 and 30-year maturities.[8]

For the stock market we are not aware of any tests of the predictability of expectational errors based on survey data of market participants. Expectations of non-market participants have been used in various studies. Brav, Lehavy and Michaely (2005) use data for sell-side analysts and independent research analysts to test some cross-sectional implications of asset pricing models. They use First Call sell-side analyst forecasts for one-year ahead stock prices of 7000 firms from 1997 to 2001 and Value line forecasts for 3,800 stocks over the period 1975-2001. The latter is an independent research provider. It is well known that financial analyst expectations are overly optimistic due to client relationships.[9] The advantage of the Value Line data is that such biases are less likely due to their independence. Brav et al. (2005) find evidence that cross-sectional variation in expectations is related to known risk factors such as beta and size. They do not conduct explicit tests of rationality, but they find some evidence suggesting deviations from rationality in that value stocks (high book to market stocks) tend to have higher subsequent returns while they do not have higher return expectations. This suggests that high book-to-market ratios predict positive expectational errors of returns.

Another set of papers exploit evidence from the Livingston survey. This is a biannual survey that has been conducted since 1946 among a group of about 50 economists from financial and non-financial institutions, government and academia. While mostly known as an inflation survey, many other variables are forecasted, including the S&P500 stock return. Pearce (1984) and Lakonishok (1980)

[8] Gourinchas and Tornell (2004) use data from the "Financial Times Currency Forecaster" to provide evidence of irrationality in the forecasts on short-term interest rates, but do not provide a link to excess return predictability in money markets.

[9] See for example Rajan and Servaes (1997) and Michaely and Womack (1999).

find that expectational errors are predictable by a variety of variables in the information set. But a problem with this survey (at least prior to 1992) is that its questions are answered at different times by different respondents and these times are unknown. Dokko and Edelstein (1989) find that rationality can no longer be rejected when dealing with this timing issue more carefully. But in the process they make a number of assumptions that may themselves be considered as problematic.[10]

One paper, Vissing-Jorgensen (2003), does consider evidence on stock return expectations of market participants. While she does not consider any explicit test of rationality, she provides some suggestive evidence of behavioral features. She uses a survey conducted since 1996 by UBS and Gallup on stock return expectations by 1000 investors who own at least $10,000 in financial assets. Since this is one of the surveys that will be used in this study as well, it will be described in more detail in the next section. She finds evidence of what is called "biased self-attribution" in behavioral economics. Biased self-attribution means that good performance in the past is interpreted as evidence of the investor's own skill, while bad performance is interpreted as bad luck. Consistent with that, the survey evidence shows that investors who report high past returns continue to expect high returns, while those that report low past returns do not expect this to continue.

3 Description of the Survey Data

Three different surveys are used in this study. The first one is a survey of both exchange rate and interest rate expectations, while the other two are surveys of stock return expectations.

3.1 Exchange Rate and Interest Rate Expectations

The survey of exchange rate and interest rate expectations is by Forecasts Unlimited Inc. This survey has gone by different names in the past because of changes in ownership. It was initiated by Alan Teck in 1984 under the name "The Currency Forecasters' Digest". In 1990 it was sold to a subsidiary of the Financial Times and renamed the "Financial Times Currency Forecaster" (used for example

[10]For example, it is assumed that respondents believe that stock prices follow a geometric random walk.

by Gourinchas and Tornell, 2004, described above). In the following decade it was moved among four different subsidiaries of the Financial Times, each with different personnel. In September 2000 it was bought back by Alan Teck for the company Forecasts Unlimited.[11] Currently 45 large financial institutions contribute to the monthly forecast.[12]

Monthly data is available from August 1986 to July 2005. Because of the frequent changes in ownership some of the data are missing. For the exchange rate survey there are missing data for 7 months of the survey. For the interest rate survey there is 3-year gap in the data from November 1997 to November 2000. For most countries and maturities, the survey covers interest rates only as of September 1987. Depending on the maturity, there is further missing interest rate survey data for 25-27 months spread throughout the sample. This leaves 219 observations per currency for exchange rates and 165-167 observations for interest rates.

The survey questions are collected over a period of 3 days. Usually the survey is e-mailed (or faxed) on Friday morning (last Friday of the month), with responses collected during Friday and the following Monday and Tuesday.

While the survey currently reports forecasts for 31 countries, we focus on the evidence of the main industrialized countries in the survey. This is also the set of countries with a fairly consistent coverage over the last 20 years. Those are 8 countries: US, Germany, France, UK, Japan, Canada, Australia and Switzerland. All exchange rate forecasts are relative to the dollar, so there are 7 currencies. For the foreign exchange market the survey reports the average forecast of the spot exchange rate 3, 6 and 12 months ahead. For interest rates the survey reports the expectations of 3-month Libor, 12-month Libor and 10-year government bond yields 3, 6, and 12 months ahead.[13]

[11] The web site is FX4casts.com.

[12] The number of contributors has not changed much over time, but after December 1993 there was an important change in the type of contributors. Until December 1993 the forecasts came from 30 multinational companies and 18 financial institutions. After that there was a switch to 45 forecasters from financial institutions only. The reason for the change is that forecasts from financial institutions were found to be more reliable.

[13] Consensus Economics of London provides similar survey data. Their sample starts a little later, October 1989, provides somewhat less interest rate coverage (3-month T-bill and 10-year government bond yields forecasted 3 and 12 months ahead) and has experienced a larger change over time in the number of forecasters.

3.2 Stock Market Expectations

For the stock market two different data sets are used. The first survey is the UBS/Gallup poll. This is a random telephone survey of 1000 investors with at least $10,000 in financial assets. The data are only for the US stock market. Several questions about return expectations are asked. The one used here is: "thinking about the stock market more generally, what overall rate of return do you think the stock market will provide investors during the coming twelve months?". The poll was conducted twice in 1998 and monthly between February 1999 and April 2003.[14] This gives a total of 53 observations. The data are collected in the first two weeks of each month.

The second stock market survey contains data for both the United States and Japan. It is available through the International Center for Finance at the Yale School of Management.[15] For the United States the survey asks about expected percentage change in the Dow Jones Industrial index over the next 1, 3, and 12 months.[16] For Japan the same question is asked for the Nikkei Dow. The U.S. data is collected by Robert Shiller, while the Japanese data are collected by Yoshiro Tsutsui at Osaka University and Fumiko Kon-Ya of the Japan Securities Research Institute. For Japan the survey is mailed to most of the major financial institutions (165 banks, 46 insurance companies, 113 securities companies and 45 investment trust companies). For the United States there is a separate survey of institutional investors and wealthy individual investors. For institutional investors about 400 randomly drawn institutions are selected from "Investment Managers" in the "Money Market Directory of Pensions Funds and their Investment Managers". For individual U.S. investors the survey is mailed to a random sample of 400 high income Americans from a list purchased from Survey Sampling Inc. For all three of these surveys the average response rate is about one third. For institutional investors, the survey starts in 1989 with six-month interval surveys until 1998, after which monthly surveys are conducted. For individual investors one survey

[14] See Vissing-Jorgensen (2003) for a detailed description and use of this data. The data can be purchased via the Roper Center at the University of Connecticut. UBS/Gallup have discontinued asking the question about the expected stock market return, even though the poll is still conducted monthly with several other questions.

[15] We would like to thank the International Center for Finance for making these data available to us.

[16] It also asks about the expectation in 10 years, but that obviously cannot be used here.

was conducted in 1989, one in 1996 and monthly surveys started in 1999.[17] We have collected the data through October 2004. We have the answers by the individual respondents as well as the date that they filled out the survey. Even if only one or two surveys were conducted during a particular year, the responses came in over a period of two or more months. This is not a problem as the date of each individual survey response is known.

4 Empirical Results

This section applies the two predictability regressions (1) and (2) to the foreign exchange market, the stock market, the bond market and the money market. These regressions measure the predictability of excess returns and expectational errors using instruments well-known from the previous literature. In addition, a third regression documents whether and how risk premia *derived from the survey expectations* are related to these instruments.

Each subsection first describes the precise specification of these regressions and the data used and then present the results. Most of the results presented use monthly data, so that "a period" corresponds to a month. For the first three markets, the main text shows only the evidence for the one-year horizon. Results for other horizons are presented in the Appendix Tables A1-A16. In addition the Appendix Tables B1-B3 provide some basic statistics about survey expectational errors, such as the mean, median, autocorrelation and correlations across countries. The precise data sources are described in the data Appendix at the end of the paper.

4.1 Foreign Exchange Market

4.1.1 Regressions

In the foreign exchange market, the excess return on foreign currency investment from t to $t+n$ is

$$q_{t+n} \equiv i_t^* + s_{t+n} - s_t - i_t \tag{3}$$

[17] See Shiller et al. (1996) and http://icf.som.yale.edu/confidence.index/explanations.html for more details.

where i_t^* is the foreign interest rate on an n-month instrument, i_t is the corresponding domestic interest rate, and s_t the log exchange rate. Regressions for the foreign exchange market always take the US to be the home country, so that i_t is a dollar interest rate and the exchange rate is dollars per foreign currency. Using the interest differential $x_t = i_t - i_t^*$ as predictor, the equation for excess return predictability (1) is:

$$s_{t+n} - s_t - (i_t - i_t^*) = \alpha + \beta(i_t - i_t^*) + u_{t+n} \quad (4)$$

There is an extensive literature on the forward bias puzzle reporting negative and significant estimates of β.[18] Notice that adding $(i_t - i_t^*)$ back to both sides, yields the standard Fama (1984) regression.

For expectational errors, $q_{t+n} - E_t^s q_{t+n} = s_{t+n} - E_t^s s_{t+n}$, regression (2) is:

$$s_{t+n} - E_t^s s_{t+n} = \gamma + \delta(i_t - i_t^*) + v_{t+n} \quad (5)$$

s_{t+n} is computed as the average exchange rate during the three days that are n months subsequent to the three days over which the survey has taken place. The right-hand side of (5) takes the interest differential prevailing on the day before the survey starts. n-month euro market interest rates are used. For comparison, regression (4) is run over the same sample.

Equations (4) and (5) are estimated from monthly data with horizons of 3 months, 6 months and one year. To account for the overlap in the forecast intervals, Newey-West standard errors are reported (lags are chosen to equal the number of monthly observations per period plus one, i.e. 4, 7 and 13 respectively).

4.1.2 Results

Table 1 presents the results for the one-year horizon. Panel A gives the estimates of equation (5). In six out of seven regressions, expectational errors are predictable and δ is significant at least at the 5% level. The only exception is the UK. The two bottom lines of Panel A give results for the average of countries. To compute these numbers, the regressions for all countries are stacked in a SUR system. This leaves each individual regression's results unchanged but gives us an estimate of the

[18] Since *covered* interest parity holds in the markets considered here, $(i_t - i_t^*)$ can be replaced by the forward discount. For surveys of the forward bias literature, see Lewis (1995), Engel (1996) or Sarno (2005).

correlation between the standard errors of the δ's across countries.[19] The standard error of the average slope then follows from the asymptotic, multivariate normality of the individual slope coefficients. On average, the estimate of δ is -2.6424 and its p-value is close to zero.

Panel B shows the results for excess return predictability. Except for the UK, the coefficient β is significant at least at the 5% level, which is consistent with the forward bias puzzle typically found in the literature.[20] The average estimate for β is -2.4462 and it is significant at the 1% level.

Similar results are found at horizons of 3 and 6 months. The corresponding tables are found in the Appendix (Tables A1 and A2). The only differences are that expectational errors are no longer predictable for the yen/dollar exchange rate at the 3-month horizon and that R^2's are smaller.

The striking result from Table 1 is that the predictability of expectational errors "matches" the predictability of excess returns. In the only case where excess returns are not predictable (the UK) expectational errors are also unpredictable. Moreover, the magnitude of δ is similar to the magnitude of β. This implies that a change in the interest differential has a similar effect on the expectational error as it has on the excess return. Thus, these results show that the predictability of excess returns and the predictability of expectational errors are closely related and that there are deviations from strong rationality.

Consistent with these findings, panel C of Table 1 shows that the regression of the expected excess return on the interest rate differential yields a coefficient that is insignificantly different from zero in five of the seven cases. The average across all currencies is close to zero and insignificant. This regression is obviously related to the previous two, with the point estimates in panel C equal to those in panel B minus panel A. It is nonetheless informative in its own right. In most standard asset pricing models the expected excess return is equal to the risk premium. If the reason for excess return predictability is associated with time-varying risk premia, then the coefficient in panel C would be the same as the excess return predictability coefficient in panel B. This is clearly not the case. The expected excess return is not systematically related to the interest rate differential.[21] It is also clear that if,

[19] As discussed above, standard errors are estimated using the Newey-West estimator.

[20] This sample is somewhat shorter than recent estimates in the literature because of matching observations with the survey sample. However, results are similar over a longer sample.

[21] This result is consistent with the literature that concludes that explanations based on risk

for whatever reason, investors do not attempt to predict excess returns, then the coefficients in panel C indeed should be close to zero and the expectational error of the excess return is the same as the excess return itself. This can explain the similar coefficients in panels A and B.

4.2 Stock Market

4.2.1 Regressions

For the stock market, the excess return of stocks over the short-term interest rate is

$$q_{t+n} \equiv r_{t+n} - i_t \tag{6}$$

where $r_{t+n} = \ln \frac{P_{t+n}+D_{t+n}}{P_t}$ is the log return on the stock price index, P_t is the stock price index and D_{t+n} measures dividends paid between t and $t+n$. As before, i_t is the interest rate on an n-month instrument. The excess return is regressed on three variables that have been extensively used in the stock market literature on excess return predictability: the short rate i_t, the log dividend yield $ln(D_t/P_t)$, and the consumption-wealth ratio *cay* as proposed by Lettau and Ludvigson (2001). This is again done for the different horizons over which survey expectations are available. Regarding expectational errors, the two surveys need to be treated somewhat differently since the UBS/Gallup poll gives an expected return, while the ICF/Yale survey gives an expected price change.

For the UBS/Gallup poll, the expectational error $r_{t+12} - E_t^s r_{t+12}$ is regressed on the same predictors, where $E_t^s r_{t+12} = \ln(1 + E_t^s R_{t+12})$ and $E_t^s R_{t+12}$ is the average expectation from the survey. The survey expectations are compared to the average 12-month return on the S&P 500 computed over the precise days of the survey (around 10 working days).[22] The S&P 500 Composite Dividend Yield is obtained from DataStream. The one-year Treasury Constant Maturity Rate from FRED measures the interest rate. The average expectational error is regressed on the interest rate and the log dividend-yield measured on the day before the survey is started as well as the most recent quarterly observation of the consumption-wealth ratio before the start of the survey.

premia fail to explain the forward premium puzzle. For surveys of this literature, see Lewis (1995), Engel (1996), or Sarno (2005).

