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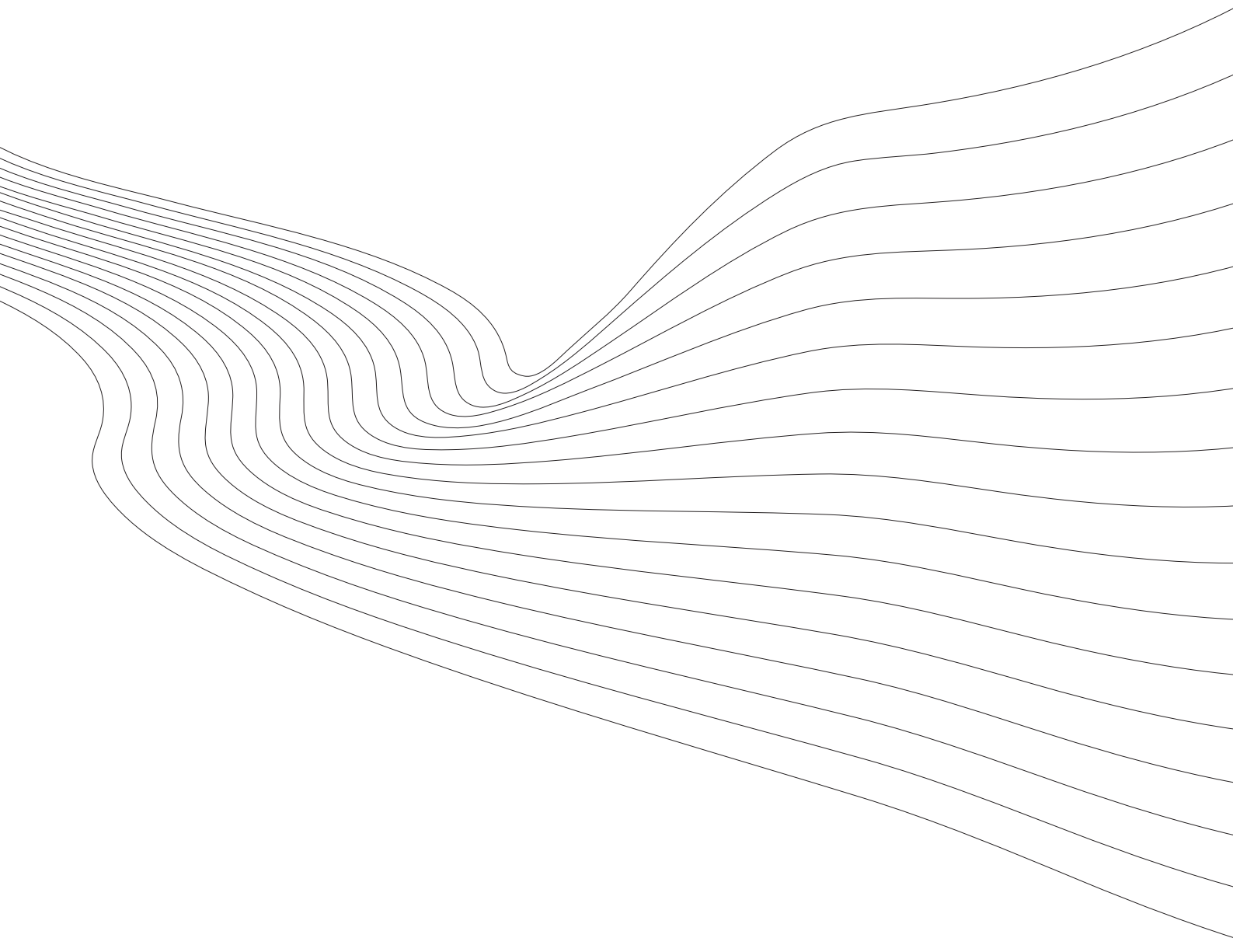

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Assessing the Real-Time Informational Content of Macroeconomic Data Releases for Now-/Forecasting GDP: Evidence for Switzerland[§]

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Abstract

This study utilizes the dynamic factor model of Giannone et al. (2008) in order to make now-/forecasts of GDP quarter-on-quarter growth rates in Switzerland. It also assesses the informational content of macroeconomic data releases for forecasting of the Swiss GDP. We find that the factor model offers a substantial improvement in forecast accuracy of GDP growth rates compared to a benchmark naive constant-growth model at all forecast horizons and at all data vintages. The largest forecast accuracy is achieved when GDP nowcasts for an actual quarter are made about three months ahead of the official data release. We also document that both business tendency surveys as well as stock market indices possess the largest informational content for GDP forecasting although their ranking depends on the underlying transformation of monthly indicators from which the common factors are extracted.

Keywords: Business tendency surveys, Forecasting, Nowcasting, Real-time data, Dynamic factor model
JEL code: C53, E37.

[§]We are grateful to Domenico Giannone for sharing with us the code used in Giannone et al. (2008). We also acknowledge the help related to data access, management and documentation we received from Christian Busch, Matthias Bannert, Fabiano Cuccu as well as from Joacim Lars Ingemarsson. The paper has benefited from comments of the participants at the KOF Brown Bag Seminar in Zurich, Switzerland. All computations have been performed in OX version 5.10 (Doornik, 2007), figures—in R-2.9.2.

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1 Introduction

This paper explores the real-time informational content of various macroeconomic data releases both for nowcasting and one-quarter-ahead forecasting of the Swiss GDP employing the approach suggested in Giannone et al. (2008). Giannone et al. (2008) provide a unified statistical framework that combines the following aspects characterizing the real-life decision-making process of a policy maker: i) extraction of a (useful) signal from a large number of various economic indicators, ii) accounting for asynchronous releases of various blocks of macroeconomic data when updating actual now-/forecasts such that a typical situation of being confronted with an unbalanced panel of available indicators—a so called "jagged edge"—is naturally incorporated into the statistical model, iii) "bridging" the economic indicators available at the monthly frequency with the quarterly GDP now-/forecasts.

Giannone et al. (2008) suggest using an approximate dynamic factor model estimated in two steps. In the first step the common factors are extracted by the static principal components analysis using the balanced panel of monthly indicators. The balanced panel is achieved by truncation of the available unbalanced panel at the data block with the largest publication lag. In the second step the common factors are extracted by means of Kalman filter for the whole sample of interest.

By now, the use of a large-scale factor models for economic forecasting enjoy a wide popularity (e.g., see Siliverstovs and Kholodilin, 2009; Schumacher and Breitung, 2008; Schumacher, 2007; Kholodilin and Siliverstovs, 2006; Forni et al., 2005; Stock and Watson, 2002a,b; Sancho and Camacho, 2002; Artis et al., 2001; Forni et al., 2000, inter alia). The approach of Giannone et al. (2008) distinguishes itself from this extensive literature in that it is the first study attempting to single out marginal change in forecast accuracy attributable to a particular block release of macroeconomic data. According to Giannone et al. (2008), a block release that effects the forecast accuracy to the largest extent possesses also the most of real-time information helping predicting quarterly GDP.

Our study contributes to the literature in the following three ways. First, to the best of our knowledge, it represents the first attempt to predict the growth rate of the Swiss GDP for the current quarter (nowcast) as well as for the next quarter (forecast) using a large-scale factor model. The previous research either used a single leading indicator model (Müller and Köberl, 2008) or it used a leading indicator (KOF-Barometer) extracted from a small-scale static factor model (Graff, 2009; Siliverstovs, 2009) for predicting GDP growth rates in Switzerland. Our study also distinguishes itself from these studies in that we choose the quarter-on-quarter seasonally adjusted GDP growth rates as a target prediction variable rather than the year-on-year quarterly GDP growth rate that these earlier studies aimed to predict. In doing so, we conform to Giannone et al. (2008) in the choice of the variable of interest.

Second, despite a wide applicability of factor-based models, the research question on the informational content of different macroeconomic data releases pursued in Giannone et al. (2008) so far did not gain much popularity. In fact, we are aware of only one additional study that investigates this issue; Aastveit and Trovik (2007) provide another case study for Norway. It is worthwhile noting that these both studies arrive at somewhat contradictory conclusions regarding which block of variables has a largest positive impact on

forecast accuracy. Giannone et al. (2008) conclude that the Philadelphia Federal Bank surveys as well as the report on the employment situation contribute the most to increase in forecast accuracy whereas the impact of financial variables (including several stock market indices) is found to be negligible. On contrary, Aastveit and Trovik (2007) find that the stock market variables are an important factor in reducing forecast uncertainty[1]. In a given situation our study provides another case study investigating importance of various data releases for now-/forecasting GDP. In our study both stock market and the business tendency surveys are included in the factor model allowing us to compare the contribution of these variables to forecast accuracy reinforcing conclusions of either of these two studies.

Third, in our simulation of a real-time forecasting we attempt to perform as to the largest extent possible. In particular, we utilize the real-time vintages of the target variable—the seasonally adjusted quarter-on-quarter GDP growth rates—and access the contribution of various data releases to improvement of forecast accuracy with respect to the first officially figure published by the State Secretariat for Economic Affairs (SECO). The importance of using real-time instead of latest-available data has been already emphasized in numerous studies as it has been shown, for example, by Diebold and Rudebusch (1991) and, more recently, by Croushore (2005) that the favorable conclusions on forecasting properties of leading indicator indexes obtained using latest-available data may be substantially weakened or even reversed when forecasting exercise is replicated using real-time data sets. Furthermore, the real-time flavor is also kept as much as possible in constructing the panel of our monthly indicators. Some of them undergo no (stock market variables, interest rates and exchange rates) or rather minor revisions (business tendency surveys). At the same time we have several blocks of the variables (trade and retail variables, prices, and employment) that were subject to both seasonal adjustment and later revisions for which we have no real-time vintages.

We find that the factor model offers a substantial improvement in forecast accuracy of GDP growth rates compared to a benchmark naive constant-growth model at all forecast horizons and all data vintages. The largest forecast accuracy is achieved when GDP nowcasts for an actual quarter are made about three months ahead of the official data release. We also document that both business tendency surveys as well as stock market indices possess the largest informational content for GDP forecasting although their ranking depends on the underlying transformation of monthly indicators from which the common factors are extracted.

The paper is structured as follows. In Section 2 the modeling approach of Giannone et al. (2008) is presented. Section 3 contains description of data used. The results of our forecasting exercise are presented in Section 4. In the next section the model performance in forecasting the current crisis is scrutinized. The final section concludes.

2 Model

As mentioned above, an important feature of the approach of Giannone et al. (2008) is that it allows to measure the marginal impact on reduction in model prediction uncertainty as new macroeconomic data are released. In order to see this, we need the following notation. Denote Ω_v a collection of all information sets

[1] Aastveit and Trovik (2007) does not include surveys in the their factor model as they are only available at the quarterly frequency in Norway.

that correspond to the flow of b blocks of newly released macroeconomic data during a month v, such that

$$\Omega_v = \{\Omega_{v_j}; j = 1, ..., b\},$$

where

$$\Omega_{v_j} = \{X_{it|v_j}; t = 1, ..., T_{iv_j}; i = 1, ..., n\}$$

is an information set available to a forecaster after a block j was released in a given month v. This information set is comprised from monthly indicators $X_{it|v_j}$ with the subindex $i = 1, .., n$ indicating individual time series and the subindex $t = 1, ..., T_{iv_j}$ denotes the corresponding period of observed values for a given time series. This means that T_{iv_j} denotes the last period for which time series i in vintage v_j has a valid observation.

Furthermore, denote a quarter q by its last month. Then imposing the restriction that the sample starts in the first month of a quarter, we have $q = 3k$ with $k = 1, 2, ...$ Due to a stable release pattern of monthly data blocks a given vintage v_j is released three times per quarter generating the following information sets Ω_{v_j} with $v = 3k - 2, 3k - 1, 3k$ in the first, second and third months of quarter, respectively.

Let y_{3k} be GDP growth rate for a given quarter $q = 3k$. Then for each information set Ω_{v_j} with $v = 3k - 2, 3k - 1, 3k$ the forecast is computed as a projection of y_{3k} on the available information set

$$\widehat{y}_{3k|v_j} = E\left[y_{3k}|\Omega_{v_j}; M\right], \quad v = 3(k-h) - 2, 3(k-h) - 1, 3(k-h), \quad j = 1, ..., b \tag{1}$$

for a given underlying model M. The letter h denotes the forecast horizon such that for $h = 1$ we produce one-quarter ahead forecasts and for $h = 0$ we produce forecasts for the current quarter, i.e., nowcasts. Observe that Equation (1) denotes the so-called "bridge regression" that utilizes information available at monthly frequency in order to forecast quarterly variable of interest.

Recall that the magnitude of interest is the uncertainty surrounding the forecast at a given vintage, or, more precisely, its evolution over time from vintage to vintage. Following Giannone et al. (2008), we measure the forecast uncertainty associated with a given vintage as follows

$$V_{y_{3k|v_j}} = E\left[(\widehat{y}_{3k|v_j} - y_{3k})^2; M\right]. \tag{2}$$

It is expected that as more timely data become available this uncertainty measure will have a tendency to decrease, i.e., $V_{y_{3k|v_j}} \leq V_{y_{3k|v_{j-1}}}$, allowing to assess informational content of each data block release.

Giannone et al. (2008) suggest a following approximate dynamic factor model with the monthly indicators $x_{t|v_j} = (x_{1t|v_j}, ..., x_{nt|v_j})'$ are assumed to be driven by r unobserved common factors $F_t = (f_{1t}, ..., f_{rt})'$ with $r \ll n$ and individual-specific idiosyncratic components $\xi_{t|v_j} = (\xi_{1t|v_j}, ..., \xi_{nt|v_j})'$ such that in matrix notation the model reads

$$x_{t|v_j} = \mu + \Lambda F_t + \xi_{t|v_j}, \tag{3}$$

where $\mu = (\mu_1, ..., \mu_n)'$ is a vector of individual specific intercepts and Λ is a $n \times r$ matrix of factor loading

coefficients. The common factors are assumed to follow a vector autoregressive process

$$F_t = AF_{t-1} + Bu_t, \quad u_t \sim WN(0, I_q) \tag{4}$$

where A is a $r \times r$ parameter matrix satisfying a stationarity restriction such that all roots of $(I_r - Az)$ lie outside the unit circle, B is a $r \times q$ matrix of full rank q, and u_t is a $q-$dimensional white-noise process, representing shocks to the common factors. Specifying the equation for factor dynamics allows one to implement the Kalman smoother in order to compute recursively the expected value of the common factors also in the presence of missing observations in the end of the sample, i.e, the "jagged edge", due to asynchronous data releases.

Additional assumptions include a white-noise process for idiosyncratic shocks $\xi_{t|v_j}$ in Equation (2), i.e., $E(\xi_{t|v_j}\xi'_{t-s|v_j})$ with $s > 0$ for all j and v, zero cross-correlation, i.e., $E(\xi_{t|v_j}\xi'_{t|v_j}) = \Psi_{t|v_j} = diag(\psi_{1t|v_j}, ..., \psi_{nt|v_j})$, as well as the assumption of Gaussian error terms.

Denote the expected value of the common factors for a given underlying model M as

$$\widehat{F}_{t|v_j} = E(F_t|\Omega_{v_j}; M)$$

and the associated factor estimation uncertainty as

$$\widehat{V}_{v_j} = E[(F_t - \widehat{F}_{t|v_j})(F_t - \widehat{F}_{t|v_j})'; M)].$$

Both these quantities of interest are available as a standard output of the Kalman filter.

Giannone et al. (2008) suggest to compute now-/forecasts GDP by projecting the quarterly GDP growth growth rates on the estimated monthly factors that have been converted to quarterly frequency by keeping only their values in the last month of quarter, $F_{3k|v_j}$ with $k = 1, ..., \lfloor T_{yv_j}/3 \rfloor$ where T_{yv_j} is the last month in quarter for which GDP is available for a given vintage v_j. Thus, rather than projecting GDP on the whole information set available for some vintage v_j as shown in Equation (1) that may be a rather formidable task, Giannone et al. (2008) suggest projecting on a few common factors resulting in a parsimonious forecast model

$$\widehat{y}_{3k|v_j} = \widehat{\gamma}_0 + \widehat{\gamma}'\widehat{F}_{3k|v_j}, \tag{5}$$

whose parameters can be easily estimated by OLS. The $h-$quarter ahead forecasts are made for each of the following months in quarter $v = 3(k-h) - 2, 3(k-h) - 1, 3(k-h)$. Naturally, for $h = 0$ the nowcasts of the current quarter GDP is produced.