[22]Dividend income is included by using the Composite Total Return Index of the S&P 500 computed from DataStream (Thomson Financial).

For the ICF/Yale data, the method needs to be adapted in three ways: First, as mentioned, the expectations pertain to the percentage stock prices change as opposed to the overall return. The log price change is denoted by $\widetilde{r}_{t+n} = \ln(P_{t+n}/P_t)$. Second, expectations are recorded for individual respondents. Let $E_t^{s,i}\widetilde{r}_{t+n}$ be the log of one plus respondent i's expected percentage change in the stock price. Therefore $\widetilde{r}_{t+n} - E_t^{s,i}\widetilde{r}_{t+n}$ is regressed on the predictors available at time t.[23] Third, survey data is available for the 1-month, 3-month, and one-year horizons. For each respondent the actual price change in the Dow Jones or Nikkei (from DataStream) during the corresponding forecast period is used to compute $\widetilde{r}_{t+n} - E_t^{s,i}\widetilde{r}_{t+n}$. The regressions are run with data for individual respondents, daily averages, and monthly averages for the various horizons. This creates varying overlaps of the forecasting horizons across observations. Even with monthly averages, there are months with no observations and the number of observations varies from year to year. These overlaps are addressed with Newey-West standard errors where the number of lags included is the average number of observations per year in the sample. Standard errors are very similar when using a lag length equal to the maximum number of observations in a given year.

4.2.2 Results

Table 2 presents evidence using the UBS/Gallup poll, for the sample going from May 1998 to April 2003. Three right-hand side variables are considered: the short-term interest rate, the log dividend-yield, and the consumption-wealth ratio. Panel B shows the results for excess return predictability. Taken individually, only the dividend-yield is significant, but the interest rate becomes significant when considered jointly with the dividend-yield. The consumption-wealth ratio is insignificant. These results differ from those typically obtained over longer samples.[24] Panel A documents that there is predictability of expectational errors when using the dividend-yield ratio alone or combined with the interest rate. Thus, the significant coefficients in excess return predictability correspond exactly to those for survey error predictability.

Panel C shows that the expected excess return derived from survey expectations

[23] Results are almost identical when running the regressions in levels rather than in logs.

[24] In regressions of excess return predictability with monthly data over the 1996-2005 sample, we find that the consumption-wealth ratio is strongly significant and the interest rate has a negative coefficient.

is related to all the three right-hand side variables. However, the absolute size of coefficients is small compared to those in Panels A and B. While expected excess returns are statistically different from zero, the magnitude of the difference is not large. In that sense the results are again close to those for the foreign exchange market, where on average the expected excess return was close to zero as well. Time-varying risk premia can therefore not explain the predictability of excess returns. Otherwise the coefficients in Panels B and C would have been the same.

Table 3 presents evidence on price changes for a one-year horizon using the ICF/Yale data. The three panels in each of the Tables 3a, 3b, and 3c correspond to the three different surveys: individual and institutional investors for the Dow Jones, and institutional investors for the Nikkei. The sample period for each survey is determined by data availability[25] and the number of observations varies between 1174 and 2348 because of the individual observations. Table 3a shows the predictability of survey errors by regressing $\widetilde{r}_{t+12} - E_t^{s,i}\widetilde{r}_{t+12}$ on the dividend yield and the interest rate. The results again show that expectational errors are predictable. This is particularly the case for the Dow Jones individual investors and for the Nikkei investors. In these cases, the results are similar to those found in Table 2, where the dividend yield is strongly significant when taken alone or in combination with the interest rate.

Table 3b shows the results on excess return predictability. The significance of variables is strikingly similar to what is found in Table 3a. First, there is no predictability for the sample corresponding to the Dow Jones institutional investor survey. Second, there is strong significance of the dividend-yield for the sample corresponding to the Dow Jones individual investor survey and in Japan for the sample corresponding to the Nikkei investor survey. Here again excess return predictability closely corresponds to the predictability of survey errors.

Table 3c shows that the expected excess return is predictable by the interest rate and in some cases by the dividend yield. The ICF/Yale survey expectations appear more responsive to current variables than the UBS/Gallup polls. But in cases where the excess return is predictable in panel B, the coefficients in the expected excess return regressions are again close to zero. The only exception is for the Nikkei when regressed on the interest rate.

[25] The results are not sensitive to the precise sample. The samples used in Table 3 do not include some responses collected in the very early years. Results are similar when those are included or when a common sample starting in 1999 is considered.

Looking at horizons of one and three months for individual investors (see Tables A3 and A4) the results are similar. However, there is less predictability for institutional investors. Finally, the regressions in Table 3 are based on all investors responses treated equally. However, the number of responses in a given day is very unequal, which may introduce a problem of heteroscedasticity. To verify that this is not a serious problem the same regressions are run with data averaged daily and monthly (see Tables A5 and A6). The results turn out to be very similar.

Although the UBS/Gallup and Yale surveys are for different sets of investors, markets, and horizons, the picture that emerges from the predictability regressions is similar. In most cases, there is predictability of expectational errors, mainly by the dividend yield. This parallels the evidence for excess return predictability over the corresponding sample.

4.3 Bond Market

4.3.1 Regression

The bond market equations require a little more explanation since the survey expectations are not of expected returns but expected future interest rates. Most of the literature on excess return predictability in the bond market is based on zero-coupon bonds. To the extent that the interest rate expectations in the survey pertain to coupon bonds (10-year government bonds), this cannot be replicated here. We therefore use the linearized coupon bond returns of Shiller, Campbell and Schoenholtz (SCS, 1983), also implemented by Froot (1989) and Hardouvelis (1994).

Define a period as one month and consider the return over n periods of a coupon bond which has initially a maturity of $m+n$ periods. Following SCS, the excess return from t to $t+n$ is approximately equal to

$$\begin{aligned} q_{t+n}^{m+n} &\equiv r_{t+n}^{m+n} - i_t^n \\ \text{where} \quad r_{t+n}^{m+n} &= \frac{D_{m+n} i_t^{m+n} - (D_{m+n} - D_n) i_{t+n}^m}{D_n} \end{aligned}$$

Here i_t^n is the yield to maturity at t of a coupon bond with remaining maturity of n periods (all yields and returns are annualized); $D_n = (1-\rho^n)/(1-\rho)$ is the Macaulay duration of a par bond with n periods to maturity and coupon rate c, where $\rho = 1/(1+c)$.[26]

The excess return equation is estimated with the yield spread as predictor:

$$q_{t+n}^{m+n} = \alpha + \beta(i_t^{m+n} - i_t^n) + u_{t+n} \tag{7}$$

Another conventional predictor would be the forward rate discount which can be shown to equal the scaled yield spread.[27]

Equation (7) is estimated for the case where m is 10 years, corresponding to the 10-year bonds for which survey expectations are available. The horizon n is alternatively taken to be 3, 6 or 12 months, corresponding to the forecast horizons in the survey data. There is no data available on bonds with maturity $m+n$, but it is reasonable to assume that the term structure is flat over these short intervals over its far end: $i_t^{m+n} \approx i_t^m$.[28]

At time t the only unknown component of the excess return q_{t+n}^m is the future yield i_{t+n}^m. We therefore compute the expected excess return $E_t^s q_{t+n}^m$ using the average survey expectation $E_t^s i_{t+n}^m$ of the yield on government bonds with a remaining 10-year maturity at $t+n$ (for m equal to 10 years). The expectational error regression is

$$q_{t+n}^{m+n} - E_t^s q_{t+n}^m = \gamma + \delta(i_t^{m+n} - i_t^n) + v_{t+n} \tag{9}$$

In addition to regressions using the yield spread as predictor, multivariate regressions with several yields are also run. This is based on the results of Cochrane and Piazzesi (2005), who show that excess returns are better predicted by a combination of various yields than by a single forward premium. The multivariate regressions use yields of 3 months, 6 months, one year and ten years instead of the yield spread on the right-hand side of equations (7) and (9).

[26] As in SCS, c is a linearization constant which is estimated from the sample mean of the yields in the data set.

[27] Let $f_t^{n,m}$ be the forward rate at time t for the interest rate from $t+n$ to $t+n+m$. Following SCS, the forward rate discount is then equal to

$$f_t^{n,m} - i_t^n = \frac{D_{n+m}}{D_{n+m} - D_n}(i_t^{n+m} - i_t^n) \tag{8}$$

[28] Froot (1989) makes a similar assumption. $m+n$ would equal 10 years and a quarter (123 months), 10 years and a half (126 months) and 11 years (132 months) respectively.

4.3.2 Results

Table 4 presents the evidence for the bond markets for a one-year forecast horizon. Table 4b presents the results on excess return predictability. When using the term spread as in equation (7), there is no significant predictability, with the exception of Switzerland at the 10% level. However, the average coefficient across equations, equal to 1.65, is significant at the 5% level. Moreover, the multivariate regression with yields all show predictability, at the 5% level for the UK and at the 1% level for the other countries.[29] The results in Table 4b thus confirm and extend the results of Cochrane and Piazzesi (2005) to several other countries.

Table 4a presents the evidence on the predictability of expectational errors in the bond market. The regressions with multiple yields show significant predictability in all 8 countries. For the spread regression, there are six countries showing predictability and the average coefficient of 2.16 is strongly significant. The magnitude of this coefficient is again similar to that in the excess return regression in Table 4b. Comparing Tables 4a and 4b therefore again shows a strong parallel in forecasting excess returns and forecasting expectational errors. Similar results emerge for the 3-month and 6-month horizons (see Tables A7 to A10).

Table 4c indicates that the expected excess return is in most cases predictable as well. However, the magnitude of this predictability is small. When regressing on the yield spread, the average coefficient is -0.52, which is an order 4 times smaller than the average regression coefficients in Tables 4a and 4b. This is again consistent with findings for the foreign exchange and stock markets. In all of these markets the expected excess return is much less responsive to current variables than the actual excess return.

[29] These results appear robust to the choice of return approximation: As an alternative to the linearization of SCS we compute returns directly from total return indices (including coupon payments) for 10 year government benchmark bonds from DataStream. The results are similar. These indices typically contain the most liquid bond with maturity close to 10 years and are frequently rebalanced as new bonds are issued. Their returns are not perfectly but very closely correlated to the approximate returns computed from the yield changes.

4.4 Money Market

4.4.1 Regression

In the money market, the surveys deliver similarly structured interest rate expectations, but the underlying instruments, 3-month and 12-month Libor, do not have coupons. Thus, the approach is somewhat different from the bond market. Consider the excess return on holding $n+m$-month Libor for n months. Let i_t^n be the annualized Libor interest rate for n months at time t, which corresponds to a zero bond price of:[30]

$$p_t^n = -\frac{n}{12} i_t^n \tag{10}$$

Similarly to the bond market, define the annualized excess return as

$$q_{t+n}^{m+n} \equiv r_{t+n}^{m+n} - i_t^n \tag{11}$$

where the return is given by the change in bond prices

$$r_{t+n}^{m+n} = \frac{12}{n}(p_{t+n}^m - p_t^{m+n}) \tag{12}$$

The excess return is regressed on the corresponding term spread:[31]

$$q_{t+n}^{m+n} = \alpha + \beta(i_t^{m+n} - i_t^n) + u_{t+n} \tag{14}$$

In order to run this regression, data is needed on $n+m$-month Libor. Given the data availability, this restricts us to 2 cases: i) $n = 3$ and $m = 3$, thus using 6-month Libor; ii) $n = 6$ and $m = 6$, thus using 12-month Libor.

At time t the only unknown component of the excess return q_{t+n}^{m+n} is the future interest rate i_{t+n}^m. The expected excess return is then computed based on the average survey expectation of i_{t+n}^m. We then estimate the following regression to evaluate the predictability of expectational errors

$$(q_{t+n}^m - E_t^s q_{t+n}^m) = \gamma + \delta(i_t^l - i_t^k) + v_{t+n} \tag{15}$$

[30] The zero bond formulas require $m + n \leq 12$ to hold; otherwise the yearly interest rate payments would need to be accounted for. Since only Libor up to one year is used, this condition is satisfied.

[31] The term spread is again identical to a scaled forward rate discount. Let $f_t^{n,m}$ be the forward rate at time t for interest between $t+n$ and $t+n+m$. The forward rate discount is then

$$f_t^{n,m} - i_t^n = \frac{m+n}{m}(i_t^{m+n} - i_t^n) \tag{13}$$

.

There is survey data only for 3-month Libor ($m = 3$) and 12-month Libor ($m = 12$). The only case corresponding exactly to the excess return regressions is $m = n = 3$. In this case the same interest rate spread is used as predictor as for the excess return regressions ($l = 6$ and $k = 3$). More generally, there are survey predictions of 3 and 12-month Libor over 3, 6 and 12 month horizons, so that estimates of (15) are also reported for the 5 '1other combinations of $m = 3, 12$ and $n = 3, 6, 12$.[32] As in the bond market, a second set of regressions is considered, where the single predictor is replaced by a vector of yields, similarly to the bond market regressions.

4.4.2 Results

First consider the excess return regressions. In the case where $n = m = 3$, Table 5b shows that there is no predictability in the spread regressions for excess returns in 6 out of 8 countries – only Germany and Switzerland are significant at the 5% level. Regressions with the yield vector find significance at the 5% level in 2 out of 8 cases. Results are broadly similar for $m = n = 6$ (Table A.11). Thus, there is limited or no predictability of excess returns in the money market.

Turning to expectational error regressions, Table 5a shows the evidence from running equation (15) in the case $n = m = 3$. Expectational errors cannot be predicted from the spread at the 5% level in 7 of the 8 countries, while none of the multivariate regressions with the various yields are significant. Similar results apply to other combinations of $m = 3, 12$ and $n = 3, 6, 12$ reported in Tables A.12-A.16.

Although it is by now repetitive, we can only stress the parallel between the results of the two types of predictability regressions. In the case of the money market, the parallel is that there is little or no predictability either in excess returns or in expectational errors. On the other hand, Table 5c shows that expected excess returns are significantly affected by the term spread and other interest rates. This is again inconsistent with the excess return regressions.

[32] To be precise, we estimate (15) for 6 cases: (i) $m = n = 3$,$k = 6$, $l = 3$, (ii) $m = 3$, $n = 6$, $k = 12$, $l = 6$, (iii) $m = 3$, $n = 12$, $k = 12$, $l = 6$, (iv) $m = 12$, $n = 3$, $k = 12$, $l = 3$, (v) $m = 12$, $n = 6$, $k = 12$, $l = 6$, (vi) $m = 12$, $n = 12$, $k = 12$, $l = 6$.

5 Discussion

Summing up the last section, we find striking evidence of a link between the predictability of excess returns and expectational errors. First, in markets where there is significant excess return predictability, expectational errors of excess returns are predictable as well, with the same sign and often even with similar magnitude. This is the case for forex, stock and bond markets. Second, in the only market where excess returns are generally not predictable, the money market, expectational errors are not predictable either.

The critical reader might have concerns about whether the results can be taken at face value. One could argue that subjective beliefs are hard to measure and that the survey evidence should therefore be interpreted as evidence of measurement error rather than evidence of deviations from strong rationality. Rejections of strong rationality might also appear implausible since there are highly active and well informed arbitrageurs in all those markets. While sharing this scepticism, we will argue below that neither measurement error nor the presence of arbitrageurs invalidates the results.

This begs the important question of what is driving the results. A complete answer is beyond the scope of this empirical paper, but we feel compelled to offer a discussion at the end of this section.

Measurement Error

Measurement error is equal to the difference between the average market expectation of returns and the survey expectation of returns. While there are limitations of survey data, we believe that it goes too far to say that all these results are entirely due to measurement error.[33] First, measurement error that is uncorrelated with predictors does not create biased results. Second, we have attempted to minimize biases in the empirical work. It is well known that the expectations of financial analysts can be systematically biased and that a mismatch between the forecast and actual return period can create a bias. We therefore focused on expectations of market participants and we carefully matched the forecast period at the time that the survey is answered to the actual asset return period. Third, even though there are measurement errors in that the survey does not capture all

[33] In this context we agree with Manski (2004): "Economists have long been hostile to subjective data. Caution is prudent, but hostility is not warranted."

market participants, this should not invalidate the results by much. The surveys do capture large numbers of wealthy investors and financial institutions that actively participate in these markets, suggesting that at least for those respondents the evidence violates strong rationality. Fourth, we find evidence of predictable expectational errors in many financial markets, sample periods and countries.

Finally, previous authors have documented that survey expectations are not just random noise. Froot and Frankel (1989) find that the expected depreciation in foreign exchange surveys is highly correlated with the forward discount. Vissing-Jorgensen (2003) reports that average market expectations for U.S. stock returns were high when the market was strong at the end of the 1990s and fell sharply when the market went down. While we have shown that the expected excess returns in the forex, stock and bond markets are not very sensitive to current variables, this does not mean that survey expectations are just zero with some noise. On the contrary, small expected excess returns require large and time-varying survey expectations in exchange rates, stock prices and interest rates. Appendix Tables C1 to C5 confirm this. Table C1 shows that in six out of seven cases the expected depreciation is closely related to the interest differential. Tables C2 and C3 show that expected stock price changes are related to the interest rate and dividend yield (and *cay*). Finally, Tables C4 and C5 show that expected changes in both short and long-term interest rates are closely related to the yield spread for all countries.

Arbitrageurs and Partial Information Processing

The second potential criticism is that large financial institutions are very active in financial markets, continuously watching new developments, and that it is therefore doubtful that they would make predictable expectational errors. On the one hand, there is indeed good reason to believe that very active large financial institutions do not make consistently predictable errors. Consider for example banks operating in the foreign exchange market. They are very active in that market: about 70% of the large volume of trade in the foreign exchange market is among banks. Banks have a lot of money at stake, both from inventory positions resulting from their role as intermediaries (foreign exchange dealers) and from their own intraday speculative positions. They therefore have great interest in knowing what will happen to the exchange rate over the next minute or seconds. Large banks therefore put a lot of effort into effectively using all available public and private information to make such high frequency predictions. One therefore would not expect them to make consistently predictable expectational errors. In line with that, Chaboud and Wright (2005) indeed find evidence of uncovered interest rate parity at the very high intraday frequency.

On the other hand, banks have much less incentive to predict where the exchange rate will be one year from now or even one month from now. First, most banks themselves hold zero or very small overnight positions. Second, there are costs associated with continuously processing all available information about where the exchange rate will be one month or more from now. It is not clear that the benefits outweigh the costs since uncertainty about excess returns significantly outweighs predictability. Figure 1 shows the excess return on DM relative to the dollar based on monthly data of annual returns from October 1986 to July 2004. It corresponds to the regression results for Germany in Panel B of Table 1. The graph shows a negative relationship between these variables, with a slope of -2.43. But it is clear from Figure 1 that predictability is almost entirely overshadowed by risk.[34]

It may therefore not be optimal for even large financial institutions to process all available information. This has been modeled more formally by Sims (1998, 2003) in models of rational inattention. In those models agents process only partial information due to Shannon information capacity constraints. This may explain why expected excess returns are not so sensitive to news in forex, stock and bond markets.

Anecdotal evidence confirms all of this. For example, there is currently a still relatively small industry worldwide of speculative trade in the foreign exchange market. This includes both hedge funds and speculative trades by financial institutions on behalf of individual clients.[35] Interviews we have conducted with institutions that conduct these trades suggest that exchange rate expectations are formed based on very simple rules. Many institutions do not bother forecasting at

[34] Moreover, the predictability coefficient is not necessarily constant over time. In general there can be many predictors of the excess return. The coefficient on a particular predictor, such as the interest rate differential, will depend on its covariance structure with other predictors, which generally changes over time.

[35] The latter include currency overlay managers, commodity trading advisors and leveraged funds offered by established asset management firms. See Sager and Taylor (2006) for a recent description of the foreign exchange market.

all and expect the future spot rate to be the same as the current spot rate.[36] Others use a simple factor model, with four or five factors used to predict future exchange rates. These factors may include the forward discount or interest rate differential, equity returns, some measure of risk-appetite and past currency changes. Others mainly use some form of technical analysis. There is no uniform practice in developing these forecasts and at most a very small subset of the available information is used.

Predictability of Excess Returns versus Expectational Errors

We leave perhaps the most important question for last: what accounts for the close relationship between the predictability of excess returns and expectational errors? The goal of this paper is merely to document this stylized fact. But we will briefly comment on two different types of explanations. One set of explanations relies on causality from predictability of expectational errors to predictability of excess returns. Examples of this are Cecchetti, Lam, and Mark (2000) for the stock market and Gourinchas and Tornell (2004) for the foreign exchange market. The causality argument is well known. If the risk-premium were a constant rp, and the expected excess return is equal to a risk-premium as in most asset pricing models, then $E_t q_{t+1} = rp$. This implies that $q_{t+1} = rp + \varepsilon_{t+1}$ where $\varepsilon_{t+1} = q_{t+1} - E_t q_{t+1}$ is the expectational error. Then the excess return is predictable by any variable that predicts the expectational error and with the same sign and size of the predictability coefficient.

An alternative explanation is that a third factor drives predictability of both excess returns and expectational errors. The third factor can be the substantial cost of predicting future asset prices relative to the benefits from doing so. Exchange rates, as well as stock and bond prices, are well known to be very hard to predict. Any predictability of excess returns is therefore largely outshadowed by risk, as illustrated in Figure 1 for the foreign exchange market, limiting the expected gains from actively trading on expected excess returns. This may give rise to both predictable expectational errors and predictable excess returns.

First consider the predictability of expectational errors. It may not be worth

[36] It is well known since Meese and Rogoff (1983) that it is very hard to outperform the simple random walk in forecasting exchange rates. In a recent paper, Burnside et al. (2006) compute the returns from a foreign investment strategy based on the random walk hypothesis and find that this gives a higher Sharpe ratio than an alternative strategy using predictability.

it for most investors to actively trade on the predictability of excess returns if this predictability is outshadowed by risk. This seems to be largely the case. For the foreign exchange market an industry that actively trades on excess return predictability did not start to develop until the late 1980s. Even today this industry remains negligible in size relative to the magnitude of total foreign exchange positions as measured by external assets. Lyons (2001) reports that even large financial institutions do not devote their proprietary capital to currency strategies because of unattractive risk-return tradeoffs. Bacchetta and van Wincoop (2006) develop a two-country general equilibrium model for the foreign exchange market in which the welfare gains from full information processing and active trade based on that information are small compared to the price generally charged for these services. It may therefore not be optimal to be fully informed. Assuming that uncovered interest parity holds (implying a zero expected excess return) may be a good approximation for a foreign exchange investor who is not trading actively. In that case expectational errors are themselves predictable with the same sign as size as excess return predictability.

Next consider the predictability of excess returns. The fact that investors do not trade frequently can lead to excess return predictability. Bacchetta and van Wincoop (2006) show this in the context of a model where agents make infrequent portfolio decision based on expected excess returns. In that case new information builds gradually into asset prices, which generates excess return predictability. If this view is correct, then predictability of expectational errors do not cause the predictability of excess returns, but they are both the result of the difficulty in predicting future asset prices.[37]

Consistent with this explanation is also the finding that there is much less predictability in the money market, both of excess returns and expectational errors. Short term interest rates in the near future are easier to predict than future exchange rates, stock prices or long-term bond prices. It is therefore more sensible to devote information processing capacity to making well informed predictions about short-term interest rates in the near future. This implies that expectational errors are more difficult to predict. At the same time it is also sensible to actively trade on expected excess return predictability since there is less uncertainty about excess returns than in the other markets. This implies that predictable excess returns will

[37] Also note that in this case, with infrequent portfolio decisions, the expected excess return is no longer equal to a risk premium.

be small in equilibrium.

6 Conclusion

This paper has identified a strong parallel between two types of predictability in financial markets. It is well documented that excess returns are time-varying and predictable. But the errors of market participants in forecasting those excess returns are predictable in a similar fashion. This applies to stock, bond and foreign exchange markets across the world.

The main results regarding the predictability of expectational errors can be summarized as follows: i) expectational errors in the foreign exchange market are predicted by the interest differential for 6 out of the 7 currency pairs considered for the 1986-2004 period; ii) using the UBS/Gallup survey for stock market returns between 1998 and 2003, expectational errors are predicted by the dividend-yield ratio or by a combination of the dividend-yield and a short-term interest rate; iii) using the ICF/Yale survey for expected stock price changes over the period 1985-2003, expectational errors for the Dow Jones are predicted by the dividend yield, while expectational errors for the Nikkei are predicted by the short-term interest rate; iv) expectational errors on 10-year bonds are predicted by a combination of yields in our 8 industrialized countries over the 1987-2004 period. There is also predictability by the term spread; v) there is little predictability of expectation errors for shorter maturities. The tables in the Appendix show that most results are robust to varying the horizon of prediction.

What is striking is that the predictability of expectational errors tends to coincide with excess return predictability in each of these markets. This suggest that understanding what determines expectational errors is crucial in explaining excess return predictability. A convincing explanation need not only link time-varying excess returns with expectational errors, but it must apply to all markets as well.

A Appendix: Data Sources

This Appendix lists the sources for the market data used in this study. The survey data is described in Section 3 of the main text.

Foreign Exchange Rate Data Market data on exchange rates for the seven countries (Australia, Canada, France, Germany, Japan, Switzerland and U.K.) against the U.S. dollar are provided by DataStream ("GTIS exchange rate series"). Since Germany and France joined the European Monetary Union in 1999, implied rates for Deutschmark and French Franc are calculated from their official euro conversion rates (1.95583 DEM/EUR respectively 6.55957 FFR/EUR) and the euro/dollar exchange rate. The same is done for the survey data.

The interest rate spread is calculated from Euro-market interest rates for the seven countries plus the U.S. which are also provided by DataStream. For Australia DataStream provides a Euro-market interest rate only as of 1997. Instead, an interbank rate is used which is quoted in London and collected by DataStream since 1986. The German and French Euro-market rates are identical to the interest rates quoted for transactions in the euro currency as of January 1999.

Corresponding to the survey's horizon, the interest rates have a maturity of 3, 6 or 12 months. Since the data is matched with the survey dates as described in Section 4.1, the underlying data set covers daily observations from 15 October 1986 until 28 July 2005.

Stock Market Data The stock market data used for the survey error regressions is described in Section 4.2. With the exception of the data on the consumption-wealth ratio (*cay*) and interest rates it is exclusively obtained from DataStream. The data on *cay* has been downloaded from the website of Martin Lettau.[38] The interest rate data is the one-year Treasury Constant Maturity Rate from FRED.

For the return predictability regressions (Table 2), monthly observations since March 1966 are obtained from the same data sources: The stock market return is computed from the Composite Total Return Index (i.e., with dividends reinvested) of the S&P 500 from DataStream. As predictors serve the dividend-yield on the same S&P 500 as well as the three-month Treasury Bill rate from FRED and *cay* from Lettau. Since *cay* is only constructed for quarterly observations, our monthly observations on *cay* are set to be equal to its most recent quarterly value.

Bond and Money Market Data All data on bonds and money markets used for the computations in Sections 4.3 and 4.4 has been obtained from DataStream.

[38] http://pages.stern.nyu.edu/~mlettau/data_cay.html

Money market rates are Euro-market rates for the eight countries considered (Australia, Canada, France, Germany, Japan, Switzerland, U.K. and U.S.) with a maturity of 3, 6 or 12 months. These are the same Euro-market interest rates used already for the foreign exchange regressions. For Australia DataStream provides a Euro-market interest rate only as of 1997. Instead an interbank rate is used which is quoted in London and collected by DataStream since 1986. The German and French Euro-market rates are identical to the interest rates quoted for transactions in the euro currency as of January 1991. With respect to the availability of survey data, the common sample across all countries and maturities covers the period from September 1987 to July 2005.

Consistent data on 10 year government bonds in the eight countries comes from DataStream's government benchmark bond indices. At a given point in time, these indices typically consisted of a single bond, namely the most liquid government bond which has close to 10 year's maturity. The interest rate surveys also provide data on each country's 10-year yield prevailing at the time of the survey. These yields coincide very neatly with the yields-to-maturity computed by DataStream for their indices. These yields-to-maturity are used to compute approximate bonds returns as described in Section 4.3. The index data is available on a daily basis which is required to match the data with the surveys.

For the survey error regressions, the market data is matched with the surveys in a manner analogous to the foreign exchange survey: Since the surveys are typically conducted over a three-day window, the survey error is computed as the difference between the survey expectations and a three-day average of the realized yield at the end of the survey horizon. To be precise, let a survey be conducted from days $t = 1$ to $t = 3$, the three months realization is then the geometric average of the yields (simple average of the log yields) prevailing on $t = 91$, $t = 92$ and $t = 93$ (measured in calendar days). The yields used as predictors are not averaged but measured at the earliest date when the survey is conducted, corresponding here to $t = 1$.

The underlying data set for matching market data with surveys covers daily observations from 20 September 1987 until 28 July 2005. For the regressions on excess return predictability, the data is monthly (end-of-month).