The associated forecast uncertainty is computed as

$$V_{y_{3k|v_j}} = \widehat{\gamma}'\widehat{V}_{v_j}\widehat{\gamma} + Var(\widehat{e}_{3k|v_j}),$$

where $\widehat{e}_{3k|v_j} = y_{3k|v_j} - \widehat{y}_{3k|v_j}$ are the estimated residuals in the forecasting model.

3 Data

The data set of monthly indicators consists of 562 indicators sub-divided into the following 10 blocks: Purchasing Managers Index in manufacturing supplied by Credit Suisse (9 time series, "PMGR"), consumer price indexes (30, "CPI"), labour market indicators (6, "LABOUR"), producer price indexes (11, "PPI"), business tendency surveys in manufacturing collected at the KOF Swiss Economic Institute (150, "CHINOGA"), retail trade (4, "RETAIL"), exports and imports (249, "TRADE"), stock market indices (80, "STMKT"), interest rates (20, "INT.RATE"), and exchange rates (3, "EXCH.RATE"). The chronological sequence of block releases has been recorded in October 2009 and the further assumption has been made that it was preserved during the forecast sample in our "pseudo" real-time exercise. It generally corresponds to the actual release pattern although its timing and ordering may slightly vary from month to month in real life. For each month we constructed 10 vintages of data reflecting gradual expansion of the available information set by the newly released data.

Information on the monthly indicators is presented in Table 1. Observe that blocks of macroeconomic data differ both in terms of size and timeliness. The largest block is the block containing the exports and imports statistics, followed by the KOF surveys. The smallest block is one with the exchange rates, followed by retail trade, labour-market indicators, and the PMGR block where the number of indicators is below 10. In our setup the timeliest block is the KOF surveys released in the middle of the month with zero publishing lag. Following Giannone et al. (2008), we consider only monthly averages of the financial variables that are incorporated in the model at the end of each month. Observe that these variables are available at the daily frequency and by considering their monthly averages we are likely to downplay importance of these variables for forecasting accuracy, on the one hand. On the other hand, the informational content of the financial variables, e.g., stock market indices, may be impaired by their high variability when those are followed at daily frequency. In this case, considering only monthly averages is likely to smooth the noise out, thus positively influencing forecast accuracy. The retail variables are those with the largest publication lag of two months. The rest of blocks are released with lag of one month.

Prior to estimation all data except both blocks of surveys have been transformed to stationarity[2]. Furthermore, Giannone et al. (2008) suggest to transform all variables in order to ensure that these correspond to a quarterly quantity when observed at the end of the quarter[3]. In sequel we will refer to such transformation as the end-of-quarter equivalent transformation (EQE-transformation, in short). For the sake of brevity, we present both sets of the results, i.e., those based on original stationary variables and their quarterly-quantity equivalents. The data set of monthly indicators that is balanced at the beginning of the estimation sample after all necessary transformations and which is used for extraction of common factors starts in the first month of last quarter of 2000, i.e., in 2000M10. A rather late starting date is mainly due to the fact that the KOF business tendency surveys in manufacturing ("CHINOGA"-block) are only available since 1999.

The target variable that we forecast are the quarter-on-quarter seasonally adjusted GDP growth rates.

[2]See Appendix for the complete list of the monthly components and their transformation description.

[3]This is achieved by application of the following filter on the initial monthly time series x_t: $y_t = x_t + 2 * x_{t-1} + 3 * x_{t-2} + 2 * x_{t-3} + x_{t-4}$.

Since in real time a lot of attention is paid to the first officially released figures we assess the forecast accuracy of our factor model with respect to that figure. To this end, we utilize the real-time vintages of all releases of the target variable since the first quarter of 2005. The forecast sample ends in the second quarter of 2009, leaving us with 18 forecasts per vintage.

4 Results

In this section we describe the obtained results. We do it for two sets of indicator variables. First, we consider the data set composed using the variables transformed to stationarity (whenever necessary). In particular, we apply the stationarity transformation to all blocks of variables except "CHINOGA"- and "PMGR"-blocks. We spared these two blocks from stationarity transformation for following reasons: the application of first-differencing of survey indicators resulted in much worse forecasting performance of the factor model compared to the case without this transformation, and since these type of variables by construction are bounded—a feature which is not consistent with properties of unit-root processes. Secondly, we follow the suggestion of Giannone et al. (2008) and report the results obtained using the data set composed of the transformed-to-stationarity variables for which their quarterly equivalents observed at the end of each quarter were computed. For each data set we report the results obtained using the dynamic factor model based on one extracted factor and then we check the robustness of these results by reporting those obtained by extracting two factors.

We limit ourselves to the maximum of two extracted factors for the following reasons. First, the estimation sample is rather limited leaving us with 15 observations used for estimation of parameters of the bridging equation (5) in the very beginning of our forecasting exercise[4]. In the end, we have 34 observations for producing the nowcast using the latest available information set—in the last month of the last reference quarter 2009Q2. Hence by keeping the maximum number of factors to two we work with a parsimonious forecasting model and are not exposed to the risk of overfitting the model. Secondly, both Giannone et al. (2008) and Aastveit and Trovik (2007) use models with two common factors. Koop and Potter (2004) also emphasize the importance of parsimony in model selection for forecasting reporting that an optimal number of factors on average is close to two.

4.1 Data set with stationary indicators: without EQE-transformation

4.1.1 A factor model with $q = 1, p = 1$

We start the analysis of the forecasting performance of the dynamic factor model with its simplest specification; we allow for one common factor, i.e., $p = 1$, and, correspondingly, one common shock $q = 1$, see Equations (3) and (4) describing the model.

Figure 1 reports the relative RMSFE measure of the RMSFE obtained at a given vintage to the RMSFE

[4]The estimation sample of the bridge equation covers 2000Q4–2004Q2 in order to make the first $h = 2$ forecast of growth rate in 2005Q1 made in the last month of 2004Q3.

of a naive constant-growth model, estimated using the same period[5]. Each vintage within a given month is labeled by the name of the corresponding block that expands the available information set. Observe that in addition to ten vintages in each month we evaluate also the extent to which changes in forecasting accuracy can be attributed to extending by one quarter the estimation sample used in the forecasting "bridge regression" by incorporating the latest vintage of the quarterly GDP growth rates. We label such vintages as "UPDATE.GDP (h=1)" and "UPDATE.GDP (h=0)" depending on the timing of the GDP update. In this way we verify whether the estimated coefficients of the bridge regression change or not as a result of increasing the estimation sample and of revisions in quarterly growth rates. In case of coefficient instability we would observe large changes in the corresponding values of the RMSFE compared to that observed for the previous data vintage based on the same set of monthly indicators. As shown below the estimated coefficients in the bridge regression practically are not effected by such action.

In order to establish a benchmark for evaluating marginal changes in forecast uncertainty we started with two-quarter ahead forecasts, $h = 2$, computed when all data releases for the respective quarter where published. The corresponding relative RMSFE is the first bar on the left side of Figure 1. The next bar "PMGR" corresponds to the model where the factor has been extracted from the data set updated in the beginning of the first month in quarter by incorporating newly released Purchasing Managers' Index block that typically takes place in the first working day of month, see Table 1. Starting with the bar "PMGR" the relative RMSFE are reported corresponding to one-quarter ahead forecasts produced during the next three months. After these three months the bars correspond to the RMSFE for the models evaluated during the forecast quarter, i.e., nowcasts.

Observe that the relative RMSFE is always less than one implying that our factor model offers an improvement in forecast accuracy over the constant-growth model as far as two quarters ahead. Furthermore, the relative RMSFE have a strong tendency to decrease as more and more information is utilized in making out-of-sample forecasts. In fact, it decreases from 87% for the only two-quarter ahead forecast to 70% for the best one-quarter ahead forecast, and then further to 52% for the best nowcast made in the last month of the reference quarter. According to Figure 1 the biggest marginal decrease in the relative RMSFE occurs when the business tendency surveys "CHINOGA" are incorporated into the model. According to Table 1, these surveys are the first block with zero publication lag, i.e., it is related to the actual month when forecasts being made. All data blocks released prior to "CHINOGA"-block have the publication lag of one month.

So far our results indicate that the largest informational content for forecasting have the business tendency surveys collected at KOF. In order to understand driving forces behind this finding we plotted the (absolute) correlations of extracted factors with the indicators, see Figures 3–5 for correlations with the first, the second, and the third factors, respectively. As seen, there is a strong association of each factor with a particular block(s) of variables. Thus, the first factor exhibits very high correlation with "PMGR", "LABOUR", and, especially, with "CHINOGA", which is the largest block among these three blocks. There also a medium-strength correlation is observed with the block of interest rates. The second common factor primarily

[5]Using the extended sample starting in 1992Q1 for out-of-sample growth forecasts for a constant-growth model results in practically the same results. Here we use the same estimation sample in order to make the RMSFE obtained by the competing models comparable.

correlates with the stock market indices "STMKT". Finally, the third factor mostly correlates with the exports-imports indicators although correlation strength is not that large.

Based on the correlation analysis we can readily explain the finding that the block "CHINOGA" has the largest informational content in a given setup. First, this block of the variables exhibits the highest correlation with the first common factor used to produce forecasts. Second, this block is the timeliest one, i.e., in our chronological release sequence it is the first block containing information on the same month when it is released. Hence the fact that newly released information that primarily feeds into the first common factor and in doing so it clearly improves forecast accuracy seems to confirm aspirations of many economists and policy-makers that the qualitative soft data in the form of business tendency surveys provide a useful information on the current as well as future stand of economic activity in a timely manner. This finding also conforms to that reached in Giannone et al. (2008) regarding the importance of surveys for nowcasting the US economy.

4.1.2 A factor model with $q = 2, r = 2$

In this subsection we investigate the robustness of the obtained results by evaluating forecasting performance of the dynamic factor model with two common factors. Based on the results of the correlation analysis presented above we impose two common factors $p = 2$ and two common shocks $q = 2$ that feed into these common factors. Recall that the first common factor is primarily associated with "PMGR", "LABOUR", and "CHINOGA" data blocks, whereas the second factor—with the block of stock market indices "STMKT".

The resulting relative RMSFE are displayed in Figure 2. Several observations can be made. First, adding the second factor to the forecasting model does not change the earlier result on the relatively large importance of surveys. In fact the associated marginal increase in forecast accuracy is much stronger pronounced for all "CHINOGA"-releases within a month except for the release in the last month of nowcasting quarter when no noticeable improvement can be observed. Second, the incorporation of the block of stock market indices "STMKT", whose components are highly correlated with the second factor, somewhat obscures forecast accuracy in this two-factor model. A likely reason for this surprising finding is that when extracting common factors from the monthly data set we do not perform the transformation suggested in Giannone et al. (2008) that converts monthly time series to its end-of-quarter equivalents. The sensitivity of the results with respect to application of this transformation is investigated in the next subsection.

4.2 Data set with stationary indicators: EQE-transformation

4.2.1 A factor model with $q = 1, r = 1$

In this section we repeat the forecasting exercise but this time using monthly indicators converted to its end-of-quarter equivalents as advocated in Giannone et al. (2008). Observe that this transformation is applied to all blocks of variables but the "CHINOGA"-block where this transformation appears to superfluous and unnecessary as it only results in much worse forecast performance. As the "PMGR"-block also represents the business tendency surveys we likewise retained untransformed indicators in this block. Although the

question of whether to transform or not to transform the "PMGR"-block is of much less importance due to the fact that it is released after the "CHINOGA"-block and its size is much smaller.

We start with the forecasting model based on one common factor. The corresponding relative RMSFE is displayed in Figure 6. The first observation is that our earlier conclusion on the largest informational content of surveys is no longer supported in this model. In fact, the largest marginal change occurs when the stock market indices are incorporated in the forecasting model. This is true for all months except the last one when inclusion of further data blocks starting with survey-block slightly worsens accuracy of nowcast. The second observation is that the overall forecast accuracy when compared with the one-factor model without such transformation has been boosted. Thus for the two-quarter ahead forecast the relative RMSFE ratio has gone down from 87% to 78%, for the best one-quarter ahead forecast—from 70% to 60%, and finally for the best nowcast—from 52% to 49% with an additional notice that the RMSFE ratio of 49% is achieved in the beginning of the last month of quarter for the model with transformed variables whereas the RMSFE ratio of 52% is achieved in the end of the same month, i.e., at a much later point of time. Figure 7 compares forecast performance of these two models confirming the superior forecast accuracy of the factor model based on the transformed data.

In order to understand the sources of improvement in forecast accuracy we compared correlations of the extracted factor with the transformed indicators, see Figure 8. The corresponding correlation with indicators without EQE-transformation is presented in Figure 9. Observe that in order to facilitate comparison we reported only correlations that in absolute value are larger than the chosen threshold of 0.60 in both figures. The first thing to notice immediately that the first factor in the former model is highly correlated with indicators from all blocks but "RETAIL" and "EXCH.RATE". This is in sharp contrast to the earlier finding that the first factor mostly correlates with "PMGR", "LABOUR", and "CHINOGA" blocks and the selected correlations presented in Figure 9 further emphasize the point. Hence the former model exploits information contained in different blocks composing the large panel to much better extent.

Analysis of correlations suggests also a tentative explanation why the earlier observation presented in Section 4.1.1 on the largest informational content of "CHINOGA"-block is not supported in the current setup but it is rather attributed to "STMKT"-block. According to Figure 8 both "CHINOGA"- and "STMKT"-blocks appear to be the most important blocks that contribute to dynamics of the common factor. Hence the release of "CHINOGA"-block earlier in the month represents only partial information that determines the out-sample dynamics of the common factor, the remaining information is incorporated in the model only when "STMKT"-block is released, jointly leading to improved forecast accuracy.

We also would like to make a comment regarding performance of the Purchasing Managers' Index ("PMGR") block. According to both Figures 8 and 9 the variables in this block exhibit very high correlation with the extracted factor. Hence it appears to be a highly relevant indicator that deservingly attracts a lot of attention both by practitioners as well as by the media whenever it is released. In current setup we, however, did not find that this block has a significant impact on forecast accuracy. This can be traced to the fact that its release takes place more than two weeks later than the release of "CHINOGA"-block and is barely preceded by incorporation of "STMKT"-block into the forecasting model. Hence the information

contained in "PMGR"-block is likely to be already accommodated in the forecasting model at the moment of its release.

4.2.2 A factor model with $q = 2, r = 2$ and $q = 1, r = 2$

In this section we investigate the forecasting performance of factor models with two factors. More specifically, first consider a model where we impose two common shocks $q = 2$ as well as two common factors $r = 2$, similarly to the analysis reported in Section 4.1.2. Secondly, we consider an intermediate-case model with one common shock feeding into two common factors, i.e., imposing $q = 1, r = 2$. The forecast performance evaluation for the former and the latter models compared to that of the more parsimonious model with $q = 1, r = 1$ considered in the previous section is presented in Figures 10 and 11, respectively. The main conclusion drawn from these figures is that inclusion of the second factor into the forecasting model only resulted in the inferior forecasting performance compared to a single-factor model. This implies that in a given setup the common dynamics in our panel which is relevant to forecasting GDP is well captured by the first common factor. This conclusion is also supported by the fact that in the forecasting "bridge regression" the second factor was found to be insignificantly different from zero at the usual levels.

5 Forecasting GDP during the current crisis

In this section we further investigate how the factor model in its preferred specification performed during the whole forecast sample paying a special attention to its ability to forecast the Swiss GDP during the current crisis. The relevant information is displayed in Figure 12. The upper panel of Figure 12 displays all vintage-specific forecasts, whereas the lower panel contains the variance of quarter-specific forecasts across all vintages, measuring response sensitivity of subsequent forecasts to the continuous flow of new information. It is striking to observe that during the pre-crisis period the computed dispersion has been largely constant whereas since 2008Q4 we observe a sharp increase in forecast responsiveness to new pieces of information illustrating the rapidly unfolding crisis triggered by the unexpected collapse of the Lehman Brothers in the middle of September 2008. This can traced to the fact that the set of predictions for 2008Q4 consists both of the forecasts made prior to the bankruptcy of the Lehman Brothers as well as of the nowcasts made in the aftermath period. The high variability of forecasts has been retained in the following quarter 2009Q1 with subsequent decrease in 2009Q2 towards the pre-crisis level. Although it is difficult to generalize based on the experience from the single crisis our results indicate that this pattern may tentatively be used as an additional crisis indicator signalling rapid changes in the economic activity.