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Table 1: Foreign Exchange Market: Predictability over 12 months

Panel A: Survey Error Predictability

$$s_{t+12} - E_t^s s_{t+12} = \gamma + \delta(i_t - i_t^*) + v_{t+12}$$

Currencies	δ	$\sigma(\delta)$	R^2
Australia	-3.3226^{***}	0.6876	0.44
Canada	-2.0242^{***}	0.6063	0.22
France	-2.7630^{**}	1.1299	0.21
Germany	-2.6155^{***}	0.8454	0.22
Japan	-2.9273^{***}	0.8649	0.25
Switzerland	-2.9961^{***}	0.9207	0.24
U.K.	-1.8484	1.2363	0.10
EW avg.	-2.6424^{***}	0.5846	
p($\boldsymbol{\delta} = 0$)	0.0000		

Panel B: Excess Return Predictability

$$q_{t+12} = \alpha + \beta(i_t - i_t^*) + u_{t+12}$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	-2.4873^{***}	0.6723	0.29
Canada	-1.9729^{***}	0.6611	0.20
France	-2.2524^{**}	1.1029	0.17
Germany	-2.4323^{**}	0.9789	0.22
Japan	-3.8764^{***}	0.7786	0.42
Switzerland	-2.7610^{***}	1.0263	0.23
U.K.	-1.3412	1.1863	0.06
EW avg.	-2.4462^{***}	0.6635	
p($\boldsymbol{\beta} = 0$)	0.0000		

Panel C: Expected Excess Return Explainability

$$E_t^s q_{t+12} = \alpha + \beta(i_t - i_t^*) + u_t^s$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	0.8353^{***}	0.1767	0.25
Canada	0.0513	0.2038	0.00
France	0.5105	0.4896	0.03
Germany	0.1832	0.4704	0.00
Japan	-0.9491^{***}	0.3340	0.13
Switzerland	0.2351	0.4935	0.01
U.K.	0.5072	0.4843	0.03
EW avg.	0.1962	0.2729	
p($\boldsymbol{\beta} = 0$)	0.0000		

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. p($\boldsymbol{\beta} = 0$) and p($\boldsymbol{\delta} = 0$) test for joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR systems for all panels estimated from 207 observations over sample from October 1986 to July 2004. See section 4.1.1 for construction of data.

Table 2: UBS/Gallup Survey

Panel A: Survey Error Predictability

$$r_{t+12} - E_t^s r_{t+12} = \gamma + \boldsymbol{\delta X}_t + v_{t+12}$$

i	$\ln(D/P)$	cay	R^2 p
−4.5705			0.16
(3.2383)			0.1722
	0.8506***		0.50
	(0.1371)		0.0000
		5.2796	0.18
		(3.5263)	0.1481
11.6813***	1.9475***		0.72
(2.2884)	(0.1665)		0.0000
11.9669***	1.9419***	0.4070	0.72
(2.5445)	(0.1664)	(2.7294)	0.0000

Panel B: Excess Return Predictability (survey sample)

$$q_{t+12} = \alpha + \boldsymbol{\beta X}_t + u_{t+12}$$

−4.1429			0.14
(3.2290)			0.2139
	0.8080***		0.46
	(0.1421)		0.0000
		4.7067	0.14
		(3.5775)	0.2027
12.0136***	1.9361***		0.71
(2.0942)	(0.1372)		0.0000
11.7387***	1.9416***	−0.3918	0.71
(2.3204)	(0.1441)	(2.7524)	0.0000

Panel C: Expected Excess Return Explainability

$$E_t^s q_{t+12} = \alpha + \boldsymbol{\beta X}_t + u_t^s$$

0.4276**			0.21
(0.1721)			0.0184
	−0.0426**		0.19
	(0.0187)		0.0301
		−0.5729***	0.31
		(0.1425)	0.0002
0.3323	−0.0114		0.21
(0.3158)	(0.0356)		0.0595
−0.2282	−0.0003	−0.7988**	0.32
(0.3746)	(0.0274)	(0.3405)	0.0002

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (computed with 13 lags). Sample with 53 observations from May 1998 to April 2003. See Section 4.2.1 for construction of data.

Table 3.a: ICF/Yale Survey Error Predictability over 12 months (Aggregation: none)

Survey Error Predictability

$$\tilde{r}_{t+12} - E_t^s \tilde{r}_{t+12} = \gamma + \boldsymbol{\delta} \boldsymbol{X}_t + v_{t+12}$$

i	$\ln(D/P)$	R^2 $p(\boldsymbol{\delta}=0)$	obs NW lags
Dow Jones (Individuals) Sep/96 – Nov/03			
0.2785		0.00	1174
(2.5923)		0.9145	196
	0.5724***	0.36	1174
	(0.1427)	0.0001	196
4.2042**	0.7507***	0.49	1174
(1.6883)	(0.1696)	0.0001	196
Dow Jones (Institutions) Jun/89 – Nov/03			
2.2708*		0.06	2547
(1.3215)		0.0860	170
	0.1164*	0.06	2547
	(0.0693)	0.0933	170
1.5663	0.0803	0.08	2547
(1.1952)	(0.0650)	0.1777	170
Nikkei (Institutions) Jun/89 – Nov/03			
−1.6331		0.04	1424
(1.1528)		0.1571	95
	0.4401***	0.21	1424
	(0.1290)	0.0007	95
0.9584	0.5029***	0.22	1424
(1.1944)	(0.1516)	0.0021	95

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year). See Section 4.2.1 for construction of data.

Table 3.b: ICF/Yale Survey Sample: Excess Return Predictability over 12 months (Aggregation: none)

Excess Return Predictability (survey sample)

$$q_{t+12} = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_{t+12}$$

i	$\ln(D/P)$	R^2 $p(\boldsymbol{\beta}=0)$	obs NW lags
Dow Jones (Individuals) Sep/96 – Nov/03			
−1.3342		0.02	1174
(2.4496)		0.5864	196
	0.6081***	0.55	1174
	(0.1276)	0.0000	196
2.3716	0.7087***	0.60	1174
(1.7192)	(0.1664)	0.0001	196
Dow Jones (Institutions) Jun/89 – Nov/03			
0.3348		0.00	2547
(1.3676)		0.8067	170
	0.0793	0.06	2547
	(0.0663)	0.2325	170
−0.4520	0.0897	0.06	2547
(1.2683)	(0.0613)	0.3340	170
Nikkei (Institutions) Jun/89 – Nov/03			
−4.4970***		0.30	1424
(1.1922)		0.0002	95
	0.6713***	0.53	1424
	(0.1153)	0.0000	95
−1.5672	0.5686***	0.55	1424
(1.1011)	(0.1330)	0.0000	95

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year). See Section 4.2.1 for construction of data.

Table 3.c: ICF/Yale Expected Excess Return Explainability over 12 months (Aggregation: none)

Expected Excess Return Explainability

$$\tilde{E}_t^s q_{t+12} = \alpha + \boldsymbol{\beta}\boldsymbol{X}_t + u_t^s$$

i	$\ln(D/P)$	R^2 $p(\boldsymbol{\delta}=0)$	obs NW lags
Dow Jones (Individuals) Sep/96 – Nov/03			
-1.6127^{***}		0.10	1174
(0.2308)		0.0000	196
	0.0357	0.01	1174
	(0.0523)	0.4956	196
-1.8325^{***}	-0.0420^{***}	0.10	1174
(0.1304)	(0.0115)	0.0000	196
Dow Jones (Institutions) Jun/89 – Nov/03			
-1.9360^{***}		0.09	2547
(0.2322)		0.0000	170
	-0.0372	0.01	2547
	(0.0261)	0.1552	170
-2.0183^{***}	0.0094	0.09	2547
(0.3128)	(0.0165)	0.0000	170
Nikkei (Institutions) Jun/89 – Nov/03			
-2.8639^{***}		0.24	1424
(0.2204)		0.0000	95
	0.2312^{***}	0.13	1424
	(0.0450)	0.0000	95
-2.5256^{***}	0.0657^{**}	0.25	1424
(0.2347)	(0.0277)	0.0000	95

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year). See Section 4.2.1 for construction of data.

Table 4.a: 10-year Bonds: Survey Error Predictability over 12 months

Survey Error Predictability

$$q^{132}_{t+12} - E^s_t q^{132}_{t+12} = \gamma + \boldsymbol{\delta X}_t + v_{t+12}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	1.3363					0.05
	(1.0044)					0.1882
		6.9603	−9.9933	0.9576	3.0055**	0.11
		(10.8385)	(19.2026)	(10.1315)	(1.4206)	0.0444
Canada	1.9737**					0.12
	(0.8280)					0.0191
		−2.3027	0.0798	−0.1693	3.1325*	0.17
		(6.4304)	(10.4363)	(5.5632)	(1.6355)	0.0095
France	2.2944*					0.11
	(1.3724)					0.0988
		15.9189**	−31.1717**	11.9850	4.7417***	0.23
		(7.6597)	(15.6483)	(8.6132)	(1.6352)	0.0278
Germany	2.3000**					0.14
	(1.1241)					0.0438
		23.9462***	−51.7979***	26.7230***	1.9353	0.30
		(7.0014)	(8.3578)	(4.9435)	(1.6118)	0.0000
Japan	4.1099***					0.25
	(1.5453)					0.0091
		19.5079***	−32.2487**	7.0361	7.5027***	0.43
		(6.4859)	(16.1883)	(12.6656)	(1.9052)	0.0000
Switzerland	2.8284***					0.22
	(0.7661)					0.0003
		8.4185	−25.1561**	12.0837	9.1257***	0.43
		(7.3460)	(12.2133)	(8.6709)	(2.9786)	0.0000
U.K.	1.7657**					0.13
	(0.8953)					0.0519
		14.3980**	−29.2440**	13.8754*	1.1994	0.18
		(6.1537)	(12.7765)	(8.0943)	(1.4071)	0.0030
U.S.	0.6724					0.01
	(0.9273)					0.4724
		5.9275	−25.3290	19.4278**	0.5589	0.23
		(10.7895)	(18.3315)	(9.0217)	(2.1434)	0.0000
EW avg.	2.1601***					
	(0.6506)					
Spread: p($\delta = 0$)						0.0000
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system for Spread and Yield regressions estimated from 153 observations over sample from September 1987 to July 2004. Spread is the difference in log-yields of Bonds (10Y) and Libor (12M). See section 4.3.1 for construction of data.

Table 4.b: 10-year Bonds: Excess Return Predictability over 12 months

Excess Return Predictability (survey sample)

$$q^{132}_{t+12} = \alpha + \boldsymbol{\beta X}_t + u_{t+12}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	1.5121					0.06
	(1.0586)					0.1580
		7.8447	−10.2138	−0.4915	4.4144***	0.19
		(12.3245)	(22.3352)	(11.8325)	(1.5309)	0.0006
Canada	1.4901					0.08
	(0.9119)					0.1066
		3.9681	−6.2364	−0.7508	4.6200**	0.18
		(6.1721)	(10.4291)	(6.0910)	(1.8500)	0.0000
France	1.5265					0.06
	(1.3148)					0.2506
		11.5473*	−21.4968	7.1802	4.2412**	0.17
		(6.6433)	(14.0560)	(8.1341)	(1.7049)	0.0383
Germany	1.6873					0.11
	(1.2286)					0.1745
		20.3362***	−39.4345***	17.9282***	2.1665	0.22
		(7.7855)	(9.8149)	(4.6593)	(1.3995)	0.0000
Japan	2.9405					0.15
	(1.8884)					0.1240
		17.9061***	−27.1931**	4.7053	6.2656***	0.33
		(4.9320)	(11.8650)	(11.0543)	(1.8241)	0.0000
Switzerland	2.2429***					0.17
	(0.8552)					0.0101
		6.6367	−14.0074	2.2505	10.1290***	0.44
		(6.5703)	(11.4255)	(8.0521)	(2.9348)	0.0000
U.K.	1.2295					0.06
	(1.0449)					0.2443
		14.0797**	−28.6385**	13.6673	1.7539	0.16
		(6.2915)	(13.0359)	(8.3372)	(1.4847)	0.0012
U.S.	0.5695					0.01
	(0.8810)					0.5217
		5.8193	−22.1059	15.9638*	1.2268	0.23
		(10.9704)	(18.8830)	(9.4376)	(2.2390)	0.0010
EW avg.	1.6498**					
	(0.7601)					
Spread: p($\delta = 0$)						0.0000
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system for Spread and Yield regressions estimated from 153 observations over sample from September 1987 to July 2004. Spread is the difference in log-yields of Bonds (10Y) and Libor (12M). See section 4.3.1 for construction of data.

Table 4.c: 10-year Bonds: Expected Excess Return Explainability over 12 months

Expected Excess Return Explainability

$$E_t^s q_{t+12}^{132} = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_t^s$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	0.2336					0.01
	(0.1662)					0.1644
		1.0616	−0.3757	−1.5423	1.5354***	0.21
		(3.6248)	(6.3967)	(3.2091)	(0.5300)	0.0015
Canada	−0.5144					0.04
	(0.3212)					0.1134
		6.3426***	−6.5133**	−0.4282	1.4416***	0.21
		(1.6684)	(3.1862)	(1.8282)	(0.4502)	0.0000
France	−0.8018***					0.09
	(0.3007)					0.0089
		−4.0275**	9.3338**	−4.8955**	−0.3263	0.13
		(2.0410)	(3.8759)	(2.4252)	(0.5229)	0.0040
Germany	−0.6329*					0.07
	(0.3451)					0.0703
		−3.3122	12.0391***	−8.8029***	0.3423	0.24
		(2.7529)	(4.5848)	(2.3143)	(0.5162)	0.0000
Japan	−1.1165*					0.12
	(0.6059)					0.0689
		−1.8164	5.5649	−2.6094	−1.3168**	0.14
		(4.8657)	(7.6737)	(3.8931)	(0.5971)	0.0037
Switzerland	−0.6765**					0.09
	(0.3034)					0.0281
		−0.9775	9.9262**	−9.5395***	1.4221***	0.31
		(2.2386)	(3.8725)	(2.4238)	(0.5357)	0.0000
U.K.	−0.5372**					0.07
	(0.2475)					0.0325
		−0.3647	0.7108	−0.1889	0.3785	0.22
		(3.3502)	(6.3304)	(3.4101)	(0.4067)	0.0004
U.S.	−0.0905					0.00
	(0.1769)					0.6118
		0.8173	2.5658	−3.9100*	1.0239**	0.09
		(2.5993)	(4.0159)	(2.1278)	(0.4328)	0.1365
EW avg.	−0.5170**					
	(0.2060)					
Spread: p($\delta = 0$)						0.0387
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system for Spread and Yield regressions estimated from 162 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Bonds (10Y) and Libor (12M). See section 4.3.1 for construction of data.

Table 5.a: Libor (6M): Survey Error Predictability over 3 Months

Survey Error Predictability

$$q^6_{t+3} - E^s_t q^6_{t+3} = \gamma + \boldsymbol{\delta X}_t + v_{t+3}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta}=0)$
Australia	-1.2575^{*}					0.08
	(0.7566)					0.1005
		1.5173	-1.5874	-0.0092	0.1193	0.10
		(1.2412)	(2.0122)	(0.9174)	(0.1034)	0.1080
Canada	-0.4598					0.01
	(0.4716)					0.3340
		0.0441	0.3774	-0.4226	-0.0032	0.02
		(0.5112)	(0.9265)	(0.6604)	(0.1955)	0.8803
France	-1.3694^{***}					0.18
	(0.5001)					0.0072
		1.5355	-1.5902	0.0235	0.0695	0.19
		(1.1407)	(2.1055)	(1.0673)	(0.1272)	0.0917
Germany	-0.3427					0.02
	(0.2404)					0.1586
		0.6851	-0.9813	0.3230	-0.0084	0.03
		(0.4662)	(0.8503)	(0.4385)	(0.0715)	0.2745
Japan	-0.4759					0.02
	(0.4151)					0.2562
		0.2291	0.1054	-0.4646	0.1958^{***}	0.10
		(0.4258)	(0.6997)	(0.4124)	(0.0754)	0.1055
Switzerland	-0.4809					0.01
	(0.4162)					0.2525
		0.9080	-1.1636	0.1340	0.2561	0.05
		(0.5538)	(0.9971)	(0.5664)	(0.1692)	0.2174
U.K.	-0.6962					0.03
	(0.5218)					0.1866
		0.9105	-1.1029	0.2310	-0.0813	0.05
		(0.9114)	(1.4043)	(0.5836)	(0.0865)	0.7436
U.S.	-0.5681					0.03
	(0.4397)					0.2010
		0.6347	-0.8495	0.3172	-0.1326	0.06
		(0.4732)	(0.7042)	(0.3548)	(0.1033)	0.3901
EW avg.	-0.7063^{***}					
	(0.2433)					
Spread: p($\delta = 0$)						0.0896
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 163 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Libor (6M) and Libor (3M). See section 4.4.1 for construction of data.

Table 5.b: Libor (6M): Excess Return Predictability over 3 Months

Excess Return Predictability (survey sample)

$$q^6_{t+3} = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_{t+3}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 / $p(\boldsymbol{\delta}=0)$
Australia	0.2374					0.00
	(0.7228)					0.7445
		−0.5945	1.1385	−0.6782	0.2189**	0.07
		(1.3906)	(2.2089)	(0.9240)	(0.0954)	0.0371
Canada	0.5375					0.02
	(0.5279)					0.3131
		−0.7988*	1.1059	−0.3273	0.0224	0.02
		(0.4392)	(0.8599)	(0.7022)	(0.2002)	0.5034
France	−0.0829					0.00
	(0.4264)					0.8470
		0.1872	0.0246	−0.3574	0.2169	0.03
		(0.9594)	(1.8130)	(0.9518)	(0.1366)	0.6098
Germany	0.6171**					0.05
	(0.2841)					0.0324
		−0.5868	0.5669	0.0116	0.0090	0.05
		(0.7008)	(1.2200)	(0.5856)	(0.0856)	0.0763
Japan	0.1677					0.00
	(0.4189)					0.6913
		−0.5137	1.0294	−0.7047*	0.2571***	0.13
		(0.4682)	(0.7798)	(0.4273)	(0.0788)	0.0172
Switzerland	0.9637**					0.04
	(0.4092)					0.0205
		−1.0136*	1.3648	−0.5256	0.3089*	0.09
		(0.5823)	(1.0867)	(0.6201)	(0.1780)	0.0585
U.K.	0.3765					0.01
	(0.5025)					0.4575
		−0.2560	0.1804	0.0577	0.0176	0.01
		(1.0134)	(1.6455)	(0.7244)	(0.0906)	0.9249
U.S.	−0.0169					0.00
	(0.4921)					0.9728
		0.3003	−0.5969	0.3716	−0.0706	0.03
		(0.6115)	(0.8901)	(0.3900)	(0.1273)	0.6530
EW avg.	0.3500					
	(0.2419)					
Spread: p($\delta = 0$)						0.1733
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 163 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Libor (6M) and Libor (3M). See section 4.4.1 for construction of data.

Table 5.c: Libor (6M): Expected Excess Return Explainability over 3 Months

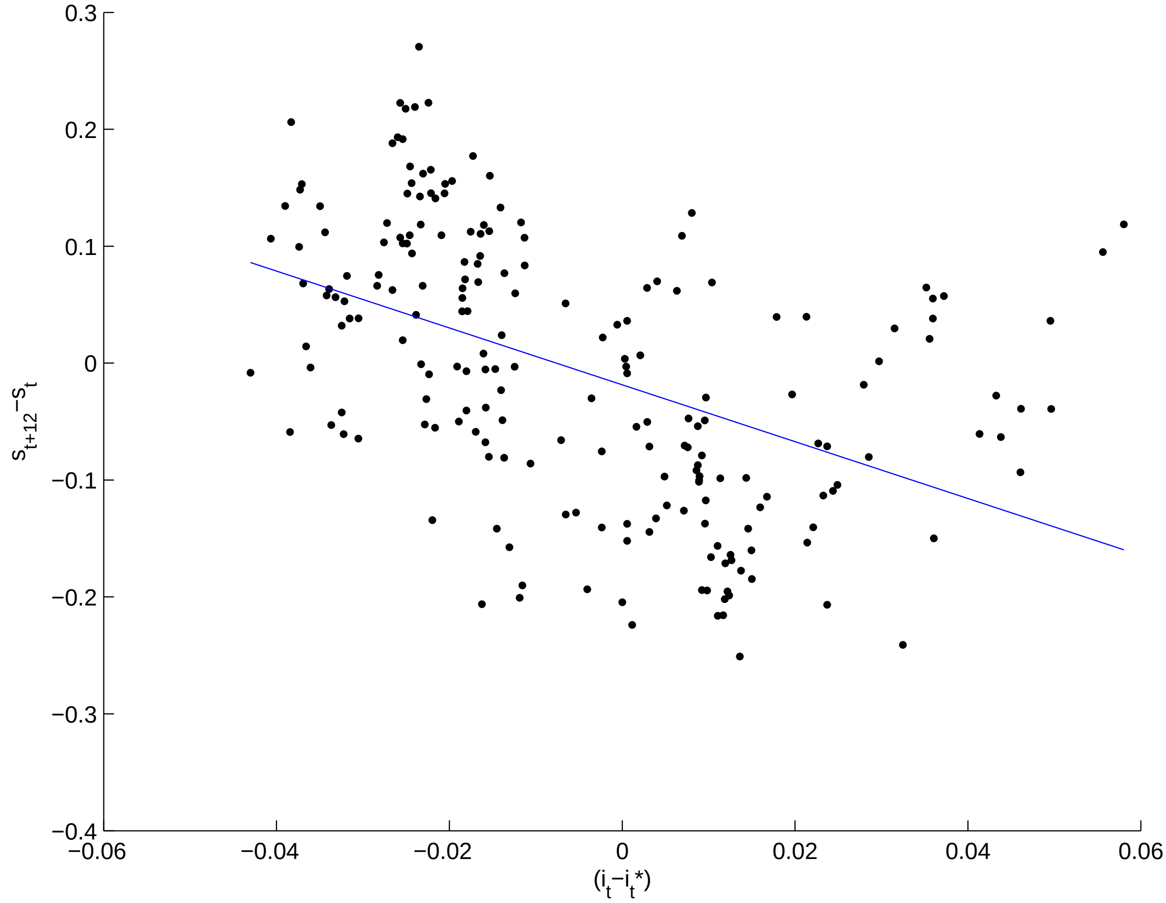
Expected Excess Return Explainability

$$E_t^s q_{t+3}^6 = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_t^s$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	1.4949^{***}					0.38
	(0.2190)					0.0000
		-2.1118^{***}	2.7259^{***}	-0.6690	0.0996^{***}	0.42
		(0.5865)	(1.0185)	(0.4667)	(0.0293)	0.0000
Canada	0.9973^{***}					0.22
	(0.2020)					0.0000
		-0.8429^{**}	0.7285	0.0953	0.0256	0.22
		(0.3490)	(0.5354)	(0.2252)	(0.0460)	0.0000
France	1.2865^{***}					0.59
	(0.1106)					0.0000
		-1.3483^{***}	1.6148^{***}	-0.3809	0.1474^{***}	0.64
		(0.2718)	(0.4921)	(0.2434)	(0.0470)	0.0000
Germany	0.9597^{***}					0.38
	(0.1278)					0.0000
		-1.2719^{***}	1.5482^{**}	-0.3114	0.0174	0.42
		(0.3694)	(0.6359)	(0.2903)	(0.0328)	0.0000
Japan	0.6436^{***}					0.13
	(0.2371)					0.0077
		-0.7428^{***}	0.9240^{**}	-0.2401	0.0613	0.20
		(0.2720)	(0.4410)	(0.2306)	(0.0386)	0.0104
Switzerland	1.4446^{***}					0.50
	(0.1109)					0.0000
		-1.9216^{***}	2.5283^{***}	-0.6596^{***}	0.0528	0.54
		(0.1625)	(0.3138)	(0.1749)	(0.0347)	0.0000
U.K.	1.0728^{***}					0.28
	(0.1705)					0.0000
		-1.1666^{***}	1.2833^{**}	-0.1734	0.0989^{**}	0.33
		(0.3480)	(0.6321)	(0.3199)	(0.0405)	0.0000
U.S.	0.5512^{***}					0.10
	(0.1656)					0.0012
		-0.3344	0.2526	0.0544	0.0620	0.14
		(0.3276)	(0.5447)	(0.2463)	(0.0431)	0.0129
EW avg.	1.0563^{***}					
	(0.0825)					
Spread: p($\delta = 0$)						0.0000
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 163 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Libor (6M) and Libor (3M). See section 4.4.1 for construction of data.

Figure 1: Predictability of Excess Return on Deutschmark



Note: Same sample and data used as for Table 1 Panel B.

Table A.1: Foreign Exchange Market: Predictability over 3 months

Panel A: Survey Error Predictability

$$s_{t+3} - E_t^s s_{t+3} = \gamma + \delta(i_t - i_t^*) + v_{t+3}$$

Currencies	δ	$\sigma(\delta)$	R^2
Australia	-3.0989^{***}	0.7646	0.15
Canada	-2.1294^{***}	0.4634	0.10
France	-2.3636^{***}	0.8987	0.06
Germany	-2.6882^{***}	0.9066	0.08
Japan	-1.3139	1.1531	0.01
Switzerland	-2.8000^{**}	1.1563	0.07
U.K.	-0.7555	1.4323	0.00
EW avg.	-2.1642^{***}	0.6531	
p($\boldsymbol{\delta} = 0$)	0.0000		

Panel B: Excess Return Predictability

$$q_{t+3} = \alpha + \beta(i_t - i_t^*) + u_{t+3}$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	-2.3996^{***}	0.6849	0.11
Canada	-2.2144^{***}	0.4490	0.11
France	-2.0620^{**}	0.9733	0.05
Germany	-1.9760^{**}	0.9293	0.05
Japan	-3.4887^{***}	1.0324	0.10
Switzerland	-2.5341^{**}	1.1328	0.06
U.K.	-1.7219	1.4516	0.03
EW avg.	-2.3424^{***}	0.6407	
p($\boldsymbol{\beta} = 0$)	0.0000		

Panel C: Expected Excess Return Explainability

$$E_t^s q_{t+3} = \alpha + \beta(i_t - i_t^*) + u_t^s$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	0.6994^{***}	0.2463	0.06
Canada	-0.0850	0.1504	0.00
France	0.3016	0.5066	0.01
Germany	0.7123^{*}	0.4036	0.03
Japan	-2.1748^{***}	0.5011	0.19
Switzerland	0.2659	0.5088	0.00
U.K.	-0.9664	0.6243	0.04
EW avg.	-0.1781	0.3138	
p($\boldsymbol{\beta} = 0$)	0.0000		

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. p($\boldsymbol{\beta} = 0$) and p($\boldsymbol{\delta} = 0$) test for joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR systems for all panels estimated from 216 observations over sample from October 1986 to April 2005. See section 4.1.1 for construction of data.

Table A.2: Foreign Exchange Market: Predictability over 6 months

Panel A: Survey Error Predictability

$$s_{t+6} - E_t^s s_{t+6} = \gamma + \delta(i_t - i_t^*) + v_{t+6}$$

Currencies	δ	$\sigma(\delta)$	R^2
Australia	-3.6196^{***}	0.7487	0.34
Canada	-2.1585^{***}	0.4794	0.15
France	-2.9174^{***}	1.0196	0.14
Germany	-3.0588^{***}	0.8130	0.17
Japan	-2.2369^{**}	1.0379	0.07
Switzerland	-3.4626^{***}	1.0207	0.17
U.K.	-1.5476	1.4416	0.03
EW avg.	-2.7145^{***}	0.5806	
p($\boldsymbol{\delta} = 0$)	0.0000		

Panel B: Excess Return Predictability

$$q_{t+6} = \alpha + \beta(i_t - i_t^*) + u_{t+6}$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	-2.5407^{***}	0.7046	0.20
Canada	-1.9864^{***}	0.4908	0.14
France	-2.2968^{**}	1.0684	0.12
Germany	-2.3986^{***}	0.9295	0.13
Japan	-3.8211^{***}	0.8653	0.21
Switzerland	-2.9378^{***}	1.0532	0.16
U.K.	-1.5000	1.3776	0.04
EW avg.	-2.4974^{***}	0.6189	
p($\boldsymbol{\beta} = 0$)	0.0000		

Panel C: Expected Excess Return Explainability

$$E_t^s q_{t+6} = \alpha + \beta(i_t - i_t^*) + u_t^s$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	1.0789^{***}	0.2113	0.23
Canada	0.1721	0.1957	0.01
France	0.6206	0.5680	0.03
Germany	0.6602	0.5161	0.03
Japan	-1.5842^{***}	0.4503	0.14
Switzerland	0.5248	0.5660	0.02
U.K.	0.0476	0.6139	0.00
EW avg.	0.2171	0.3367	
p($\boldsymbol{\beta} = 0$)	0.0000		

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. p($\boldsymbol{\beta} = 0$) and p($\boldsymbol{\delta} = 0$) test for joint significance of slopes across equations. Newey-West standard errors with 7 lags. SUR systems for all panels estimated from 214 observations over sample from October 1986 to February 2005. See section 4.1.1 for construction of data.