Finally, in Figure 13 we provide the actual values of the first release of the quarterly GDP and the forecasts from the preferred model produced during the vintage "UPDATE.GDP(h=0)" that corresponds to the lowest relative RMSFE observed, see Figure 7. The timing of this vintage is the very beginning of the last month of forecast quarter corresponding to nowcasts. We find that our nowcasts can rather good trace the actual growth rate. With respect to the predicting the current crisis we notice that our nowcasts correctly predict the negative quarterly growth rates in the last three quarters—2008Q4, 2009Q1, and 2009Q2—of our

forecast sample, although it is slightly optimistic in 2008Q3. It is remarkable that the overall good nowcast performance of the factor model has been achieved without any pre-selection of the indicators based, for example, on correlation strength with the reference variable or any other pre-selection procedure suggested in the literature (e.g., see Siliverstovs and Kholodilin, 2009; Bai and Ng, 2008; Boivin and Ng, 2006).

6 Conclusion

In this paper we utilize the dynamic factor model based on 562 monthly indicators for now-/forecasting the quarter-on-quarter growth rates of seasonally adjusted GDP in Switzerland. To the best of our knowledge our study represents the first attempt to employ this sort of models for predicting Swiss GDP. We find that the preferred version of the dynamic factor model offers substantial improvement in forecast accuracy when compared to that based on a naive constant-growth model. The highest forecast accuracy of the first official release of GDP growth rates for an actual quarter is achieved about three months before the release takes place. The corresponding ratio of the RMSFE of the factor model to that of the benchmark model is 49%.

Furthermore, we use the factor model in order to investigate the informational content of subsequent data releases of various macroeconomic variables. To this end, we perform a pseudo-real-time exercise where we simulate the asynchronous pattern of within-month releases of various blocks of data. We find that both business tendency surveys and stock market indices have the most informational content for predicting GDP in Switzerland. However, we must issue a warning here that the outcome in such exercises may crucially depend on the applied transformation of the monthly indicators—a topic that, in our view, largely seems to be overlooked in the routine applications involving large data sets. For example, we find that the largest marginal impact on forecast accuracy is attributed to surveys in the model where the monthly indicator were not subject to the end-of-quarter transformation. In the factor model where such transformation was applied we find that the largest informational content is attributable to the stock market variables.

We also find out that different transformations of the variables may not only result in different ranking of the importance of difference data blocks for forecasting GDP but also may influence the overall forecasting performance of the factor model. Thus, for our data set at hand we find out that the best forecasting results are achieved in the model where a single factor is extracted from the panel where the monthly survey indicators did not undergo any transformation (neither stationarity-related nor end-of-quarter equivalents) whereas the remaining blocks including the block of stock market indices undergo both types of transformation.

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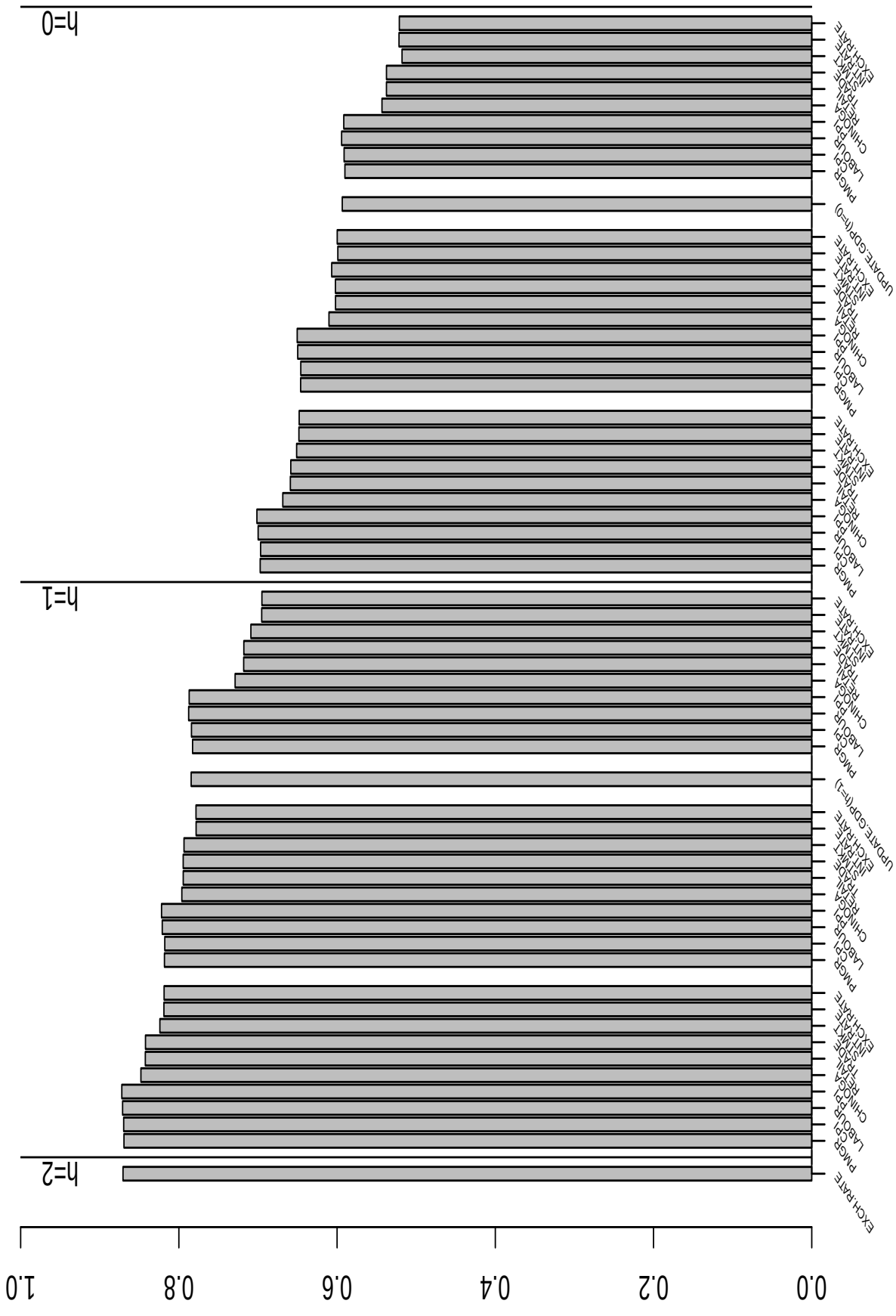

Figure 1: Relative RMSFE: Factor model $q = 1, r = 1$ (without EQE-transformation) to a constant-growth model: 2005Q1–2009Q2

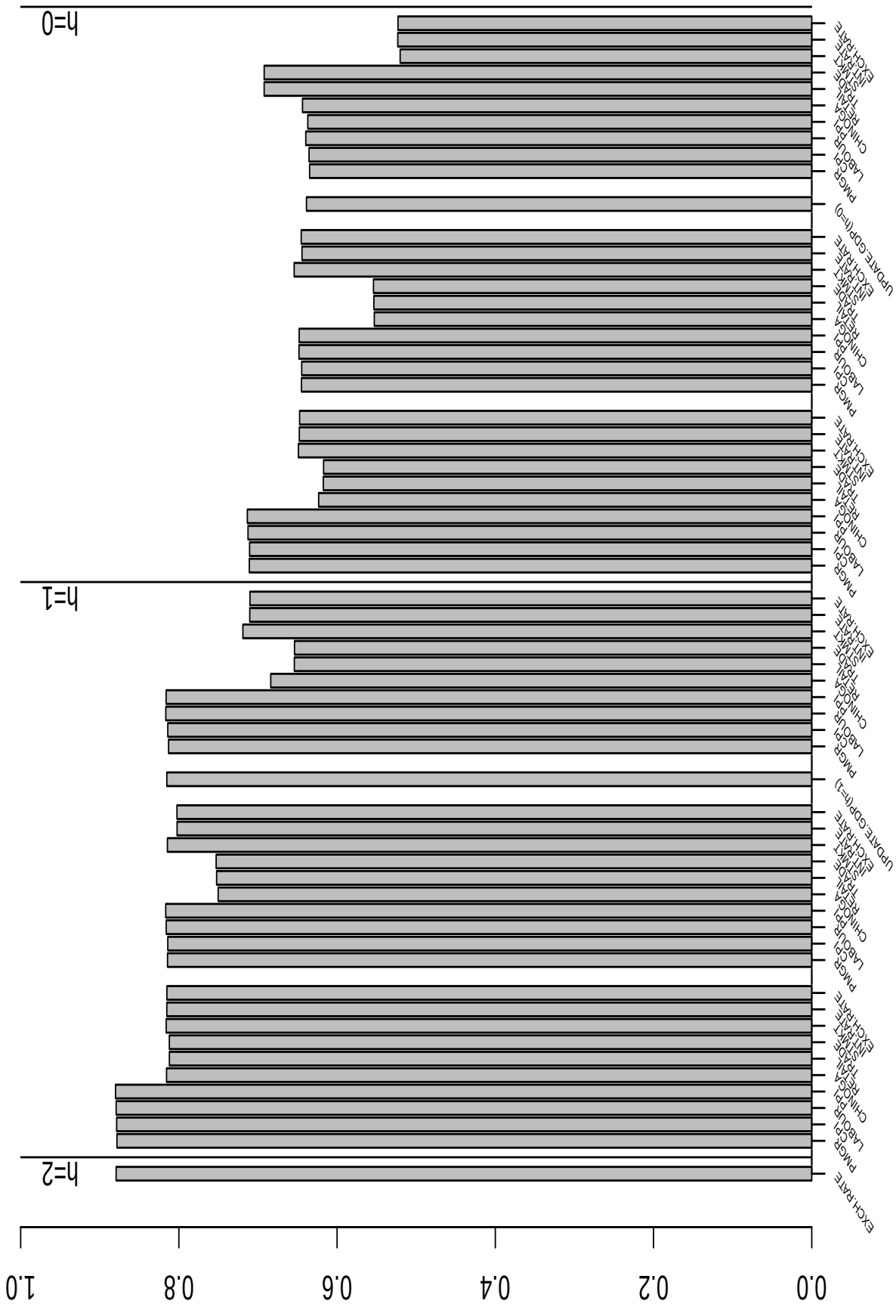

Figure 2: Relative RMSFE: Factor model $q = 2, r = 2$ (without EQE-transformation) to a constant-growth model: 2005Q1–2009Q2

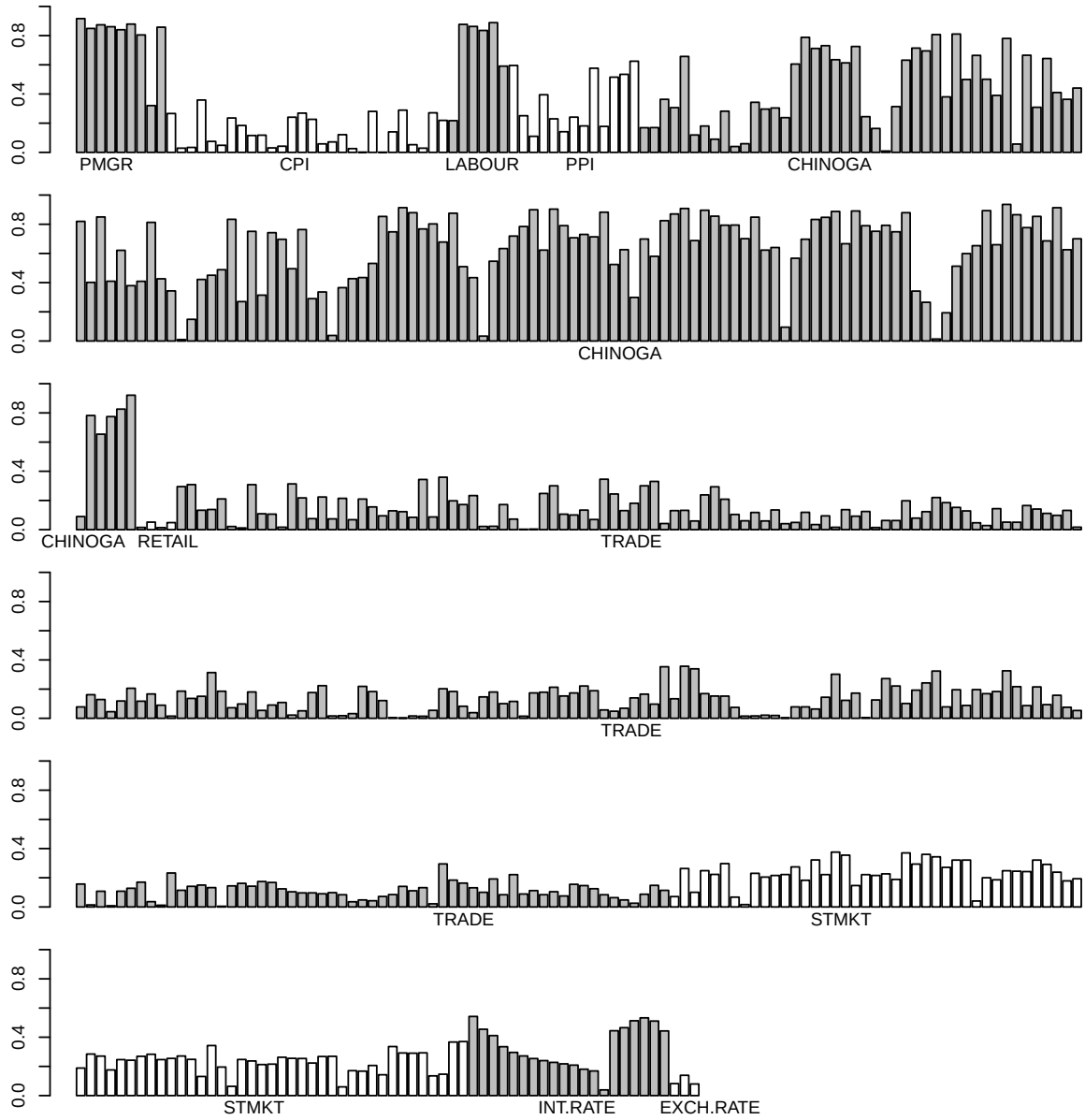

Figure 3: Stationary monthly indicators (without EQE-transformation); Correlation with the first factor: 2000M10–2009M6