Table A.3: ICF/Yale Survey Error Predictability over 1 month (Aggregation: none)

Survey Error Predictability

$$\tilde{r}_{t+1} - E_t^s \tilde{r}_{t+1} = \gamma + \boldsymbol{\delta} \boldsymbol{X}_t + v_{t+1}$$

i	$\ln(D/P)$	R^2 / $p(\boldsymbol{\delta}=0)$	obs / NW lags
Dow Jones (Individuals) Jan/99 – Oct/04			
−1.0218		0.00	1152
(3.0562)		0.7384	16
	0.0463*	0.02	1152
	(0.0258)	0.0735	16
19.4283***	0.1852***	0.06	1152
(6.5955)	(0.0541)	0.0028	16
Dow Jones (Institutions) Aug/93 – Oct/04			
6.0100***		0.02	1387
(2.0616)		0.0036	10
	−0.0026	0.00	1387
	(0.0103)	0.7983	10
6.2799***	−0.0083	0.03	1387
(2.1130)	(0.0104)	0.0120	10
Nikkei (Institutions) Aug/93 – Oct/04			
−2.6332		0.00	787
(3.8619)		0.4961	6
	0.0294	0.01	787
	(0.0254)	0.2469	6
−0.3228	0.0288	0.01	787
(4.3580)	(0.0281)	0.4918	6

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year divided by 12). See Section 4.2.1 for construction of data.

Table A.4: ICF/Yale Survey Error Predictability over 3 months (Aggregation: none)

Survey Error Predictability

$$\tilde{r}_{t+3} - E_t^s \tilde{r}_{t+3} = \gamma + \boldsymbol{\delta} \boldsymbol{X}_t + v_{t+3}$$

i	$\ln(D/P)$	R^2 $p(\boldsymbol{\delta}=0)$	obs NW lags
Dow Jones (Individuals) Sep/96 – Aug/04			
0.1341		0.00	1300
(2.1938)		0.9513	47
	0.1456***	0.10	1300
	(0.0419)	0.0005	47
4.2325**	0.1942***	0.13	1300
(1.7144)	(0.0418)	0.0000	47
Dow Jones (Institutions) Jun/89 – Aug/04			
2.1370		0.01	2301
(1.6085)		0.1843	36
	0.0128	0.00	2301
	(0.0208)	0.5385	36
2.2055	−0.0019	0.01	2301
(1.5889)	(0.0203)	0.3752	36
Nikkei (Institutions) Jun/89 – Aug/04			
−2.4047		0.02	1297
(1.6863)		0.1544	20
	0.1500***	0.08	1297
	(0.0421)	0.0004	20
1.2677	0.1713***	0.08	1297
(2.0492)	(0.0579)	0.0020	20

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year divided by 4). See Section 4.2.1 for construction of data.

Table A.5: ICF/Yale Survey Error Predictability over 12 months (Aggregation: daily)

Survey Error Predictability

$$\tilde{r}_{t+12} - E_t^s \tilde{r}_{t+12} = \gamma + \boldsymbol{\delta X}_t + v_{t+12}$$

i	$\ln(D/P)$	R^2 $p(\boldsymbol{\delta}=0)$	obs NW lags
Dow Jones (Individuals) Sep/96 – Nov/03			
-0.2238		0.00	600
(2.2248)		0.9201	100
	0.5174^{***}	0.34	600
	(0.1258)	0.0000	100
4.2092^{**}	0.7364^{***}	0.47	600
(1.7658)	(0.1832)	0.0003	100
Dow Jones (Institutions) Jun/89 – Nov/03			
2.5567^{*}		0.09	953
(1.4110)		0.0706	64
	0.1535^{**}	0.11	953
	(0.0694)	0.0275	64
1.7035	0.1183^{*}	0.14	953
(1.2623)	(0.0610)	0.0868	64
Nikkei (Institutions) Jun/89 – Nov/03			
-1.2684		0.02	686
(1.1343)		0.2646	46
	0.5005^{***}	0.27	686
	(0.1350)	0.0002	46
1.5597	0.5923^{***}	0.29	686
(1.1649)	(0.1267)	0.0000	46

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year). See Section 4.2.1 for construction of data.

Table A.6: ICF/Yale Survey Error Predictability over 12 months (Aggregation: monthly)

Survey Error Predictability

$$\tilde{r}_{t+12} - E_t^s \tilde{r}_{t+12} = \gamma + \boldsymbol{\delta X}_t + v_{t+12}$$

i	$\ln(D/P)$	R^2 $p(\boldsymbol{\delta} = 0)$	obs NW lags
Dow Jones (Individuals) Sep/96 – Nov/03			
-0.5338		0.00	54
(2.1910)		0.8120	12
	0.4908***	0.39	54
	(0.1157)	0.0001	12
4.5098**	0.7644***	0.57	54
(1.9412)	(0.2137)	0.0039	12
Dow Jones (Institutions) Jun/89 – Nov/03			
2.6577*		0.10	110
(1.6055)		0.1039	12
	0.1484*	0.13	110
	(0.0785)	0.0636	12
1.8781	0.1176	0.17	110
(1.4301)	(0.0729)	0.1552	12
Nikkei (Institutions) Jun/89 – Nov/03			
-0.5462		0.00	105
(1.1448)		0.6375	12
	0.5214***	0.32	105
	(0.1791)	0.0048	12
2.0978*	0.6285***	0.37	105
(1.1823)	(0.1359)	0.0000	12

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the survey horizon of 12 months). See Section 4.2.1 for construction of data.

Table A.7: 10-year Bonds: Return Predictability over 3 months

Excess Return Predictability (survey sample)

$$q_{t+3}^{123} = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_{t+3}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	2.5893*					0.06
	(1.4828)					0.0846
		−34.1210*	57.3146	−28.5892	7.5680***	0.13
		(19.5400)	(35.8335)	(17.4544)	(1.8387)	0.0001
Canada	1.6008					0.02
	(1.5081)					0.2931
		4.7875	−26.4561	21.3860*	1.1613	0.09
		(12.6040)	(20.6574)	(11.3379)	(2.6801)	0.1362
France	1.0693					0.01
	(1.1814)					0.3698
		1.0114	8.5249	−15.0967	8.2053***	0.10
		(9.6514)	(18.8732)	(10.9740)	(2.6342)	0.0502
Germany	1.9721*					0.05
	(1.1339)					0.0858
		−14.5435	21.3659	−9.3797	3.0178	0.07
		(10.8109)	(19.8089)	(11.9147)	(2.2559)	0.2279
Japan	3.7632*					0.06
	(2.1651)					0.0860
		9.6888	−14.2792	−3.0608	10.6918***	0.17
		(19.2207)	(34.4035)	(19.8528)	(3.4241)	0.0248
Switzerland	3.2161***					0.16
	(0.9562)					0.0010
		−10.4415	11.4599	−7.3815	10.8703***	0.25
		(13.4671)	(25.2968)	(15.0792)	(3.7174)	0.0001
U.K.	1.8148					0.04
	(1.3736)					0.1911
		−5.4670	7.4564	−4.9461	4.2431*	0.07
		(15.0896)	(27.8213)	(14.5684)	(2.2002)	0.1886
U.S.	0.8278					0.01
	(1.3153)					0.5326
		−15.4920	3.0526	12.7759	0.6095	0.11
		(16.9316)	(27.3445)	(13.0145)	(2.1686)	0.0664
EW avg.	2.1067**					
	(0.9446)					
Spread: p($\delta = 0$)						0.0304
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 162 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Bonds (10Y) and Libor (3M). See section 4.3.1 for construction of data.

Table A.8: 10-year Bonds: Return Predictability over 6 months

Excess Return Predictability (survey sample)

$$q^{126}_{t+6} = \alpha + \boldsymbol{\beta X}_t + u_{t+6}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	2.4226^{*}					0.08
	(1.2739)					0.0606
		−11.5720	19.3686	−12.4039	6.7693^{***}	0.20
		(15.0356)	(26.3827)	(12.3294)	(1.5353)	0.0000
Canada	1.5439					0.04
	(1.1092)					0.1686
		9.4919	-26.3305^{*}	15.1208^{**}	3.1524	0.16
		(8.9404)	(13.9014)	(6.8857)	(2.1601)	0.0002
France	1.2767					0.03
	(1.3754)					0.3577
		11.1152	−14.9279	−0.5190	6.7351^{***}	0.14
		(7.2854)	(14.3991)	(9.0446)	(1.9445)	0.0124
Germany	1.7042					0.07
	(1.1496)					0.1427
		4.9105	−12.5009	5.7767	2.8330	0.10
		(8.6657)	(13.6452)	(9.1395)	(1.8942)	0.1725
Japan	3.4812^{*}					0.11
	(2.1017)					0.1018
		2.9078	−4.8356	−4.8107	9.4438^{***}	0.26
		(11.2493)	(21.9518)	(13.6729)	(2.9879)	0.0019
Switzerland	2.7319^{***}					0.17
	(0.8686)					0.0021
		3.0176	−15.0265	6.4909	10.7420^{***}	0.36
		(9.6887)	(17.4934)	(11.4827)	(3.5386)	0.0000
U.K.	1.6209					0.06
	(1.1893)					0.1776
		2.4678	−8.1793	3.6265	3.3007^{*}	0.12
		(9.1503)	(18.8173)	(11.5910)	(1.9948)	0.0962
U.S.	0.9702					0.01
	(1.1092)					0.3861
		−6.1022	−10.9833	17.0652^{*}	0.9286	0.20
		(11.9091)	(19.9034)	(10.0005)	(2.1428)	0.0060
EW avg.	1.9690^{***}					
	(0.7605)					
Spread: p($\delta = 0$)						0.0026
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 7 lags. SUR system for Spread and Yield regressions estimated from 159 observations over sample from September 1987 to January 2005. Spread is the difference in log-yields of Bonds (10Y) and Libor (6M). See section 4.3.1 for construction of data.

Table A.9: 10-year Bonds: Survey Error Predictability over 3 months

Survey Error Predictability

$$q^{123}_{t+3} - E^s_t q^{123}_{t+3} = \gamma + \boldsymbol{\delta X}_t + v_{t+3}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta}=0)$
Australia	1.0257					0.01
	(1.4155)					0.4725
		-52.7391^{***}	80.7108^{**}	-30.6905^{*}	4.0148^{*}	0.08
		(18.5606)	(33.2668)	(16.2849)	(2.1166)	0.0073
Canada	2.5143					0.05
	(1.5609)					0.1114
		−8.7947	−14.7253	24.6966^{**}	−1.7040	0.14
		(13.7814)	(22.8075)	(12.2625)	(2.7894)	0.0681
France	1.7652					0.03
	(1.3504)					0.1958
		17.0232^{*}	−20.8362	−2.7240	9.5791^{***}	0.12
		(9.3699)	(18.7096)	(11.1692)	(2.8032)	0.0158
Germany	2.4490^{**}					0.07
	(1.0710)					0.0244
		−13.2020	8.4840	2.7339	2.5756	0.11
		(11.9590)	(21.4981)	(12.8528)	(2.3946)	0.1022
Japan	2.9699					0.04
	(2.1549)					0.1727
		7.0736	−25.5159	13.4536	7.5022^{**}	0.12
		(18.4701)	(31.8250)	(18.5072)	(3.5777)	0.0817
Switzerland	3.6891^{***}					0.16
	(0.9683)					0.0002
		−2.0968	−18.6160	17.0463	5.9963	0.21
		(15.4990)	(28.0120)	(16.4512)	(3.8896)	0.0001
U.K.	1.1135					0.02
	(1.1741)					0.3473
		−4.6081	0.8253	2.9387	1.2962	0.03
		(15.8677)	(27.9833)	(14.2724)	(2.1843)	0.7505
U.S.	0.4296					0.00
	(1.4793)					0.7733
		-37.1463^{**}	25.8866	13.5151	−2.2935	0.16
		(18.4342)	(29.0366)	(14.4456)	(2.3207)	0.0050
EW avg.	1.9945^{**}					
	(0.8859)					
Spread: p($\delta = 0$)						0.0046
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 162 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Bonds (10Y) and Libor (3M). See section 4.3.1 for construction of data.

Table A.10: 10-year Bonds: Survey Error Predictability over 6 months

Survey Error Predictability

$$q^{126}_{t+6} - E^s_t q^{126}_{t+6} = \gamma + \boldsymbol{\delta X}_t + v_{t+6}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	1.7601					0.04
	(1.2683)					0.1698
		-23.9117^{*}	35.2268	-14.5257	4.5399^{***}	0.11
		(13.3868)	(23.3754)	(11.0669)	(1.6065)	0.0012
Canada	2.5439^{**}					0.09
	(1.2464)					0.0442
		-3.9281	-13.6666	16.9607^{**}	0.6861	0.21
		(9.2299)	(14.4433)	(7.0938)	(2.2085)	0.0008
France	2.4022					0.08
	(1.5139)					0.1169
		21.9579^{***}	-36.4998^{***}	9.4922	7.3718^{***}	0.18
		(6.6758)	(13.8530)	(9.4457)	(2.0004)	0.0010
Germany	2.6236^{**}					0.12
	(1.0346)					0.0127
		7.5078	-28.4988^{**}	19.4349^{*}	2.3674	0.20
		(8.6351)	(13.8194)	(10.2372)	(2.1506)	0.0211
Japan	4.0883^{**}					0.12
	(1.8401)					0.0287
		0.4344	-11.9452	4.9793	9.1246^{***}	0.26
		(13.2579)	(26.7761)	(16.4232)	(3.2107)	0.0037
Switzerland	3.3968^{***}					0.20
	(0.8727)					0.0002
		8.1376	-37.9534^{**}	26.0514^{**}	7.4398^{**}	0.33
		(11.9867)	(19.3570)	(12.0751)	(3.7149)	0.0000
U.K.	2.0209^{*}					0.09
	(1.0767)					0.0640
		0.0406	-7.5366	5.7487	2.2845	0.11
		(9.9975)	(20.7619)	(12.8206)	(2.1374)	0.2453
U.S.	1.0397					0.01
	(1.3431)					0.4429
		-17.5473	-2.8593	21.5698^{**}	-1.0952	0.24
		(12.4901)	(20.1799)	(10.7890)	(2.1218)	0.0014
EW avg.	2.4844^{***}					
	(0.7393)					
Spread: p($\delta = 0$)						0.0011
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 7 lags. SUR system for Spread and Yield regressions estimated from 159 observations over sample from September 1987 to January 2005. Spread is the difference in log-yields of Bonds (10Y) and Libor (6M). See section 4.3.1 for construction of data.