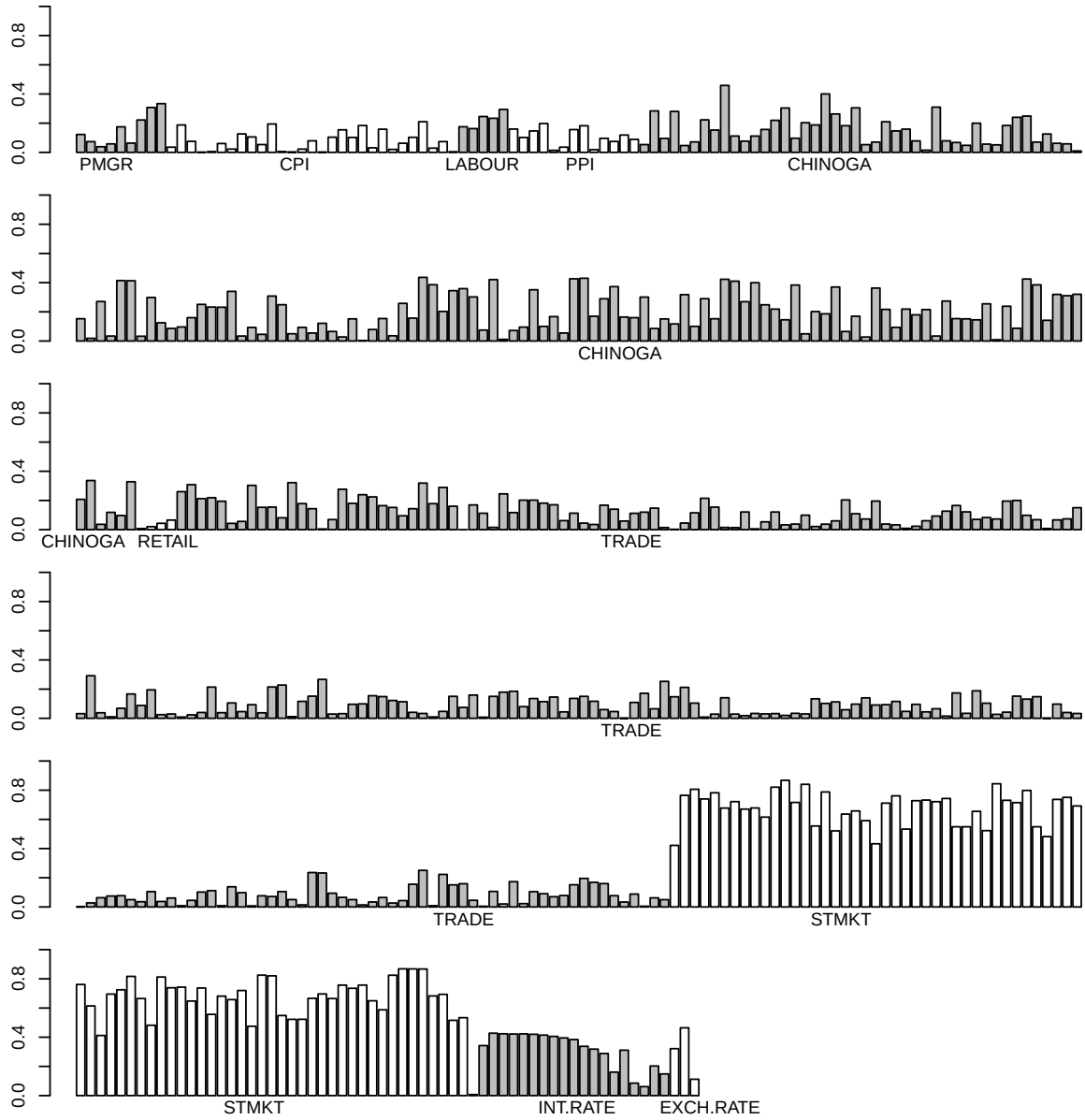

Figure 4: Stationary monthly indicators (without EQE-transformation); Correlation with the second factor: 2000M10–2009M6

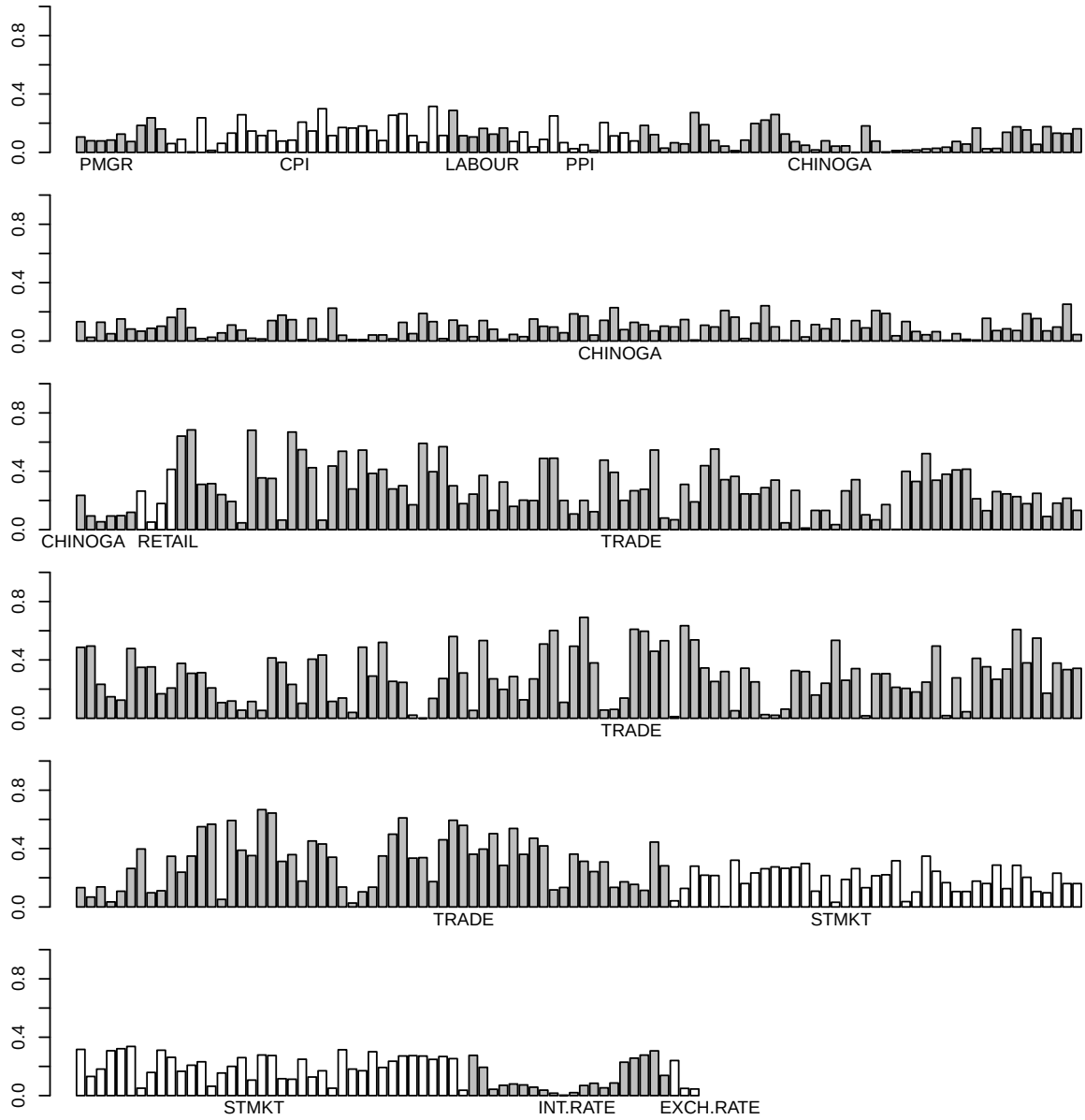

Figure 5: Stationary monthly indicators (without EQE-transformation); Correlation with the third factor: 2000M10–2009M6

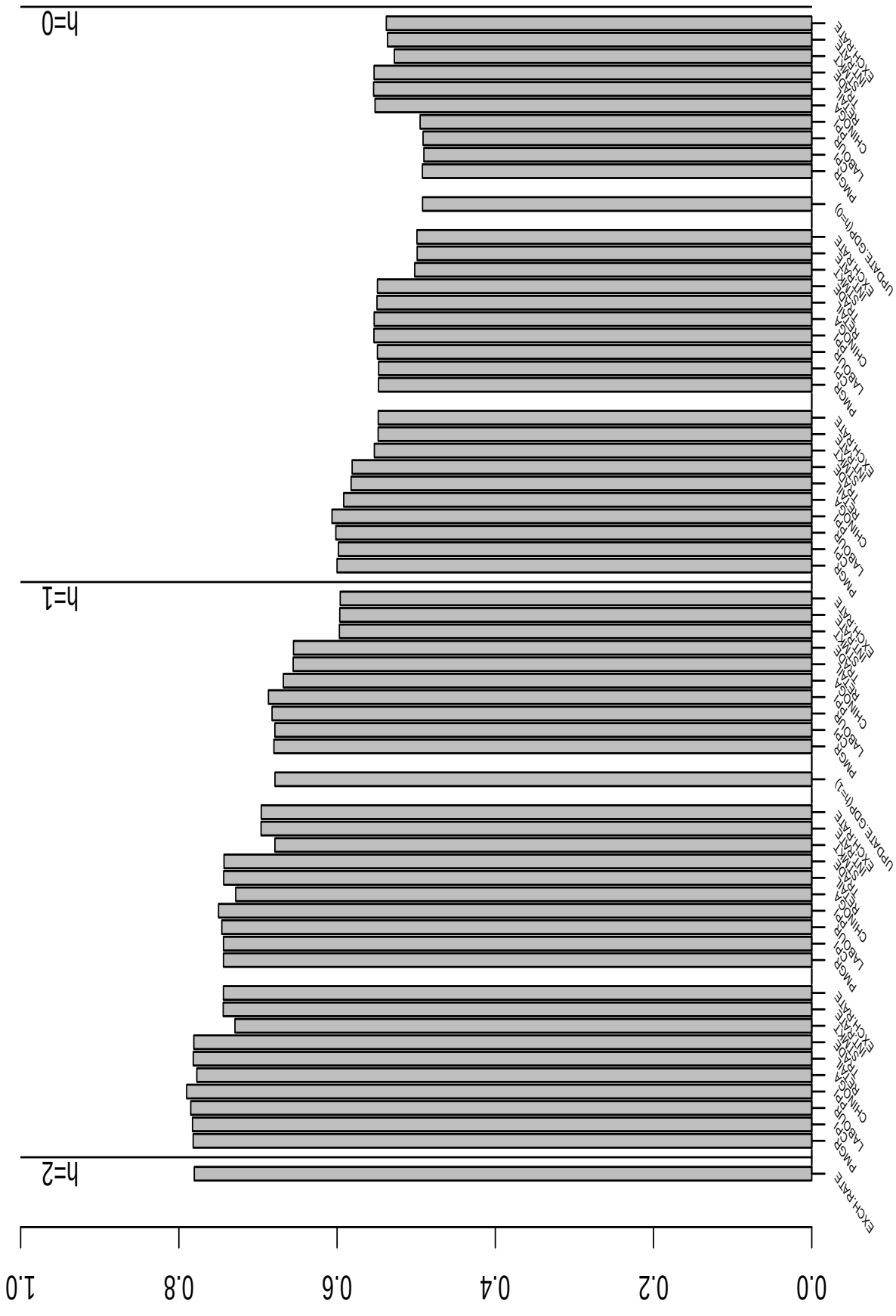

Figure 6: Relative RMSFE: Factor model $q = 1, r = 1$ (with EQE-transformation) to a constant-growth model: 2005Q1–2009Q2

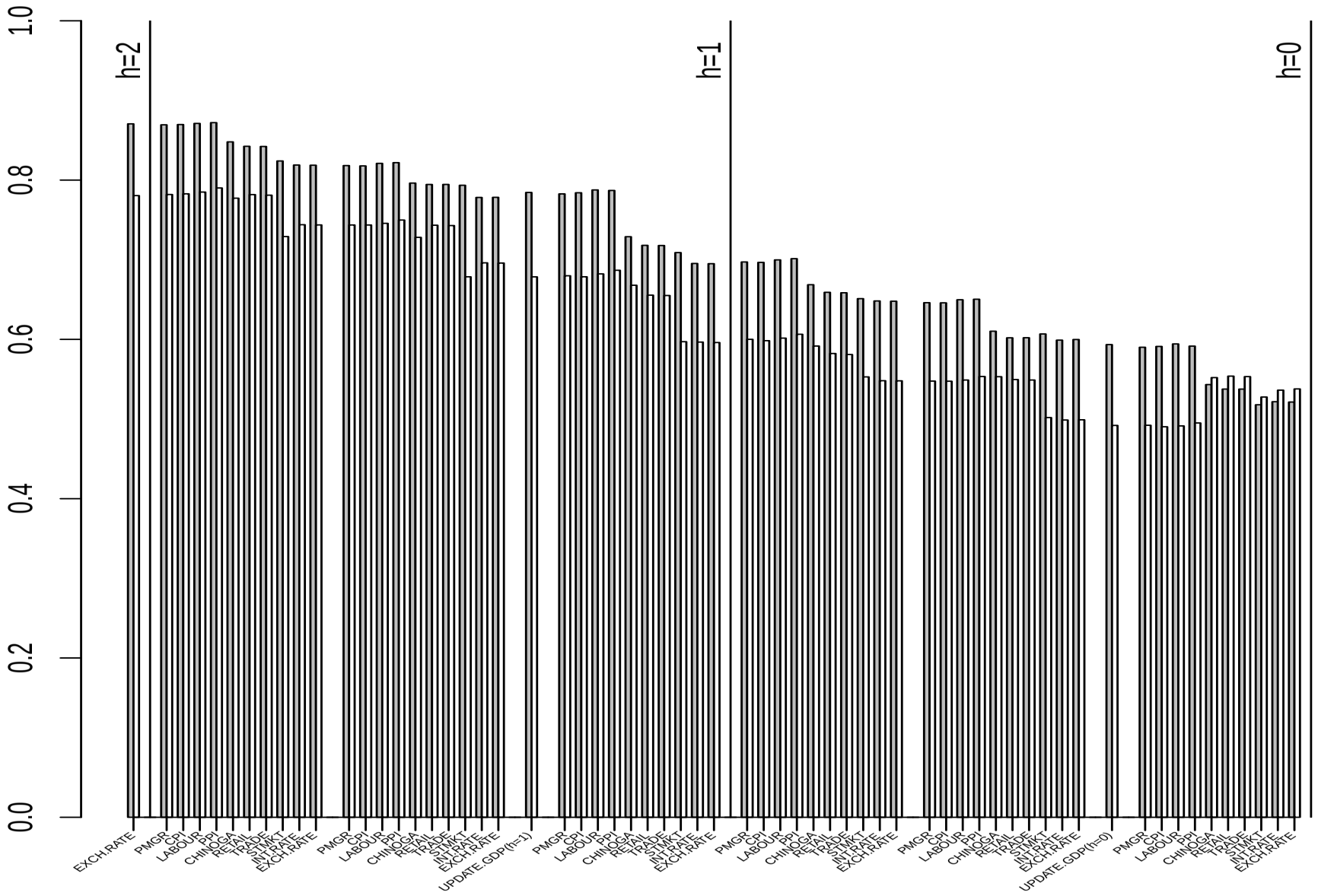

Figure 7: Relative RMSFE: Factor model without ("filled bars") and with ("empty bars") EQE-transformation: 2005Q1–2009Q2

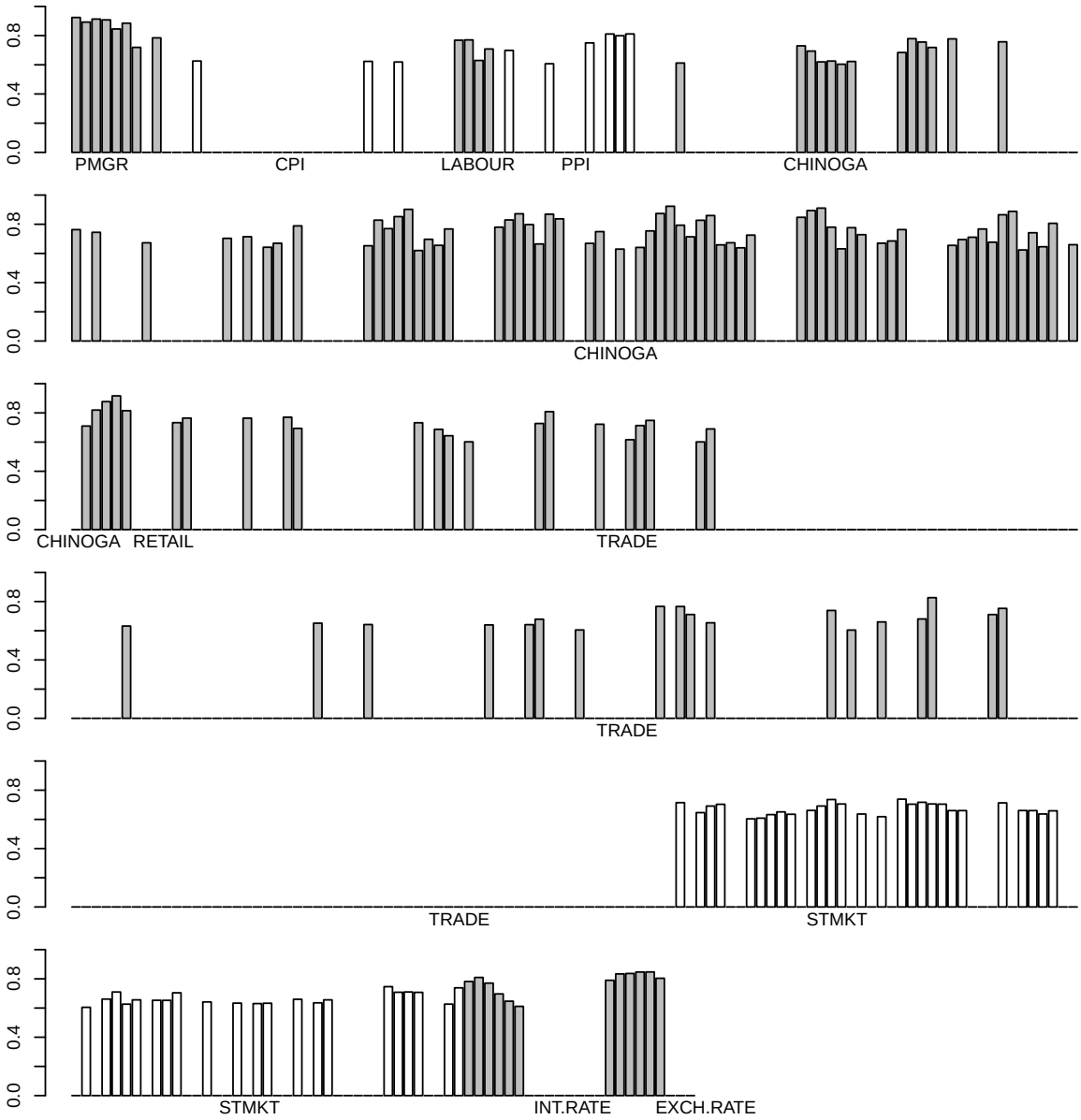

Figure 8: Stationary monthly indicators (with EQE-transformation); Correlation coefficient larger than 0.60 with the first factor: 2000M10–2009M6

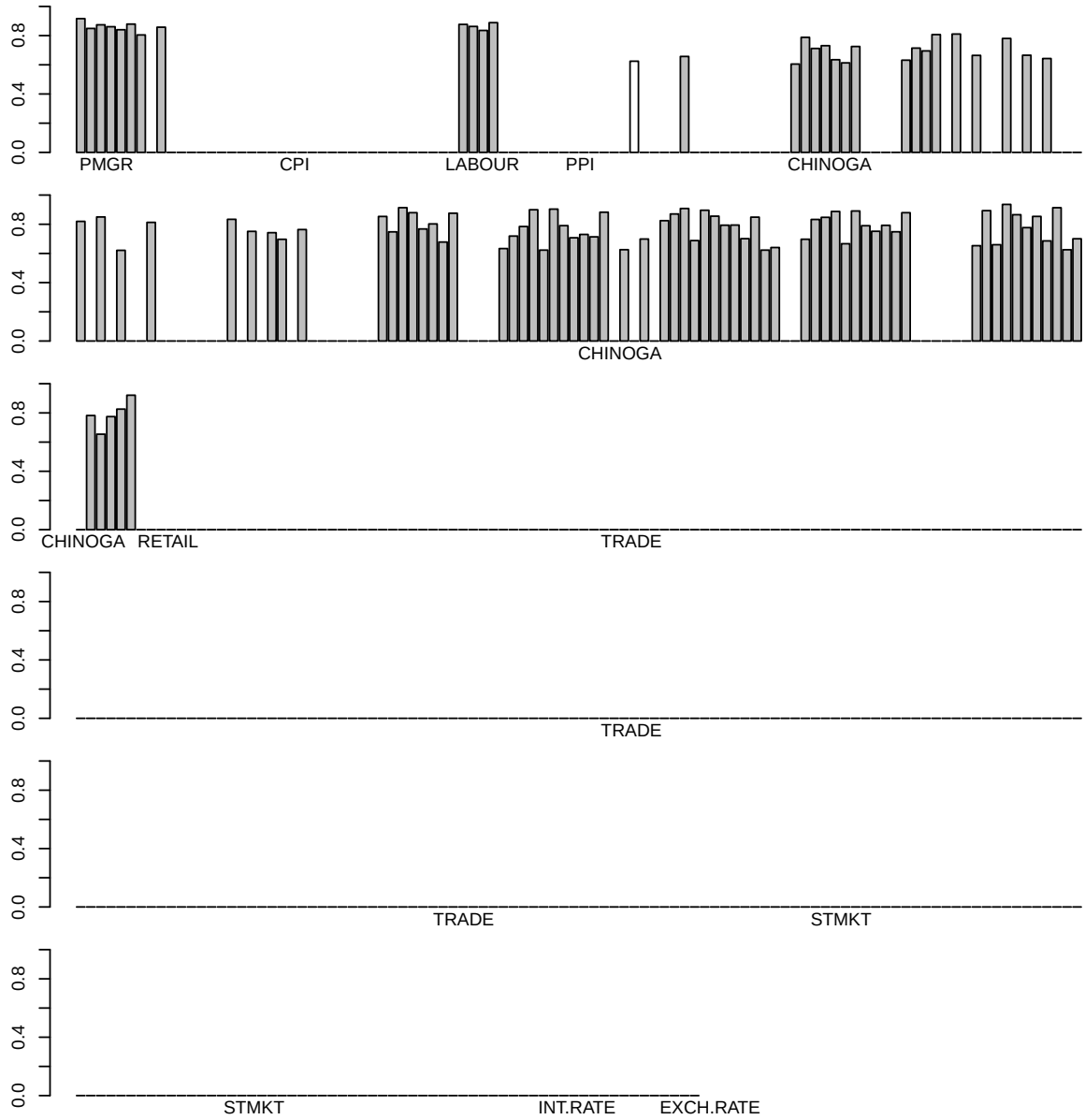

Figure 9: Stationary monthly indicators (without EQE-transformation); Correlation coefficient larger than 0.60 with the first factor: 2000M10–2009M6

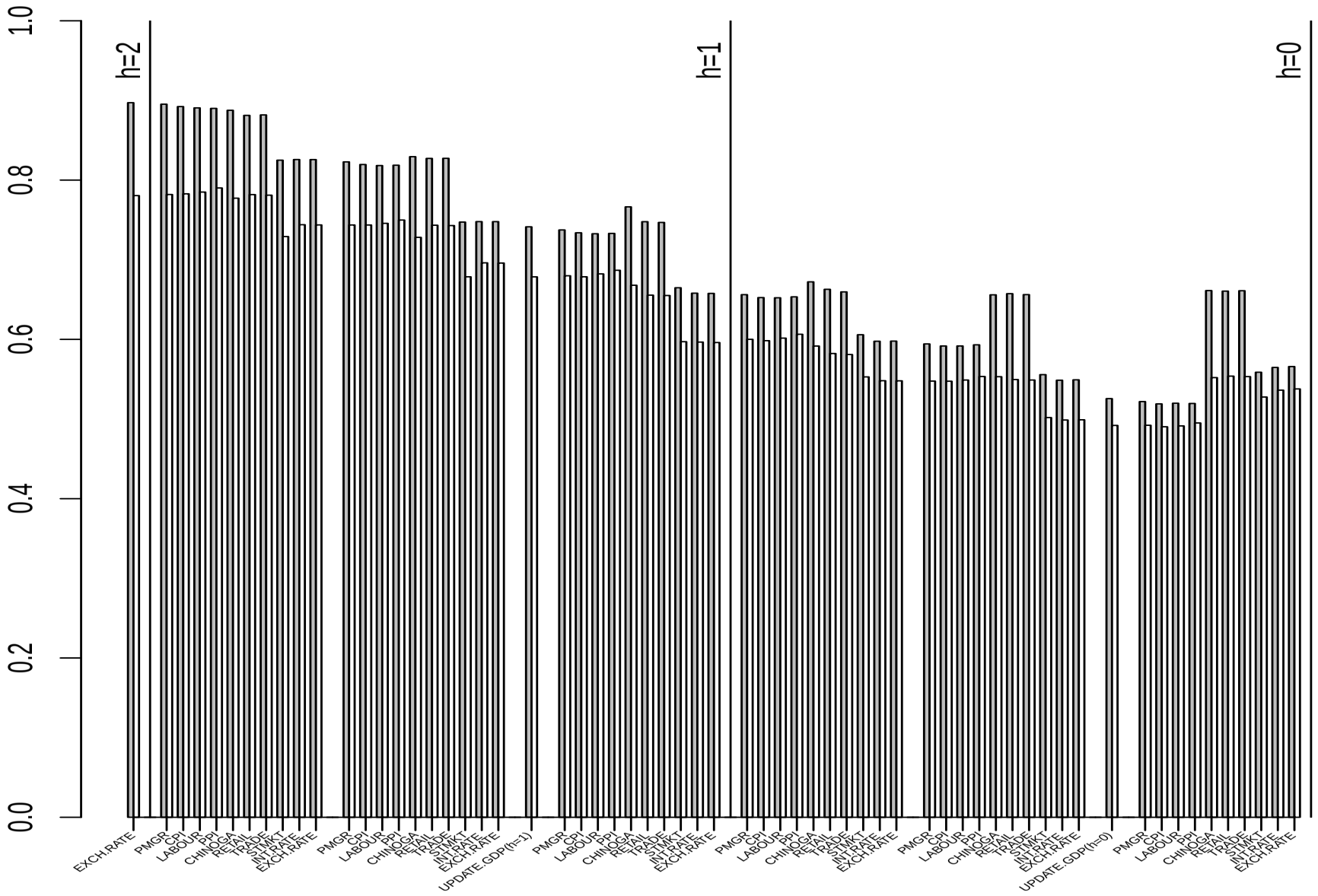

Figure 10: Relative RMSFE: Factor models $q = 2, r = 2$ ("filled bars") and $q = 1, r = 1$ ("empty bars") (with EQE-transformation): 2005Q1–2009Q2

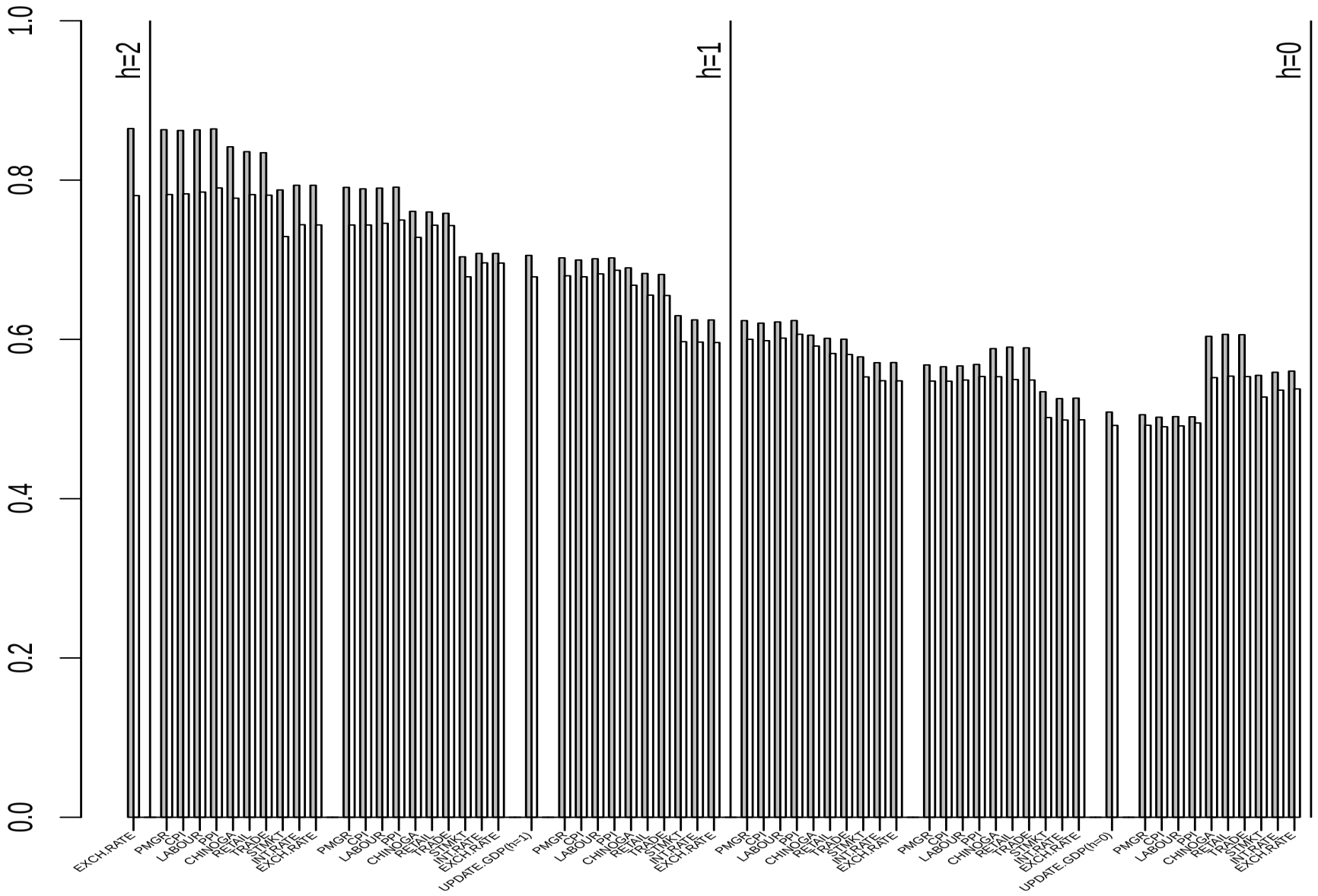

Figure 11: Relative RMSFE: Factor models $q = 2, r = 1$ ("filled bars") and $q = 1, r = 1$ ("empty bars") (with EQE-transformation) : 2005Q1–2009Q2

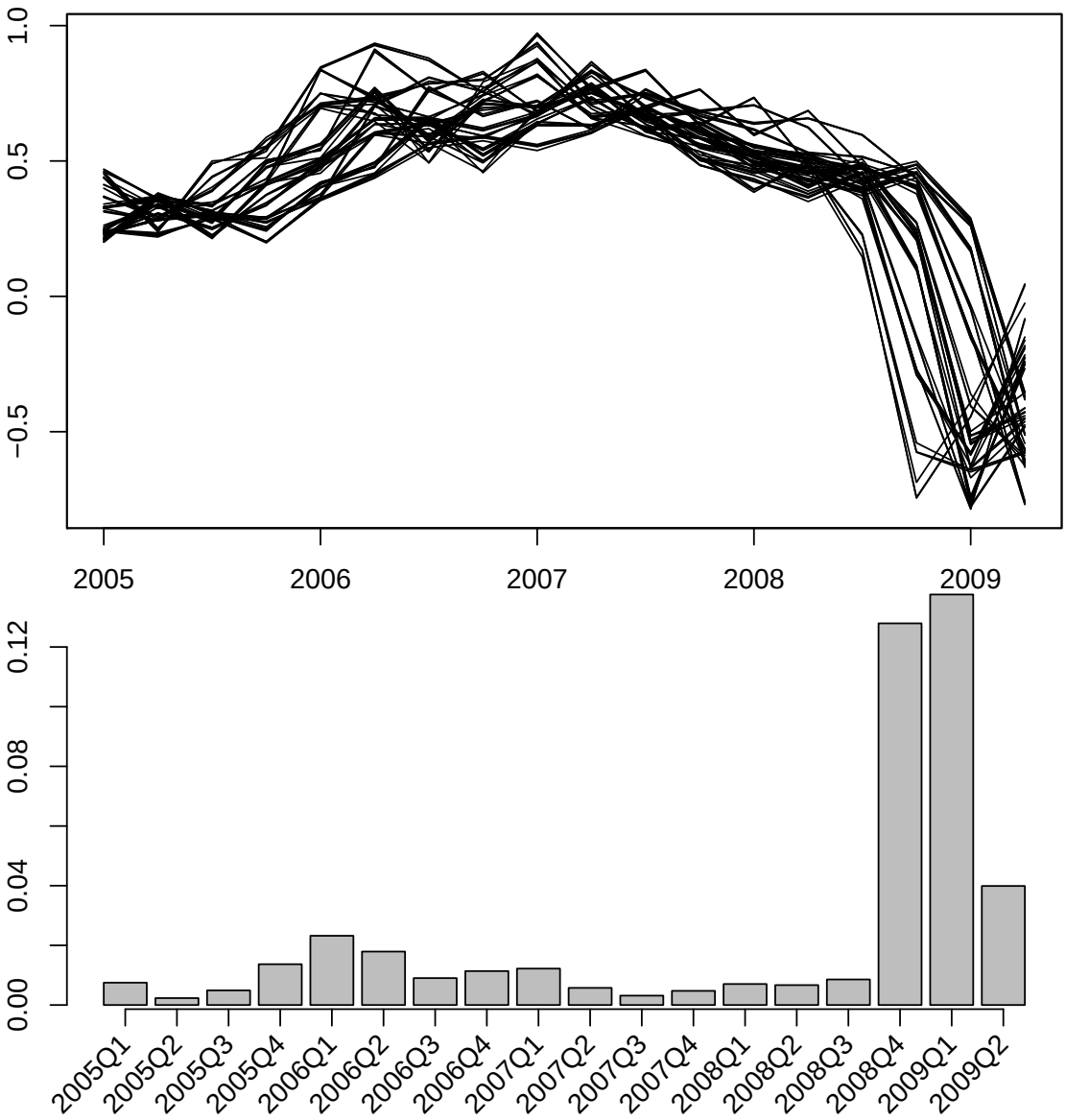

Figure 12: Vintages-specific forecasts from the best single-factor model $q = 1, r = 1$ (the upper panel); Variance across all vintage-specific forecasts for a given quarter (the lower panel)