Table A.11: Libor (12M): Return Predictability over 6 months

Excess Return Predictability (survey sample)

$$q^{12}_{t+6} = \alpha + \boldsymbol{\beta X}_t + u_{t+6}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	0.5382					0.01
	(0.6010)					0.3748
		1.2826	−1.8429	0.3330	0.4158**	0.14
		(1.9929)	(3.2265)	(1.4172)	(0.1702)	0.0038
Canada	0.4197					0.01
	(0.7136)					0.5597
		1.3610	−2.7106**	1.3497**	0.0622	0.03
		(0.8387)	(1.2311)	(0.6601)	(0.2849)	0.1871
France	0.1649					0.00
	(0.3704)					0.6588
		1.1431	−1.8337	0.5084	0.2699	0.05
		(0.7073)	(1.3517)	(0.8042)	(0.2053)	0.2653
Germany	0.5333					0.02
	(0.4329)					0.2226
		2.6307*	−5.0901**	2.5675**	−0.1209	0.11
		(1.4419)	(2.5361)	(1.1913)	(0.1720)	0.2012
Japan	0.7760					0.02
	(1.0988)					0.4838
		1.5210***	−2.3800*	0.5367	0.4726***	0.23
		(0.5816)	(1.2202)	(0.8794)	(0.1692)	0.0006
Switzerland	1.4575*					0.07
	(0.8039)					0.0734
		1.0594	−2.8686	1.4880	0.7066**	0.17
		(1.2999)	(2.1365)	(1.1038)	(0.3591)	0.0405
U.K.	0.3337					0.01
	(0.6989)					0.6357
		1.4303	−2.7174	1.2943	0.0015	0.02
		(1.0752)	(1.8390)	(0.9356)	(0.1552)	0.5855
U.S.	0.5499					0.01
	(0.7501)					0.4673
		2.1756*	−4.3854**	2.4128**	−0.1784	0.08
		(1.3160)	(2.0147)	(0.9587)	(0.3293)	0.0293
EW avg.	0.5966					
	(0.4072)					
Spread: p($\delta = 0$)						0.2631
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 7 lags. SUR system for Spread and Yield regressions estimated from 163 observations over sample from September 1987 to January 2005. Spread is the difference in log-yields of Libor (12M) and Libor (6M). See section 4.4.1 for construction of data.

Table A.12: Libor (9M): Survey Error Predictability over 6 Months

Survey Error Predictability

$$q^9_{t+6} - E^s_t q^9_{t+6} = \gamma + \boldsymbol{\delta} \boldsymbol{X}_t + v_{t+6}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 / $p(\boldsymbol{\delta} = 0)$
Australia	-0.5807^{*}					0.06
	(0.3495)					0.1007
		1.2010	-1.0719	-0.2444	0.1588^{*}	0.15
		(1.0248)	(1.6164)	(0.7161)	(0.0913)	0.1554
Canada	-0.1957					0.01
	(0.3913)					0.6198
		0.0843	0.2811	-0.4548	0.1037	0.03
		(0.3750)	(0.5850)	(0.3248)	(0.1376)	0.4734
France	-0.4871^{***}					0.12
	(0.1858)					0.0101
		0.7215^{*}	-0.6946	-0.0832	0.0647	0.17
		(0.4273)	(0.8115)	(0.4528)	(0.1106)	0.0155
Germany	-0.0462					0.00
	(0.2130)					0.8295
		1.0466^{**}	-1.7460^{*}	0.7352	-0.0294	0.07
		(0.5266)	(0.9636)	(0.4761)	(0.0739)	0.3210
Japan	0.0306					0.00
	(0.5017)					0.9518
		0.4240	-0.2891	-0.3010	0.2374^{***}	0.21
		(0.3035)	(0.5726)	(0.3904)	(0.0782)	0.0264
Switzerland	0.1778					0.00
	(0.4075)					0.6652
		0.7944	-1.2990	0.3471	0.3459^{**}	0.12
		(0.6920)	(1.0824)	(0.5237)	(0.1632)	0.1950
U.K.	-0.2232					0.01
	(0.3440)					0.5200
		0.1463	0.1138	-0.2834	-0.0133	0.05
		(0.4700)	(0.7343)	(0.3823)	(0.0672)	0.8142
U.S.	-0.1795					0.01
	(0.3236)					0.5822
		0.3380	-0.5508	0.2938	-0.1010	0.04
		(0.4964)	(0.7745)	(0.4138)	(0.1359)	0.7884
EW avg.	-0.1880					
	(0.2128)					
Spread: p($\delta = 0$)						0.0546
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 7 lags. SUR system for Spread and Yield regressions estimated from 160 observations over sample from September 1987 to January 2005. Spread is the difference in log-yields of Libor (12M) and Libor (6M). See section 4.4.1 for construction of data.

Table A.13: Libor (15M): Survey Error Predictability over 12 Months

Survey Error Predictability

$$q^{15}_{t+12} - E^s_t q^{15}_{t+12} = \gamma + \boldsymbol{\delta X}_t + v_{t+12}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	-0.7063^{**}					0.13
	(0.3426)					0.0423
		1.0107	−0.6276	−0.4847	0.1718^{**}	0.25
		(0.7866)	(1.2706)	(0.6541)	(0.0780)	0.0132
Canada	-0.4034^{*}					0.05
	(0.2401)					0.0971
		0.2247	0.1352	−0.4017	0.0580	0.06
		(0.2675)	(0.4575)	(0.3272)	(0.1400)	0.2610
France	−0.2118					0.03
	(0.1624)					0.1970
		0.9293^{***}	-1.3758^{***}	0.4041	0.0370	0.15
		(0.2622)	(0.4472)	(0.2677)	(0.0980)	0.0001
Germany	0.0054					0.00
	(0.2839)					0.9850
		1.6250^{***}	-2.7976^{***}	1.2296^{***}	−0.0637	0.18
		(0.4239)	(0.8000)	(0.4126)	(0.0810)	0.0005
Japan	−0.0918					0.00
	(0.5782)					0.8749
		0.8550^{***}	−0.8092	−0.2194	0.2382^{***}	0.32
		(0.2275)	(0.5717)	(0.4566)	(0.0713)	0.0001
Switzerland	0.0755					0.00
	(0.4463)					0.8667
		0.9226^{**}	-1.3497^{**}	0.2493	0.3890^{**}	0.19
		(0.4127)	(0.6662)	(0.4803)	(0.1912)	0.0696
U.K.	−0.1176					0.01
	(0.2689)					0.6646
		0.5797	−0.8271	0.2664	−0.0460	0.04
		(0.4832)	(0.7980)	(0.4075)	(0.0785)	0.7889
U.S.	−0.2512					0.02
	(0.2925)					0.3949
		0.5970	−0.9088	0.4079	−0.1083	0.08
		(0.5212)	(0.8681)	(0.4364)	(0.1529)	0.5291
EW avg.	−0.2126					
	(0.2455)					
Spread: p($\delta = 0$)						0.0001
Yields: p($\boldsymbol{\delta} = \boldsymbol{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system for Spread and Yield regressions estimated from 154 observations over sample from September 1987 to July 2004. Spread is the difference in log-yields of Libor (12M) and Libor (6M). See section 4.4.1 for construction of data.

Table A.14: Libor (15M): Survey Error Predictability over 3 Months

Survey Error Predictability

$$q^{15}_{t+3} - E^s_t q^{15}_{t+3} = \gamma + \boldsymbol{\delta X}_t + v_{t+3}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	−0.5778					0.01
	(1.3578)					0.6729
		1.5804	−0.8767	−1.2450	0.6037	0.05
		(5.5695)	(9.4160)	(4.3928)	(0.4656)	0.5454
Canada	0.2047					0.00
	(1.0584)					0.8478
		−1.2100	0.4885	1.2871	−0.5827	0.03
		(2.4604)	(4.2329)	(2.4659)	(0.6909)	0.5496
France	-1.9986^{***}					0.16
	(0.6560)					0.0029
		3.4024	−2.1441	−1.3955	0.3823	0.19
		(2.7592)	(4.8131)	(2.4559)	(0.4875)	0.0148
Germany	−0.2185					0.00
	(0.5943)					0.7153
		−0.3047	0.8225	−0.3970	0.0180	0.03
		(2.6451)	(4.9213)	(2.5348)	(0.4023)	0.6168
Japan	0.6577					0.01
	(1.1592)					0.5736
		−1.1403	1.6120	−0.9808	0.8141^{*}	0.07
		(2.2074)	(3.8912)	(2.3173)	(0.4265)	0.1483
Switzerland	0.3542					0.00
	(0.7169)					0.6241
		−1.4204	2.1653	−1.1944	1.0068	0.04
		(2.1355)	(4.2468)	(2.5626)	(0.6972)	0.5658
U.K.	−0.7029					0.01
	(0.8279)					0.4000
		−2.3620	5.2471	−2.8677	−0.0594	0.02
		(3.6560)	(6.1523)	(2.8841)	(0.3941)	0.7141
U.S.	0.8127					0.01
	(1.0543)					0.4447
		−3.1713	2.7009	1.0773	−0.7347	0.07
		(2.8820)	(4.3775)	(2.1535)	(0.5002)	0.1805
EW avg.	−0.1836					
	(0.5408)					
Spread: p($\delta = 0$)						0.0206
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0023

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 164 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Libor (12M) and Libor (3M). See section 4.4.1 for construction of data.

Table A.15: Libor (18M): Survey Error Predictability over 6 months

Survey Error Predictability

$$q_{t+6}^{18} - E_t^s q_{t+6}^{18} = \gamma + \boldsymbol{\delta X}_t + v_{t+6}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta} = 0)$
Australia	-0.6335					0.00
	(1.6388)					0.7014
		0.8037	0.5183	-1.8103	0.6678^{*}	0.05
		(4.5164)	(7.2261)	(3.2241)	(0.3758)	0.3962
Canada	0.7031					0.00
	(1.2952)					0.5903
		-0.2843	-0.4293	0.7795	0.0071	0.01
		(1.8055)	(2.8037)	(1.3958)	(0.5685)	0.8619
France	-1.6763					0.08
	(1.1489)					0.1491
		4.0841^{***}	-5.2010^{**}	0.9475	0.3401	0.13
		(1.3521)	(2.3194)	(1.4089)	(0.3919)	0.0477
Germany	0.5773					0.01
	(1.2390)					0.6440
		3.6925	-6.9571	3.4241	-0.0704	0.05
		(2.4409)	(4.4488)	(2.2447)	(0.3686)	0.6382
Japan	1.7052					0.02
	(2.2080)					0.4439
		1.0880	-1.7535	-0.0539	1.0845^{***}	0.22
		(1.3728)	(2.8939)	(1.9340)	(0.3698)	0.0074
Switzerland	1.2487					0.01
	(1.6124)					0.4427
		1.7483	-3.9358	1.6168	1.3847^{**}	0.13
		(2.2778)	(3.6270)	(1.9993)	(0.6464)	0.0767
U.K.	-0.2355					0.00
	(1.3607)					0.8637
		-1.0948	2.2126	-1.1560	-0.0111	0.00
		(1.9909)	(3.2583)	(1.6615)	(0.3185)	0.9379
U.S.	1.5598					0.03
	(1.4366)					0.2822
		0.4517	-3.5024	3.5693^{*}	-0.6011	0.09
		(2.4169)	(3.7651)	(1.8892)	(0.5627)	0.1717
EW avg.	0.4061					
	(0.9596)					
Spread: p($\delta = 0$)						0.0545
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 7 lags. SUR system for Spread and Yield regressions estimated from 161 observations over sample from September 1987 to January 2005. Spread is the difference in log-yields of Libor (12M) and Libor (6M). See section 4.4.1 for construction of data.

Table A.16: Libor (24M): Survey Error Predictability over 12 Months

Survey Error Predictability

$$q^{24}_{t+12} - E^s_t q^{24}_{t+12} = \gamma + \boldsymbol{\delta} \boldsymbol{X}_t + v_{t+12}$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 / $p(\boldsymbol{\delta} = 0)$
Australia	−1.8535					0.06
	(1.5650)					0.2411
		3.2454	−2.3339	−1.2308	0.5974*	0.15
		(3.2724)	(5.3658)	(2.8466)	(0.3151)	0.0079
Canada	−0.8848					0.02
	(0.9266)					0.3442
		−0.0206	0.8913	−0.8729	0.0972	0.03
		(1.0100)	(1.8207)	(1.3689)	(0.5221)	0.7332
France	−0.3857					0.01
	(0.9680)					0.6927
		4.0792***	−6.6640***	2.4813*	0.1614	0.08
		(1.3169)	(2.5319)	(1.4157)	(0.4129)	0.0023
Germany	0.6728					0.01
	(1.4568)					0.6470
		6.9846***	−12.6932***	5.9804***	−0.2080	0.17
		(1.8032)	(3.3718)	(1.8031)	(0.3436)	0.0011
Japan	0.7400					0.01
	(2.4052)					0.7603
		3.5024***	−4.5316**	0.3251	1.0074***	0.33
		(0.8254)	(2.2922)	(1.8554)	(0.2823)	0.0000
Switzerland	0.8181					0.01
	(1.8051)					0.6532
		3.0554**	−5.2336**	1.4743	1.6467**	0.22
		(1.5192)	(2.6369)	(1.9409)	(0.7033)	0.0236
U.K.	0.2307					0.00
	(1.1175)					0.8378
		1.9951	−3.8254	1.9804	−0.1815	0.01
		(1.9741)	(3.3326)	(1.7745)	(0.3202)	0.7957
U.S.	0.1801					0.00
	(1.2080)					0.8824
		2.3351	−4.8764	3.0040	−0.4873	0.09
		(2.2732)	(3.9282)	(2.0395)	(0.6048)	0.4111
EW avg.	−0.0603					
	(1.1162)					
Spread: p($\delta = 0$)						0.0395
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system for Spread and Yield regressions estimated from 155 observations over sample from September 1987 to July 2004. Spread is the difference in log-yields of Libor (12M) and Libor (6M). See section 4.4.1 for construction of data.

Table B.1: Foreign Exchange Market: Survey Errors

PANEL A: 3 Months

	AU	CN	FR	GE	JP	CH	UK
mean	-0.29	0.08	-0.66^{*}	-0.48	-1.07^{**}	-0.51	-0.89^{**}
median	-0.38	0.01	-0.63	-0.41	-0.81	0.17	-0.86
autocorr.	0.69	0.69	0.65	0.66	0.73	0.67	0.62
obs	219	219	218	220	220	219	220
Correlations (Std. on Diagonal)							
AU	5.43						
CN	0.57	2.76					
FR	0.25	0.22	5.71				
GE	0.21	0.20	0.98	5.93			
JP	0.12	0.11	0.44	0.47	6.25		
CH	0.15	0.14	0.94	0.95	0.51	6.38	
UK	0.26	0.21	0.77	0.77	0.46	0.76	5.44

Note: All in log-percentage points (log * 100).Correlations with standard deviations on diagonal. ***, ** and * denote significance at the 1%, 5% respectively 10% level. (Computed only for the mean's.)

PANEL B: 12 Months

	AU	CN	FR	GE	JP	CH	UK
mean	0.92	0.31	-2.08^{**}	-1.40	-4.64^{***}	-1.87^{**}	-3.46^{***}
median	0.16	0.53	-2.20	-1.67	-5.68	-2.39	-3.61
autocorr.	0.95	0.95	0.91	0.92	0.92	0.91	0.89
obs	210	210	209	211	211	210	211
Correlations (Std. on Diagonal)							
AU	12.43						
CN	0.74	6.18					
FR	0.40	0.10	12.58				
GE	0.39	0.09	0.99	12.54			
JP	0.27	0.11	0.27	0.34	11.97		
CH	0.28	-0.03	0.95	0.96	0.37	12.93	
UK	0.43	0.14	0.70	0.70	0.35	0.71	10.33

Note: All in log-percentage points (log * 100).Correlations with standard deviations on diagonal. ***, ** and * denote significance at the 1%, 5% respectively 10% level. (Computed only for the mean's.)

Table B.2: Libor (3M): Survey Errors

PANEL A: 3 Months

	AU	CN	FR	GE	JP	CH	UK	US
mean	-0.05	-0.07	-0.04	-0.02	-0.11^{***}	-0.08	0.00	-0.10^{***}
median	-0.05	-0.06	-0.00	-0.04	-0.08	-0.07	-0.03	-0.08
autocorr.	0.78	0.68	0.58	0.60	0.53	0.73	0.65	0.67
obs	164	176	165	176	176	176	176	176
Correlations (Std. on Diagonal)								
AU	0.79							
CN	0.37	0.79						
FR	0.09	0.14	0.71					
GE	0.36	0.08	0.29	0.41				
JP	0.18	0.32	-0.05	0.31	0.35			
CH	0.36	0.12	0.07	0.56	0.16	0.63		
UK	0.26	-0.04	0.10	0.59	0.14	0.32	0.72	
US	0.46	0.52	0.01	0.27	0.33	0.31	0.13	0.45

Note: All in log-percentage points (log * 100).Correlations with standard deviations on diagonal. ***, ** and * denote significance at the 1%, 5% respectively 10% level. (Computed only for the mean's.)

PANEL B: 12 Months

	AU	CN	FR	GE	JP	CH	UK	US
mean	-0.42^{**}	-0.48^{***}	-0.18^{*}	-0.17^{*}	-0.47^{***}	-0.30^{**}	-0.12	-0.58^{***}
median	-0.59	-0.33	-0.23	-0.25	-0.37	-0.44	-0.13	-0.57
autocorr.	0.97	0.91	0.86	0.98	0.88	0.99	0.94	0.90
obs	155	167	156	167	167	167	167	167
Correlations (Std. on Diagonal)								
AU	2.12							
CN	0.60	1.72						
FR	0.29	0.58	1.25					
GE	0.35	0.53	0.74	1.18				
JP	0.16	0.38	0.23	0.49	1.04			
CH	0.47	0.51	0.59	0.85	0.42	1.65		
UK	0.59	0.61	0.47	0.74	0.34	0.75	1.61	
US	0.61	0.69	0.25	0.33	0.17	0.36	0.52	1.33

Note: All in log-percentage points (log * 100).Correlations with standard deviations on diagonal. ***, ** and * denote significance at the 1%, 5% respectively 10% level. (Computed only for the mean's.)

Table B.3: 10-year Bonds: Survey Errors

PANEL A: 3 Months

	AU	CN	FR	GE	JP	CH	UK	US
mean	-0.18^{***}	-0.15^{***}	-0.06^{*}	-0.04	-0.08^{**}	-0.09^{***}	-0.11^{***}	-0.17^{***}
median	−0.23	−0.21	−0.14	−0.11	−0.10	−0.11	−0.19	−0.20
autocorr.	0.70	0.72	0.67	0.64	0.64	0.78	0.63	0.67
obs	164	176	165	176	175	176	176	176
Correlations (Std. on Diagonal)								
AU	0.62							
CN	0.66	0.59						
FR	0.53	0.59	0.45					
GE	0.58	0.69	0.80	0.42				
JP	0.42	0.59	0.52	0.67	0.46			
CH	0.34	0.37	0.61	0.66	0.38	0.41		
UK	0.55	0.63	0.60	0.65	0.55	0.46	0.53	
US	0.65	0.76	0.57	0.65	0.51	0.35	0.45	0.54

Note: All in log-percentage points (log * 100).Correlations with standard deviations on diagonal. ***, ** and * denote significance at the 1%, 5% respectively 10% level. (Computed only for the mean's.)

PANEL B: 12 Months

	AU	CN	FR	GE	JP	CH	UK	US
mean	-0.63^{***}	-0.56^{***}	-0.52^{***}	-0.33^{***}	-0.46^{***}	-0.29^{***}	-0.42^{***}	-0.60^{***}
median	−0.84	−0.69	−0.68	−0.38	−0.48	−0.40	−0.49	−0.72
autocorr.	0.94	0.80	0.87	0.87	0.84	0.91	0.86	0.87
obs	155	167	156	167	166	167	167	167
Correlations (Std. on Diagonal)								
AU	1.31							
CN	0.71	1.00						
FR	0.72	0.77	1.05					
GE	0.68	0.83	0.89	0.99				
JP	0.53	0.66	0.71	0.78	0.88			
CH	0.65	0.63	0.80	0.79	0.67	1.00		
UK	0.74	0.74	0.76	0.79	0.75	0.77	0.96	
US	0.65	0.73	0.68	0.70	0.55	0.49	0.54	0.96

Note: All in log-percentage points (log * 100).Correlations with standard deviations on diagonal. ***, ** and * denote significance at the 1%, 5% respectively 10% level. (Computed only for the mean's.)

Table C.1: Foreign Exchange Market: Expected Depreciation over 12 months

Explainability of Expected Depreciation

$$E_t^s s_{t+12} - s_t = \alpha + \beta(i_t - i_t^*) + u_t$$

Currencies	β	$\sigma(\beta)$	R^2
Australia	1.8353***	0.1767	0.61
Canada	1.0513***	0.2038	0.42
France	1.5105***	0.4896	0.23
Germany	1.1832**	0.4704	0.16
Japan	0.0509	0.3340	0.00
Switzerland	1.2351**	0.4935	0.14
U.K.	1.5072***	0.4843	0.21
EW avg.	1.1962***	0.2729	
p($\boldsymbol{\beta} = 0$)	0.0000		

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. p($\boldsymbol{\beta} = 0$) tests for joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system estimated from 210 observations over sample from October 1986 to July 2004. See section 4.1.1 for construction of data.

Table C.2: UBS/Gallup Survey: Explainability of Expected Returns

$$E_t^s r_{t+12} = \alpha + \boldsymbol{\beta X}_t + u_t^s$$

i	$\ln(D/P)$	cay	R^2 $p(\boldsymbol{\beta}=0)$
1.4276^{***}			0.75
(0.1721)			0.0000
	-0.1365^{***}		0.61
	(0.0202)		0.0000
		-1.5726^{***}	0.74
		(0.1319)	0.0000
1.3323^{***}	-0.0114		0.75
(0.3158)	(0.0356)		0.0000
0.7718^{**}	-0.0003	-0.7988^{**}	0.78
(0.3746)	(0.0274)	(0.3405)	0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (computed with 13 lags). Sample with 53 observations from May 1998 to April 2003. See Section 4.2.1 for construction of data.

Table C.3: ICF/Yale Survey: Explainability of Expected Returns (12 months, no Aggregation)

Explainability of Expected Price Change

$$\tilde{E}_t^s \tilde{r}_{t+12} = \alpha + \boldsymbol{\beta X}_t + u_t^s$$

i	$\ln(D/P)$	R^2 / $p(\boldsymbol{\delta} = 0)$	obs / NW lags
Dow Jones (Individuals) Sep/96 – Nov/03			
-0.6127^{***}		0.02	1174
(0.2308)		0.0081	196
	-0.0067	0.00	1174
	(0.0236)	0.7765	196
-0.8325^{***}	-0.0420^{***}	0.02	1174
(0.1304)	(0.0115)	0.0000	196
Dow Jones (Institutions) Jun/89 – Nov/03			
-0.9360^{***}		0.02	2547
(0.2322)		0.0001	170
	-0.0141	0.00	2547
	(0.0173)	0.4163	170
-1.0183^{***}	0.0094	0.02	2547
(0.3128)	(0.0165)	0.0002	170
Nikkei (Institutions) Jun/89 – Nov/03			
-1.8639^{***}		0.12	1424
(0.2204)		0.0000	95
	0.1657^{***}	0.08	1424
	(0.0321)	0.0000	95
-1.5256^{***}	0.0657^{**}	0.13	1424
(0.2347)	(0.0277)	0.0000	95

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. Newey West standard errors reported in brackets (lags as indicated above, corresponding to the number of observations per year). See Section 4.2.1 for construction of data.

Table C.4: Libor (3M) Survey: Expected Yield Change over 3 Months

Expected Yield Change Explainability

$$E_t^s i_{t+3} - i_t = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_t^s$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 $p(\boldsymbol{\delta}=0)$
Australia	0.5051^{**}					0.07
	(0.2190)					0.0232
		0.1118	−0.7259	0.6690	-0.0996^{***}	0.13
		(0.5865)	(1.0185)	(0.4667)	(0.0293)	0.0000
Canada	1.0027^{***}					0.22
	(0.2020)					0.0000
		-1.1571^{***}	1.2715^{**}	−0.0953	−0.0256	0.22
		(0.3490)	(0.5354)	(0.2252)	(0.0460)	0.0001
France	0.7135^{***}					0.31
	(0.1106)					0.0000
		-0.6517^{**}	0.3852	0.3809	-0.1474^{***}	0.38
		(0.2718)	(0.4921)	(0.2434)	(0.0470)	0.0000
Germany	1.0403^{***}					0.42
	(0.1278)					0.0000
		-0.7281^{**}	0.4518	0.3114	−0.0174	0.46
		(0.3694)	(0.6359)	(0.2903)	(0.0328)	0.0000
Japan	1.3564^{***}					0.41
	(0.2371)					0.0000
		-1.2572^{***}	1.0760^{**}	0.2401	−0.0613	0.45
		(0.2720)	(0.4410)	(0.2306)	(0.0386)	0.0000
Switzerland	0.5554^{***}					0.13
	(0.1109)					0.0000
		−0.0784	-0.5283^{*}	0.6596^{***}	−0.0528	0.21
		(0.1625)	(0.3138)	(0.1749)	(0.0347)	0.0000
U.K.	0.9272^{***}					0.23
	(0.1705)					0.0000
		-0.8334^{**}	0.7167	0.1734	-0.0989^{**}	0.28
		(0.3480)	(0.6321)	(0.3199)	(0.0405)	0.0000
U.S.	1.4488^{***}					0.43
	(0.1656)					0.0000
		-1.6656^{***}	1.7474^{***}	−0.0544	−0.0620	0.46
		(0.3276)	(0.5447)	(0.2463)	(0.0431)	0.0000
EW avg.	0.9437^{***}					
	(0.0825)					
Spread: p($\delta = 0$)						0.0000
Yields: p($\boldsymbol{\delta} = \mathbf{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 4 lags. SUR system for Spread and Yield regressions estimated from 163 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Libor (6M) and Libor (3M). See section 4.4.1 for construction of data.

Table C.5: Bonds Survey: Expected Yield Change over 12 Months

Expected Yield Change Explainability

$$E_t^s i_{t+12} - i_t = \alpha + \boldsymbol{\beta} \boldsymbol{X}_t + u_t^s$$

Countries	Spread	Libor (3M)	Libor (6M)	Libor (12M)	Bonds (10Y)	R^2 / $p(\boldsymbol{\delta} = 0)$
Australia	0.1157***					0.11
	(0.0251)					0.0000
		−0.1603	0.0567	0.0819	−0.0808	0.28
		(0.5472)	(0.9657)	(0.4845)	(0.0800)	0.0000
Canada	0.2178***					0.27
	(0.0462)					0.0000
		−0.9122***	0.9367**	−0.0822	−0.0635	0.40
		(0.2400)	(0.4582)	(0.2629)	(0.0647)	0.0000
France	0.2527***					0.34
	(0.0422)					0.0000
		0.5649**	−1.3092**	0.5464	0.1860**	0.37
		(0.2863)	(0.5436)	(0.3402)	(0.0733)	0.0000
Germany	0.2212***					0.34
	(0.0467)					0.0000
		0.4486	−1.6307***	1.0569***	0.0891	0.46
		(0.3729)	(0.6210)	(0.3135)	(0.0699)	0.0000
Japan	0.2548***					0.32
	(0.0729)					0.0007
		0.2187	−0.6700	0.1938	0.2789***	0.34
		(0.5858)	(0.9238)	(0.4687)	(0.0719)	0.0000
Switzerland	0.2083***					0.39
	(0.0377)					0.0000
		0.1214	−1.2331**	1.0609***	−0.0524	0.53
		(0.2781)	(0.4811)	(0.3011)	(0.0666)	0.0000
U.K.	0.2231***					0.40
	(0.0359)					0.0000
		0.0529	−0.1031	−0.1177	0.0902	0.49
		(0.4862)	(0.9186)	(0.4948)	(0.0590)	0.0000
U.S.	0.1501***					0.18
	(0.0244)					0.0000
		−0.1125	−0.3532	0.4006	−0.0033	0.25
		(0.3578)	(0.5529)	(0.2929)	(0.0596)	0.0000
EW avg.	0.2055***					
	(0.0273)					
Spread: p($\delta = 0$)						0.0000
Yields: p($\boldsymbol{\delta} = \boldsymbol{0}$)						0.0000

Note: ***, ** and * denote significance at the 1%, 5% respectively 10% level. The reported p-values correspond to F-tests on the joint significance of slopes across equations. Newey-West standard errors with 13 lags. SUR system for Spread and Yield regressions estimated from 162 observations over sample from September 1987 to April 2005. Spread is the difference in log-yields of Bonds (10Y) and Libor (12M). See section 4.3.1 for construction of data.