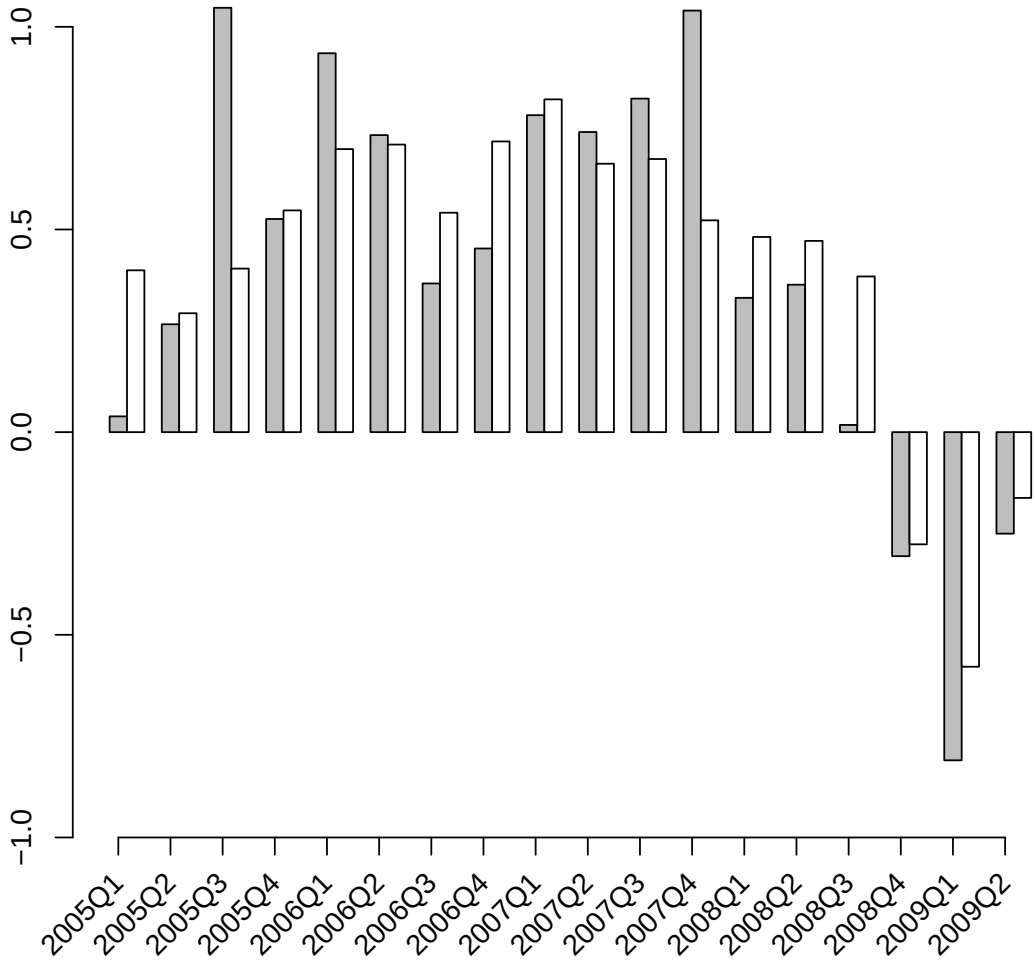

Figure 13: First-available GDP growth rates (seas.adj., q-on-q) ("filled bars") and forecasts from the best single-factor model $q = 1, r = 1$ ("empty bars"); vintage "UPDATE.GDP(h=2)"

Table 1: Chronology of data releases during the month

Block	Published by	Timing (approx.)	Publication lag (in months)	Block size
PMGR-manufacturing	Credit Suisse	1st working day of month	1	9
CPI	Swiss Federal Statistical Office	First week of month	1	28
Labour	State Secretariat for Economic Affairs	Second week of month	1	6
PPI	Swiss Federal Statistical Office	Second week of month	1	13
BTS in manufacturing	KOF Swiss Economic Institute	Middle of month	0	150
Retail	Swiss Federal Statistical Office	Middle of month	2	4
Exports/Imports	Swiss Federal Customs Administration	Middle of month	1	249
Stock market indices	Datastream	Last day of month (monthly average)	0	80
Interest rates	Datastream	Last day of month (monthly average)	0	20
Exchange rates	Datastream	Last day of month (monthly average)	0	3

The chronological sequence of block releases has been recorded in October 2009. We proceed under assumption that such ordering and timing has been constant over time. However, we readily acknowledge that the actual timing and ordering may slightly vary.

A Appendix

Table A-1: Components for a dynamic factor model

Nr.	Block	Indicator	Seas. Adjustment	Transformation
1	PMGR	Purchasing Managers' Index (PMI) - Total	yes	0
2	PMGR	PMI subindex: Output	yes	0
3	PMGR	PMI subindex: Backlog of orders	yes	0
4	PMGR	PMI subindex: Quantity of purschase	yes	0
5	PMGR	PMI subindex: Purchase prices	yes	0
6	PMGR	PMI subindex: Suppliers' delivery times	yes	0
7	PMGR	PMI subindex: Stocks of purchases	yes	0
8	PMGR	PMI subindex: Stocks of finished goods	yes	0
9	PMGR	PMI subindex: Employment	yes	0
10	CPI	Consumer Price Index (CPI) - Total	yes	1
11	CPI	CPI: Food and non-alcoholic beverages	yes	1
12	CPI	CPI: Alcoholic beverages and tobacco	yes	1
13	CPI	CPI: Residential rent and energy	yes	1
14	CPI	CPI: Household utensils and housekeeping	yes	1
15	CPI	CPI: Health care	yes	1
16	CPI	CPI: Transportation	yes	1
17	CPI	CPI: Communication	yes	1
18	CPI	CPI: Leisure and culture	yes	1
19	CPI	CPI: Education	yes	1
20	CPI	CPI: Restaurants and hotels	yes	1
21	CPI	CPI: Other goods and services	yes	1
22	CPI	CPI: Commodities	yes	1
23	CPI	CPI: Non-durables	yes	1
24	CPI	CPI: Semi-durables	yes	1
25	CPI	CPI: Durables	yes	1
26	CPI	CPI: Services	yes	1
27	CPI	CPI: Private services	yes	1
28	CPI	CPI: Public services	yes	1
29	CPI	CPI: Domestic	yes	1
30	CPI	CPI: Foreign	yes	1
31	CPI	CPI: Seasonal products	yes	1
32	CPI	CPI: Residential rent	yes	1
33	CPI	CPI: Petroleum products	yes	1
34	CPI	CPI: Tobacco	yes	1
35	CPI	CPI: Alcoholic beverages	yes	1
36	CPI	CPI: Heating oil	yes	1
37	CPI	CPI: Motor fuel	yes	1
38	LABOUR	Vacancies	yes	1
39	LABOUR	Total, unemployed	yes	1
40	LABOUR	Full-time unemployed	yes	1
41	LABOUR	Part-time unemployed	yes	1
42	LABOUR	Total, registered job-seekers	yes	1
43	LABOUR	Long-time unemployed	yes	1
44	PPI	Producer Price Index (PPI) - Total	yes	1
45	PPI	PPI: Natural stones, sand and gravel	yes	1
46	PPI	PPI: Food and tobacco	yes	1
47	PPI	PPI: Wood, wooden products	yes	1
48	PPI	PPI: Petroleum products	yes	1
49	PPI	PPI: Chemical products	yes	1
50	PPI	PPI: Rubber and plastic products	yes	1
51	PPI	PPI: Products out of glass, ceramic, stone and soil	yes	1
52	PPI	PPI: Metal, metal products	yes	1
53	PPI	PPI: Energy supply	yes	1
54	PPI	PPI: Import price index: total	yes	1
55	PPI	PPI: Manufacturing production	yes	1
56	PPI	Price index total supply: total	yes	1
57	CHINOGA	Food, beverages, tobacco: orders, previous month	no	0
58	CHINOGA	Food, beverages, tobacco: orders, same month last year	no	0
59	CHINOGA	Food, beverages, tobacco: orders on hand, previous month	no	0
60	CHINOGA	Food, beverages, tobacco: orders on hand, assessment	no	0
61	CHINOGA	Food, beverages, tobacco: orders on hand abroad, assessment	no	0
62	CHINOGA	Food, beverages, tobacco: production, previous month	no	0
63	CHINOGA	Food, beverages, tobacco: production, same month last year	no	0

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Table A-1 – continued from previous page

Nr.	Block	Indicator	Seas. Adjustment	Transformation
64	CHINOGA	Food, beverages, tobacco: primary products, inventory previous month	no	0
65	CHINOGA	Food, beverages, tobacco: primary products, inventory assessment	no	0
66	CHINOGA	Food, beverages, tobacco: finished products, inventory previous month	no	0
67	CHINOGA	Food, beverages, tobacco: finished products, inventory assessment	no	0
68	CHINOGA	Food, beverages, tobacco: expected orders	no	0
69	CHINOGA	Food, beverages, tobacco: expected production	no	0
70	CHINOGA	Food, beverages, tobacco: expected primary product purchase	no	0
71	CHINOGA	Food, beverages, tobacco: business climate	no	0
72	CHINOGA	Textile, clothing, leather, footwear: orders, previous month	no	0
73	CHINOGA	Textile, clothing, leather, footwear: orders, same month last year	no	0
74	CHINOGA	Textile, clothing, leather, footwear: orders on hand, previous month	no	0
75	CHINOGA	Textile, clothing, leather, footwear: orders on hand, assessment	no	0
76	CHINOGA	Textile, clothing, leather, footwear: orders on hand abroad, assessment	no	0
77	CHINOGA	Textile, clothing, leather, footwear: production, previous month	no	0
78	CHINOGA	Textile, clothing, leather, footwear: production, same month last year	no	0
79	CHINOGA	Textile, clothing, leather, footwear: primary products, inventory previous month	no	0
80	CHINOGA	Textile, clothing, leather, footwear: primary products, inventory assessment	no	0
81	CHINOGA	Textile, clothing, leather, footwear: finished products, inventory previous month	no	0
82	CHINOGA	Textile, clothing, leather, footwear: finished products, inventory assessment	no	0
83	CHINOGA	Textile, clothing, leather, footwear: expected orders	no	0
84	CHINOGA	Textile, clothing, leather, footwear: expected production	no	0
85	CHINOGA	Textile, clothing, leather, footwear: expected primary product purchase	no	0
86	CHINOGA	Textile, clothing, leather, footwear: business climate	no	0
87	CHINOGA	Wood; other non-metal: orders, previous month	no	0
88	CHINOGA	Wood; other non-metal: orders, same month last year	no	0
89	CHINOGA	Wood; other non-metal: orders on hand, previous month	no	0
90	CHINOGA	Wood; other non-metal: orders on hand, assessment	no	0
91	CHINOGA	Wood; other non-metal: orders on hand abroad, assessment	no	0
92	CHINOGA	Wood; other non-metal: production, previous month	no	0
93	CHINOGA	Wood; other non-metal: production, same month last year	no	0
94	CHINOGA	Wood; other non-metal: primary products, inventory previous month	no	0
95	CHINOGA	Wood; other non-metal: primary products, inventory assessment	no	0
96	CHINOGA	Wood; other non-metal: finished products, inventory previous month	no	0
97	CHINOGA	Wood; other non-metal: finished products, inventory assessment	no	0
98	CHINOGA	Wood; other non-metal: expected orders	no	0
99	CHINOGA	Wood; other non-metal: expected production	no	0
100	CHINOGA	Wood; other non-metal: expected primary product purchase	no	0
101	CHINOGA	Wood; other non-metal: business climate	no	0
102	CHINOGA	Paper, printing, publishing: orders, previous month	no	0
103	CHINOGA	Paper, printing, publishing: orders, same month last year	no	0
104	CHINOGA	Paper, printing, publishing: orders on hand, previous month	no	0
105	CHINOGA	Paper, printing, publishing: orders on hand, assessment	no	0
106	CHINOGA	Paper, printing, publishing: orders on hand abroad, assessment	no	0
107	CHINOGA	Paper, printing, publishing: production, previous month	no	0
108	CHINOGA	Paper, printing, publishing: production, same month last year	no	0
109	CHINOGA	Paper, printing, publishing: primary products, inventory previous month	no	0
110	CHINOGA	Paper, printing, publishing: primary products, inventory assessment	no	0
111	CHINOGA	Paper, printing, publishing: finished products, inventory previous month	no	0
112	CHINOGA	Paper, printing, publishing: finished products, inventory assessment	no	0
113	CHINOGA	Paper, printing, publishing: expected orders	no	0
114	CHINOGA	Paper, printing, publishing: expected production	no	0
115	CHINOGA	Paper, printing, publishing: expected primary product purchase	no	0
116	CHINOGA	Paper, printing, publishing: business climate	no	0
117	CHINOGA	Chemistry; petroleum processing; rubber: orders, previous month	no	0
118	CHINOGA	Chemistry; petroleum processing; rubber: orders, same month last year	no	0
119	CHINOGA	Chemistry; petroleum processing; rubber: orders on hand, previous month	no	0
120	CHINOGA	Chemistry; petroleum processing; rubber: orders on hand, assessment	no	0
121	CHINOGA	Chemistry; petroleum processing; rubber: orders on hand abroad, assessment	no	0
122	CHINOGA	Chemistry; petroleum processing; rubber: production, previous month	no	0
123	CHINOGA	Chemistry; petroleum processing; rubber: production, same month last year	no	0
124	CHINOGA	Chemistry; petroleum processing; rubber: primary products, inventory previous month	no	0
125	CHINOGA	Chemistry; petroleum processing; rubber: primary products, inventory assessment	no	0
126	CHINOGA	Chemistry; petroleum processing; rubber: finished products, inventory previous month	no	0
127	CHINOGA	Chemistry; petroleum processing; rubber: finished products, inventory assessment	no	0
128	CHINOGA	Chemistry; petroleum processing; rubber: expected orders	no	0
129	CHINOGA	Chemistry; petroleum processing; rubber: expected production	no	0
130	CHINOGA	Chemistry; petroleum processing; rubber: expected primary product purchase	no	0
131	CHINOGA	Chemistry; petroleum processing; rubber: business climate	no	0
132	CHINOGA	Metal industry: orders, previous month	no	0
133	CHINOGA	Metal industry: orders, same month last year	no	0
134	CHINOGA	Metal industry: orders on hand, previous month	no	0
135	CHINOGA	Metal industry: orders on hand, assessment	no	0

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Table A-1 – continued from previous page

Nr.	Block	Indicator	Seas. Adjustment	Transformation
136	CHINOGA	Metal industry: orders on hand abroad, assessment	no	0
137	CHINOGA	Metal industry: production, previous month	no	0
138	CHINOGA	Metal industry: production, same month last year	no	0
139	CHINOGA	Metal industry: primary products, inventory previous month	no	0
140	CHINOGA	Metal industry: primary products, inventory assessment	no	0
141	CHINOGA	Metal industry: finished products, inventory previous month	no	0
142	CHINOGA	Metal industry: finished products, inventory assessment	no	0
143	CHINOGA	Metal industry: expected orders	no	0
144	CHINOGA	Metal industry: expected production	no	0
145	CHINOGA	Metal industry: expected primary product purchase	no	0
146	CHINOGA	Metal industry: business climate	no	0
147	CHINOGA	Machine construction, vehicle construction: orders, previous month	no	0
148	CHINOGA	Machine construction, vehicle construction: orders, same month last year	no	0
149	CHINOGA	Machine construction, vehicle construction: orders on hand, previous month	no	0
150	CHINOGA	Machine construction, vehicle construction: orders on hand, assessment	no	0
151	CHINOGA	Machine construction, vehicle construction: orders on hand abroad, assessment	no	0
152	CHINOGA	Machine construction, vehicle construction: production, previous month	no	0
153	CHINOGA	Machine construction, vehicle construction: production, same month last year	no	0
154	CHINOGA	Machine construction, vehicle construction: primary products, inventory previous month	no	0
155	CHINOGA	Machine construction, vehicle construction: primary products, inventory assessment	no	0
156	CHINOGA	Machine construction, vehicle construction: finished products, inventory previous month	no	0
157	CHINOGA	Machine construction, vehicle construction: finished products, inventory assessment	no	0
158	CHINOGA	Machine construction, vehicle construction: expected orders	no	0
159	CHINOGA	Machine construction, vehicle construction: expected production	no	0
160	CHINOGA	Machine construction, vehicle construction: expected primary product purchase	no	0
161	CHINOGA	Machine construction, vehicle construction: business climate	no	0
162	CHINOGA	Electrical, electronic equipment: orders, previous month	no	0
163	CHINOGA	Electrical, electronic equipment: orders, same month last year	no	0
164	CHINOGA	Electrical, electronic equipment: orders on hand, previous month	no	0
165	CHINOGA	Electrical, electronic equipment: orders on hand, assessment	no	0
166	CHINOGA	Electrical, electronic equipment: orders on hand abroad, assessment	no	0
167	CHINOGA	Electrical, electronic equipment: production, previous month	no	0
168	CHINOGA	Electrical, electronic equipment: production, same month last year	no	0
169	CHINOGA	Electrical, electronic equipment: primary products, inventory previous month	no	0
170	CHINOGA	Electrical, electronic equipment: primary products, inventory assessment	no	0
171	CHINOGA	Electrical, electronic equipment: finished products, inventory previous month	no	0
172	CHINOGA	Electrical, electronic equipment: finished products, inventory assessment	no	0
173	CHINOGA	Electrical, electronic equipment: expected orders	no	0
174	CHINOGA	Electrical, electronic equipment: expected production	no	0
175	CHINOGA	Electrical, electronic equipment: expected primary product purchase	no	0
176	CHINOGA	Electrical, electronic equipment: business climate	no	0
177	CHINOGA	Other industry: orders, previous month	no	0
178	CHINOGA	Other industry: orders, same month last year	no	0
179	CHINOGA	Other industry: orders on hand, previous month	no	0
180	CHINOGA	Other industry: orders on hand, assessment	no	0
181	CHINOGA	Other industry: orders on hand abroad, assessment	no	0
182	CHINOGA	Other industry: production, previous month	no	0
183	CHINOGA	Other industry: production, same month last year	no	0
184	CHINOGA	Other industry: primary products, inventory previous month	no	0
185	CHINOGA	Other industry: primary products, inventory assessment	no	0
186	CHINOGA	Other industry: finished products, inventory previous month	no	0
187	CHINOGA	Other industry: finished products, inventory assessment	no	0
188	CHINOGA	Other industry: expected orders	no	0
189	CHINOGA	Other industry: expected production	no	0
190	CHINOGA	Other industry: expected primary product purchase	no	0
191	CHINOGA	Other industry: business climate	no	0
192	CHINOGA	Total industry: orders, previous month	no	0
193	CHINOGA	Total industry: orders, same month last year	no	0
194	CHINOGA	Total industry: orders on hand, previous month	no	0
195	CHINOGA	Total industry: orders on hand, assessment	no	0
196	CHINOGA	Total industry: orders on hand abroad, assessment	no	0
197	CHINOGA	Total industry: production, previous month	no	0
198	CHINOGA	Total industry: production, same month last year	no	0
199	CHINOGA	Total industry: primary products, inventory previous month	no	0
200	CHINOGA	Total industry: primary products, inventory assessment	no	0
201	CHINOGA	Total industry: finished products, inventory previous month	no	0
202	CHINOGA	Total industry: finished products, inventory assessment	no	0
203	CHINOGA	Total industry: expected orders	no	0
204	CHINOGA	Total industry: expected production	no	0
205	CHINOGA	Total industry: expected primary product purchase	no	0
206	CHINOGA	Total industry: business climate	no	0

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Table A-1 – continued from previous page

Nr.	Block	Indicator	Seas. Adjustment	Transformation
207	RETAIL	Retail Sales - Total (less motor vehicle, power fuels and fuels)	yes	1
208	RETAIL	Food and non-essential food items	yes	1
209	RETAIL	Textile and clothing	yes	1
210	RETAIL	Remaining goods	yes	1
211	TRADE	Exports - Total	yes	1
212	TRADE	Exports: Raw materials and intermediate goods	yes	1
213	TRADE	Exports: Raw materials	yes	1
214	TRADE	Exports: Raw materials for industrial processing	yes	1
215	TRADE	Exports: Organic raw materials for industrial processing	yes	1
216	TRADE	Exports: Animal raw materials for industrial processing	yes	1
217	TRADE	Exports: Mining raw materials for industrial processing	yes	1
218	TRADE	Exports: Intermediate and semi-finished goods	yes	1
219	TRADE	Exports: Intermediate goods for the nutrition industry	yes	1
220	TRADE	Exports: Intermediate goods for food production	yes	1
221	TRADE	Exports: Intermediate goods for feeding stuff production	yes	1
222	TRADE	Exports: Intermediate goods for the industry (excluding nutrition)	yes	1
223	TRADE	Exports: Intermediate goods for the textile and clothing industry	yes	1
224	TRADE	Exports: Intermediate goods made out of paper	yes	1
225	TRADE	Exports: Intermediate goods made out of leather and fur	yes	1
226	TRADE	Exports: Intermediate goods made out of wood and cork	yes	1
227	TRADE	Exports: Intermediate goods made out of plastics	yes	1
228	TRADE	Exports: Intermediate goods made out of rubber	yes	1
229	TRADE	Exports: Chemical intermediate goods	yes	1
230	TRADE	Exports: Chemical raw materials	yes	1
231	TRADE	Exports: Chemical semi-finished goods for industrial use	yes	1
232	TRADE	Exports: Intermediate goods for construction as well as glass and ceramics	yes	1
233	TRADE	Exports: Intermediate goods for construction	yes	1
234	TRADE	Exports: Intermediate goods made out of glass, ceramics and soil	yes	1
235	TRADE	Exports: Intermediate goods made out of metal	yes	1
236	TRADE	Exports: Basic products made out of metal in pure form	yes	1
237	TRADE	Exports: Intermediate and finished goods made out of metal	yes	1
238	TRADE	Exports: Electrical and electronical intermediate goods	yes	1
239	TRADE	Exports: Intermediate goods for machines and appliances	yes	1
240	TRADE	Exports: Watch parts	yes	1
241	TRADE	Exports: Intermediate goods for vehicle construction	yes	1
242	TRADE	Exports: Commodities for public needs	yes	1
243	TRADE	Exports: Energy sources	yes	1
244	TRADE	Exports: Crude oil and basic products	yes	1
245	TRADE	Exports: Fuels	yes	1
246	TRADE	Exports: Fuels, petroleum-based	yes	1
247	TRADE	Exports: Capital goods	yes	1
248	TRADE	Exports: Machinery and instruments	yes	1
249	TRADE	Exports: Power generation and transmission machinery (less vehicle engines)	yes	1
250	TRADE	Exports: Electrical power generation and transmission machinery	yes	1
251	TRADE	Exports: Non-electrical power generation and transmission machinery	yes	1
252	TRADE	Exports: Replacement parts for power generation and transmission machinery	yes	1
253	TRADE	Exports: Manufacturing machinery	yes	1
254	TRADE	Exports: Mechanical design and processing machinery	yes	1
255	TRADE	Exports: Machines for thermal processing of fabrics	yes	1
256	TRADE	Exports: Design and processing machinery (excluding mechanical and thermal)	yes	1
257	TRADE	Exports: Replacement parts for manufacturing machinery	yes	1
258	TRADE	Exports: Machines and equipment	yes	1
259	TRADE	Exports: Building and agricultural machinery	yes	1
260	TRADE	Exports: Chop-, cut- and distributing machines	yes	1
261	TRADE	Exports: Machines for movement of goods	yes	1
262	TRADE	Exports: Optical- and precision instruments	yes	1
263	TRADE	Exports: Tools and equipment	yes	1
264	TRADE	Exports: Measure-, test-, control and operating equipment	yes	1
265	TRADE	Exports: Replacement parts for machines	yes	1
266	TRADE	Exports: Machines and tools for equipment of buildings	yes	1
267	TRADE	Exports: Heating and air conditioning	yes	1
268	TRADE	Exports: Technical equipment and appliances for buildings	yes	1
269	TRADE	Exports: Parts for technical equipment and appliances for buildings	yes	1
270	TRADE	Exports: Machines and equipment for the service industry	yes	1
271	TRADE	Exports: Office equipment	yes	1
272	TRADE	Exports: Data processing equipment	yes	1
273	TRADE	Exports: Office equipment (excluding data processing equipment)	yes	1
274	TRADE	Exports: Software	yes	1
275	TRADE	Exports: Printing machinery	yes	1
276	TRADE	Exports: Delivery devices and installations	yes	1
277	TRADE	Exports: Storage and transport containers	yes	1

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Table A-1 – continued from previous page

Nr.	Block	Indicator	Seas. Adjustment	Transformation
278	TRADE	Exports: Hospital- and healtcare equipment	yes	1
279	TRADE	Exports: Machine parts for the service industry	yes	1
280	TRADE	Exports: Commercial vehicles	yes	1
281	TRADE	Exports: Road vehicle	yes	1
282	TRADE	Exports: Replacement parts for commercial vehicles	yes	1
283	TRADE	Exports: Building materials	yes	1
284	TRADE	Exports: Goods for construction above ground	yes	1
285	TRADE	Exports: Goods for construction above ground (excluding prefabricated construction)	yes	1
286	TRADE	Exports: Goods for construction below ground	yes	1
287	TRADE	Exports: Consumer goods	yes	1
288	TRADE	Exports: Food and non-essential food items	yes	1
289	TRADE	Exports: Food	yes	1
290	TRADE	Exports: Non-essential food items	yes	1
291	TRADE	Exports: Animal food	yes	1
292	TRADE	Exports: Non-durable consumer goods (excluding foodstuffs)	yes	1
293	TRADE	Exports: Ready-made goods	yes	1
294	TRADE	Exports: Clothing and footware	yes	1
295	TRADE	Exports: Bed linen and household linen	yes	1
296	TRADE	Exports: Body care-, cosmetical and pharmaceutical products	yes	1
297	TRADE	Exports: Body care and cleaning products	yes	1
298	TRADE	Exports: Cosmetics, perfume and body care products	yes	1
299	TRADE	Exports: Pharmaceutical products (including sanitary products)	yes	1
300	TRADE	Exports: Handicraft materials like dyes, glue and yarn	yes	1
301	TRADE	Exports: Other household non-durable goods	yes	1
302	TRADE	Exports: Miscellaneous non-durable goods	yes	1
303	TRADE	Exports: Printed matter	yes	1
304	TRADE	Exports: Books, newspapers, magazines	yes	1
305	TRADE	Exports: Printed matter like notes, cards and advertising material	yes	1
306	TRADE	Exports: Durable consumer goods	yes	1
307	TRADE	Exports: Home facilities	yes	1
308	TRADE	Exports: Furniture and do-it-yourself products	yes	1
309	TRADE	Exports: Flooring, curtains and decoration	yes	1
310	TRADE	Exports: Lighting, ornamental decoration etc.	yes	1
311	TRADE	Exports: Household utensils	yes	1
312	TRADE	Exports: Tableware and cutlery	yes	1
313	TRADE	Exports: Household utensils (excluding tableware and cutlery)	yes	1
314	TRADE	Exports: Household appliances	yes	1
315	TRADE	Exports: Entertainment electronics	yes	1
316	TRADE	Exports: Radio-, TV- and video equipment	yes	1
317	TRADE	Exports: Photo and movie devices	yes	1
318	TRADE	Exports: Hi-Fi equipment	yes	1
319	TRADE	Exports: Play-, Sport- and recreational equipment	yes	1
320	TRADE	Exports: Vehicles, like private cars and motorcycles	yes	1
321	TRADE	Exports: Private cars	yes	1
322	TRADE	Exports: Motorcycles and bicycles	yes	1
323	TRADE	Exports: Accessories to private cars and motorcycles	yes	1
324	TRADE	Exports: Watches, jewellery and optics	yes	1
325	TRADE	Exports: Watches	yes	1
326	TRADE	Exports: Jewellery	yes	1
327	TRADE	Exports: Glasses, contact lenses and binoculars	yes	1
328	TRADE	Exports: Musical instruments and accessories	yes	1
329	TRADE	Imports - Total	yes	1
330	TRADE	Imports: Raw materials and intermediate goods	yes	1
331	TRADE	Imports: Raw materials	yes	1
332	TRADE	Imports: Raw materials for agriculture	yes	1
333	TRADE	Imports: Organic raw materials for agriculture	yes	1
334	TRADE	Imports: Animal raw materials for agriculture	yes	1
335	TRADE	Imports: Raw materials for food production	yes	1
336	TRADE	Imports: Organic raw materials for food production	yes	1
337	TRADE	Imports: Animal raw materials for food production	yes	1
338	TRADE	Imports: Raw materials for industrial processing	yes	1
339	TRADE	Imports: Organic raw materials for industrial processing	yes	1
340	TRADE	Imports: Animal raw materials for industrial processing	yes	1
341	TRADE	Imports: Mining raw materials for industrial processing	yes	1
342	TRADE	Imports: Intermediate and semi-finished goods	yes	1
343	TRADE	Imports: Intermediate goods for the nutrition industry	yes	1
344	TRADE	Imports: Intermediate goods for food production	yes	1
345	TRADE	Imports: Intermediate goods for feedingstuff production	yes	1
346	TRADE	Imports: Intermediate goods for the industry (less nutrition)	yes	1
347	TRADE	Imports: Intermediate goods for the textile and clothing industry	yes	1
348	TRADE	Imports: Intermediate goods made out of paper	yes	1
349	TRADE	Imports: Intermediate goods made out of leather and fur	yes	1

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Table A-1 – continued from previous page

Nr.	Block	Indicator	Seas. Adjustment	Transformation
350	TRADE	Imports: Intermediate goods made out of wood and cork	yes	1
351	TRADE	Imports: Intermediate goods made out of plastics	yes	1
352	TRADE	Imports: Intermediate goods made out of rubber	yes	1
353	TRADE	Imports: Chemical intermediate goods	yes	1
354	TRADE	Imports: Chemical raw materials	yes	1
355	TRADE	Imports: Chemical semi-finished goods for industrial use	yes	1
356	TRADE	Imports: Intermediate goods for construction as well as glass and ceramics	yes	1
357	TRADE	Imports: Intermediate goods for construction	yes	1
358	TRADE	Imports: Intermediate goods made out of glass, ceramics and soil	yes	1
359	TRADE	Imports: Intermediate goods made out of metal	yes	1
360	TRADE	Imports: Basic manufactures made out of metal in pure form	yes	1
361	TRADE	Imports: Intermediate and finished goods made out of metal	yes	1
362	TRADE	Imports: Electrical and electronical intermediate goods	yes	1
363	TRADE	Imports: Intermediate goods for machines and appliances	yes	1
364	TRADE	Imports: Watch parts	yes	1
365	TRADE	Imports: Intermediate goods for vehicle construction	yes	1
366	TRADE	Imports: Commodities for public needs	yes	1
367	TRADE	Imports: Energy sources	yes	1
368	TRADE	Imports: Crude oil and basic products	yes	1
369	TRADE	Imports: Power fuels	yes	1
370	TRADE	Imports: Power fuels, petroleum-based	yes	1
371	TRADE	Imports: Power fuels from natural gas and hydrocarbon	yes	1
372	TRADE	Imports: Fuels	yes	1
373	TRADE	Imports: Fuels, petroleum-based	yes	1
374	TRADE	Imports: Fuels from coal, coke, wood etc.	yes	1
375	TRADE	Imports: Capital goods	yes	1
376	TRADE	Imports: Machinery and instruments	yes	1
377	TRADE	Imports: Power generation and transmission machinery (excluding vehicle engines)	yes	1
378	TRADE	Imports: Electrical power generation and transmission machinery	yes	1
379	TRADE	Imports: Non-electrical power generation and transmission machinery	yes	1
380	TRADE	Imports: Replacement parts for power generation and tranmission machinery	yes	1
381	TRADE	Imports: Manufacturing machinery	yes	1
382	TRADE	Imports: Mechanical design and processing machinery	yes	1
383	TRADE	Imports: Machines for thermal processing of fabrics	yes	1
384	TRADE	Imports: Design and processing machinery (excluding mechanical and thermal)	yes	1
385	TRADE	Imports: Replacement parts for manufacturing machinery	yes	1
386	TRADE	Imports: Machines and equipment	yes	1
387	TRADE	Imports: Building and agricultural machinery	yes	1
388	TRADE	Imports: Chop-, cut- and distributing machines	yes	1
389	TRADE	Imports: Machines for movement of goods	yes	1
390	TRADE	Imports: Optical- and precision instruments	yes	1
391	TRADE	Imports: Tools and machines	yes	1
392	TRADE	Imports: Measure-, test-, control and operating equipment	yes	1
393	TRADE	Imports: Replacement parts for machines	yes	1
394	TRADE	Imports: Machines and equipment for equipment of buildings	yes	1
395	TRADE	Imports: Heating and air conditioning	yes	1
396	TRADE	Imports: Technical equipment and appliances for buildings	yes	1
397	TRADE	Imports: Parts for technical equipment and appliances for buildings	yes	1
398	TRADE	Imports: Machines and equipment for the service industry	yes	1
399	TRADE	Imports: Office equipment	yes	1
400	TRADE	Imports: Data processing equipment	yes	1
401	TRADE	Imports: Office equipment (excluding data processing equipment)	yes	1
402	TRADE	Imports: Software	yes	1
403	TRADE	Imports: Printing machinery	yes	1
404	TRADE	Imports: Delivery devices and installations	yes	1
405	TRADE	Imports: Storage and transport containers	yes	1
406	TRADE	Imports: Recording-, projection and presentation equipment	yes	1
407	TRADE	Imports: Hospital- and healtcare equipment	yes	1
408	TRADE	Imports: Machine parts for the service industry	yes	1
409	TRADE	Imports: Commercial vehicles	yes	1
410	TRADE	Imports: Road vehicle	yes	1
411	TRADE	Imports: Stationary equipment for commercial vehicles	yes	1
412	TRADE	Imports: Replacement parts for commercial vehicles	yes	1
413	TRADE	Imports: Building materials	yes	1
414	TRADE	Imports: Goods for construction above ground	yes	1
415	TRADE	Imports: Prefabricated construction and components	yes	1
416	TRADE	Imports: Construction above ground (excluding prefabricated construction)	yes	1
417	TRADE	Imports: Goods for construction below ground	yes	1
418	TRADE	Imports: Consumer goods	yes	1
419	TRADE	Imports: Food and non-essential food items	yes	1
420	TRADE	Imports: Food	yes	1
421	TRADE	Imports: Non-essential food items	yes	1

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Table A-1 – continued from previous page

Nr.	Block	Indicator	Seas. Adjustment	Transformation
422	TRADE	Imports: Animal food	yes	1
423	TRADE	Imports: Non-durable consumer goods (excluding food)	yes	1
424	TRADE	Imports: Ready-made goods	yes	1
425	TRADE	Imports: Clothing and footware	yes	1
426	TRADE	Imports: Bed linen and household linen	yes	1
427	TRADE	Imports: Body care-, cosmetical and pharmaceutical products	yes	1
428	TRADE	Imports: Body care and cleaning products	yes	1
429	TRADE	Imports: Cosmetics, perfume and body care products	yes	1
430	TRADE	Imports: Pharmaceutical products (including sanitary products)	yes	1
431	TRADE	Imports: Handicraft materials like dyes, glue and yarn	yes	1
432	TRADE	Imports: Other household non-durable goods	yes	1
433	TRADE	Imports: Miscellaneous non-durable goods	yes	1
434	TRADE	Imports: Printed matter	yes	1
435	TRADE	Imports: Books, newspapers, magazines	yes	1
436	TRADE	Imports: Printed matter like notes, cards and advertising material	yes	1
437	TRADE	Imports: Durable consumer goods	yes	1
438	TRADE	Imports: Home facilities	yes	1
439	TRADE	Imports: Furniture and do-it-yourself products	yes	1
440	TRADE	Imports: Flooring, curtains and decoration	yes	1
441	TRADE	Imports: Lighting, ornamental decoration etc.	yes	1
442	TRADE	Imports: Household utensils	yes	1
443	TRADE	Imports: Tableware and cutlery	yes	1
444	TRADE	Imports: Household utensils (excluding tableware and cutlery)	yes	1
445	TRADE	Imports: Household appliances	yes	1
446	TRADE	Imports: Entertainment electronics	yes	1
447	TRADE	Imports: Radio-, TV- and video equipment	yes	1
448	TRADE	Imports: Photo and movie devices	yes	1
449	TRADE	Imports: Hi-Fi equipment	yes	1
450	TRADE	Imports: Play-, Sport- and recreational equipment	yes	1
451	TRADE	Imports: Vehicles, like private cars and motorcycles	yes	1
452	TRADE	Imports: Private cars	yes	1
453	TRADE	Imports: Motorcycles and bicycles	yes	1
454	TRADE	Imports: Accessories to private cars and motorcycles	yes	1
455	TRADE	Imports: Watches, jewellery and optics	yes	1
456	TRADE	Imports: Watches	yes	1
457	TRADE	Imports: Jewellery	yes	1
458	TRADE	Imports: Glasses, contact lenses and binoculars	yes	1
459	TRADE	Imports: Musical instruments and accessories	yes	1
460	STMKT	SWITZ-DS Alt. Electricity - PRICE INDEX	no	1
461	STMKT	SWITZ-DS Asset Managers - PRICE INDEX	no	1
462	STMKT	SWITZ-DS Banks - PRICE INDEX	no	1
463	STMKT	SWITZ-DS Basic Mats - PRICE INDEX	no	1
464	STMKT	SWITZ-DS Build Mat/Fixt - PRICE INDEX	no	1
465	STMKT	SWITZ-DS Basic Resource - PRICE INDEX	no	1
466	STMKT	SWITZ-DS Bus Trn/Emp Ag - PRICE INDEX	no	1
467	STMKT	SWITZ-DS Bus Sup Svs - PRICE INDEX	no	1
468	STMKT	SWITZ-DS Chemicals - PRICE INDEX	no	1
469	STMKT	SWITZ-DS Spec Chem - PRICE INDEX	no	1
470	STMKT	SWITZ-DS Cloth & Access - PRICE INDEX	no	1
471	STMKT	SWITZ-DS CONS.DISCRETNRY. - PRICE INDEX	no	1
472	STMKT	SWITZ-DS Consumer goods - PRICE INDEX	no	1
473	STMKT	SWITZ-DS Consumer services - PRICE INDEX	no	1
474	STMKT	SWITZ-DS Consumer staples - PRICE INDEX	no	1
475	STMKT	SWITZ-DS Con & Mat - PRICE INDEX	no	1
476	STMKT	SWITZ-DS Con. Electricity - PRICE INDEX	no	1
477	STMKT	SWITZ-DS Coml Veh/Truck - PRICE INDEX	no	1
478	STMKT	SWITZ-DS Computer Hardware - PRICE INDEX	no	1
479	STMKT	SWITZ-DS Cont & Pack - PRICE INDEX	no	1
480	STMKT	SWITZ-DS Delivery services - PRICE INDEX	no	1
481	STMKT	SWITZ-DS Drug Retailers - PRICE INDEX	no	1
482	STMKT	SWITZ-DS Div Inds - PRICE INDEX	no	1
483	STMKT	SWITZ-DS Dur Hh Prd - PRICE INDEX	no	1
484	STMKT	SWITZ-DS Electricity - PRICE INDEX	no	1
485	STMKT	SWITZ-DS Elec Compo/Eq - PRICE INDEX	no	1
486	STMKT	SWITZ-DS Eltro Eq - PRICE INDEX	no	1
487	STMKT	SWITZ-DS Eltro/Elec Eq - PRICE INDEX	no	1
488	STMKT	SWITZ-DS Eqt Ivst Ins - PRICE INDEX	no	1
489	STMKT	SWITZ-DS Food and beverages - PRICE INDEX	no	1
490	STMKT	SWITZ-DS Fd Rtl & W - PRICE INDEX	no	1
491	STMKT	SWITZ-DS Fd & Drug Rtl - PRICE INDEX	no	1
492	STMKT	SWITZ-DS Financials - PRICE INDEX	no	1

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Nr.	Block	Indicator	Seas. Adjustment	Transformation
493	STMKT	SWITZ-DS Financial Svs(3) - PRICE INDEX	no	1
494	STMKT	SWITZ-DS Full Lin Insur - PRICE INDEX	no	1
495	STMKT	SWITZ-DS Financial Svs(4) - PRICE INDEX	no	1
496	STMKT	SWITZ-DS Fd Producers - PRICE INDEX	no	1
497	STMKT	SWITZ-DS Forestry and paper - PRICE INDEX	no	1
498	STMKT	SWITZ-DS General industry - PRICE INDEX	no	1
499	STMKT	SWITZ-DS General retailers - PRICE INDEX	no	1
500	STMKT	SWITZ-DS H/C Eq & Svs - PRICE INDEX	no	1
501	STMKT	SWITZ-DS H/H Gds,Home Con - PRICE INDEX	no	1
502	STMKT	SWITZ-DS Health Care - PRICE INDEX	no	1
503	STMKT	SWITZ-DS Heavy Con - PRICE INDEX	no	1
504	STMKT	SWITZ-DS Inds Machinery - PRICE INDEX	no	1
505	STMKT	SWITZ-DS Inds Eng - PRICE INDEX	no	1
506	STMKT	SWITZ-DS Inds Gds & Svs - PRICE INDEX	no	1
507	STMKT	SWITZ-DS Ind. Met & Mines - PRICE INDEX	no	1
508	STMKT	SWITZ-DS Inds Transpt - PRICE INDEX	no	1
509	STMKT	SWITZ-DS Industrials - PRICE INDEX	no	1
510	STMKT	SWITZ-DS Insurance - PRICE INDEX	no	1
511	STMKT	SWITZ-DS Investment Cos. - PRICE INDEX	no	1
512	STMKT	SWITZ-DS Life Insurance - PRICE INDEX	no	1
513	STMKT	SWITZ-DS Marine Transpt - PRICE INDEX	no	1
514	STMKT	SWITZ-DS Media Agencies - PRICE INDEX	no	1
515	STMKT	SWITZ-DS Medical Eq - PRICE INDEX	no	1
516	STMKT	SWITZ-DS Media - PRICE INDEX	no	1
517	STMKT	SWITZ-DS Nonlife Insur - PRICE INDEX	no	1
518	STMKT	SWITZ-DS Paper - PRICE INDEX	no	1
519	STMKT	SWITZ-DS Pers & H/H Gds - PRICE INDEX	no	1
520	STMKT	SWITZ-DS Personal Goods - PRICE INDEX	no	1
521	STMKT	SWITZ-DS Pharmaceuticals and biotechnology - PRICE INDEX	no	1
522	STMKT	SWITZ-DS Pharmaceuticals - PRICE INDEX	no	1
523	STMKT	SWITZ-DS Reinsurance - PRICE INDEX	no	1
524	STMKT	SWITZ-DS Retail - PRICE INDEX	no	1
525	STMKT	SWITZ-DS Speciality Fin - PRICE INDEX	no	1
526	STMKT	SWITZ-DS Iron and steel - PRICE INDEX	no	1
527	STMKT	SWITZ-DS Support Services - PRICE INDEX	no	1
528	STMKT	SWITZ-DS Tch H/W & Eq - PRICE INDEX	no	1
529	STMKT	SWITZ-DS Technology - PRICE INDEX	no	1
530	STMKT	SWITZ-DS Telecom Eq - PRICE INDEX	no	1
531	STMKT	SWITZ-DS Telecom, media, IT - PRICE INDEX	no	1
532	STMKT	SWITZ-DS Non-financial - PRICE INDEX	no	1
533	STMKT	SWITZ-DS Market - PRICE INDEX	no	1
534	STMKT	SWITZ-DS DS-MARKET EX RES - PRICE INDEX	no	1
535	STMKT	SWITZ-DS DS-MARKET EX TMT - PRICE INDEX	no	1
536	STMKT	SWITZ-DS Travl and Tourism - PRICE INDEX	no	1
537	STMKT	SWITZ-DS Travel & Leisure - PRICE INDEX	no	1
538	STMKT	SWITZ-DS Transptort services - PRICE INDEX	no	1
539	STMKT	SWITZ-DS Utilities - PRICE INDEX	no	1
540	INT.RATE	SWISS 3 MONTH LIBOR (SNB) - MIDDLE RATE	no	2
541	INT.RATE	SWISS CONFEDERATION BOND 1 YEAR - RED. YIELD	no	2
542	INT.RATE	SWISS CONFEDERATION BOND 2 YEAR - RED. YIELD	no	2
543	INT.RATE	SWISS CONFEDERATION BOND 3 YEAR - RED. YIELD	no	2
544	INT.RATE	SWISS CONFEDERATION BOND 4 YEAR - RED. YIELD	no	2
545	INT.RATE	SWISS CONFEDERATION BOND 5 YEAR - RED. YIELD	no	2
546	INT.RATE	SWISS CONFEDERATION BOND 6 YEAR - RED. YIELD	no	2
547	INT.RATE	SWISS CONFEDERATION BOND 7 YEAR - RED. YIELD	no	2
548	INT.RATE	SWISS CONFEDERATION BOND 8 YEAR - RED. YIELD	no	2
549	INT.RATE	SWISS CONFEDERATION BOND 9 YEAR - RED. YIELD	no	2
550	INT.RATE	SWISS CONFEDERATION BOND 10 YEAR - RED. YIELD	no	2
551	INT.RATE	SWISS CONFEDERATION BOND 15 YEAR - RED. YIELD	no	2
552	INT.RATE	SWISS CONFEDERATION BOND 20 YEAR - RED. YIELD	no	2
553	INT.RATE	SWISS CONFEDERATION BOND 30 YEAR - RED. YIELD	no	2
554	INT.RATE	SWISS INTERBANK 1M (ZRC:SNB) - BID RATE	no	2
555	INT.RATE	SWISS INTERBANK 1Y (ZRC:SNB) - BID RATE	no	2
556	INT.RATE	SWISS INTERBANK 2M (ZRC:SNB) - BID RATE	no	2
557	INT.RATE	SWISS INTERBANK 3M (ZRC:SNB) - BID RATE	no	2
558	INT.RATE	SWISS INTERBANK 6M (ZRC:SNB) - BID RATE	no	2
559	INT.RATE	SWISS LIQ.FINANCING RATE (SNB) - MIDDLE RATE	no	2
560	EXCH.RATE	Swiss franc to Euro (WMR) - Exchange rate	no	1
561	EXCH.RATE	Swiss franc to UK (WMR) - Exchange rate	no	1
562	EXCH.RATE	Swiss franc to US $ (WMR) - Exchange rate	no	1

Transformation to stationarity: 0 – none; 1 – monthly growth rate; 2 – monthly difference