BUSINESS CYCLES: THE PREDICTIVE POWER OF THE YIELD CURVE FOR RECESSIONS IN THE G7 COUNTRIES

Carolina Martins Bianchi

Dissertation written under the supervision of

Professor Diptes Chandrakante Prabhudas Bhimjee

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Abstract

Economic recessions and Business Cycles have been studied over the years because of their serious financial impacts, which tends to spread all over the economy, causing unemployment, poverty, bankruptcies, etc. This Dissertation addresses the reliability of the yield curve as recession's predictor nowadays and aims to test the forecasting power of the yield curve in countries beyond the United States. By employing Panel Data estimations, an empirical analysis of the ability of the yield curve and other macroeconomic variables to predict recessions is conducted, using indicators of economic activity across the G7 countries as a whole and individually, based on monthly data from 1995 to 2023. Empirical evidence shows that the predictive power for recessions is not uniquely a consequence of the yield curve as predictor, but also a result of the impact of the lags of the dependent variable itself as the current value of an economic activity indicator is deeply influenced by its recent past values. Furthermore, the third predictive equation presented for each predicted variable has the greatest predictive power for recessions, suggesting that the composite leading indicator is a better predictor of the economic activity than inflation and money supply together. Findings suggest that an efficient predictive power of the yield curve and lagged variables specially for Industrial production and Retail sales as dependent variables. Finally, robustness checks are conducted as the regression framework was restricted to a given regional area (America and Europe) and to specific countries, suggesting the stability of the estimations performed.

Keywords: Recessions, Yield Curve, Forecasting Power, Business Cycles, G7.

CICLOS ECONÓMICOS: O PODER PREDITIVO DA *YIELD CURVE* PARA RECESSÕES NOS PAÍSES DO G7

Carolina Martins Bianchi

Resumo

Os Ciclos Económicos e as Recessões são temas que têm sido estudados ao longo dos anos em virtude dos seus impactos financeiros, que tendem a espalhar-se por toda a economia, provocando desemprego, pobreza, falências, entre outros. Esta Dissertação aborda a fiabilidade da *yield curve* como preditor de recessões na atualidade, tendo como objetivo testar o poder de previsão da *yield curve* noutros países além dos Estados Unidos. Utilizando estimações em dados em painel, foi realizada uma análise empírica da capacidade da *yield curve* e de outras variáveis macroeconômicas para prever recessões através de indicadores da atividade económica real nos países do G7 como um todo e individualmente, com base em dados mensais de 1995 a 2023. Foram encontradas evidências empíricas de que o poder preditivo de recessões não é exclusivamente proveniente da *yield curve*, mas também resultado do impacto da própria variável dependente defasada, posto que o valor atual de uma variável económica é profundamente influenciado por seus valores passados. Concomitantemente, a terceira equação preditiva apresentou o maior poder explanatório para recessões, sugerindo que o Indicador Compósito é um melhor preditor da atividade económica do que a inflação e a oferta monetária juntas. Os resultados apontam para um bom poder preditivo da yield curve e das variáveis defasadas, especialmente para o Índice de Produção Industrial e o Índice de Vendas de Retalho como variáveis dependentes. Finalmente, ao restringir-se a uma determinada área e depois a um determinado país, as estimativas ganharam poder explicativo para justificar a ocorrência de recessões.

Palavras-Chave: Recessões, Curva de Rendimento, Poder de Previsão, Ciclos Econômicos, G7.

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List of Abbreviations

ADF: Augmented Dickey-Fuller test

CEPR: Centre for Economic Policy Research

CLI: Composite Leading Indicator

CPI: Consumer Price Index

EABCDC: Euro Area Business Cycle Dating Committee

EABCN: Euro Area Business cycle network

ECB: European Central Bank

ESCoE: Economic Statistics Centre of Excellence

GCEE: German Council of Economic Experts

GLS: Generalized Least Squares

IPI: Industrial Production Index

LTIR: Long-term Interest rate

M2: Money Supply M2

NBER: National Bureau of Economic Research

OECD: Organisation for Economic Co-operation and Development

OLS: Ordinary Least Squares

ONS: Office for National Statistics

RSI: Retail Sales Index

STIR: Short-term Interest rate

UR: Unemployment rate

YC: Yield curve

1. Introduction

Business Cycles, economic recessions, financial crises, and speculative bubbles are prominent topics that capture researchers' attention and have been studied over the years by notorious economists, such as David Ricardo and Keynes. For example, Schumpeter claims that economic fluctuations are *"inherent in the working of the economic organism itself"*, and thus, recessions are intrinsically rooted in capitalism (Schumpeter, 1939, p.13). In virtue of their serious financial impacts, which tends to spill over to the economy, causing unemployment, poverty, bankruptcies, among others, there have been researches that try to predict business cycle evolution in order to attenuate the impacts, and even avoid the incidence of recessions and financial crises.

Although the determinants of recessions are multiple and heterogeneous, researchers have been analysing metrics and indicators to foresee and recognise indicators of potential recessions. For example, given that since the end of World War II, every U.S. recession has been typically preceded by a yield curve inversion, over the years the yield curve has being critically regarded as a reliable predictor of recessions and of future economic activity.

The academic literature has mainly focused on researching the predictive power of interest rates and the yield curve for economic recessions considering the case of the United States, which leads to a gap within the academic literature regarding the lack of representativeness of other countries in the literature. Furthermore, most of these researches were not recent, which urges a re-examination of the empirical evidence towards different countries within a more recent period of time.

Consequently, this Dissertation critically analyses the ability of the yield curve and other macroeconomic variables to predict recessions through indicators of real economic activity across the G7 countries as a whole and individually considering the period between 1995 and 2023. The main empirical research questions are: I) Is the yield curve a reliable predictor of recessions nowadays?; II) Does the yield curve have forecasting power regarding recessions in countries other than the United States?

This research contributes to the academic literature by expanding the discussion to a greater number of countries within a recent time span, as well as investigating the causes behind the apparent relationship between yield curve inversions and recessions. Furthermore, it also contributes by connecting this monetary policy mechanism to Business Cycle theory.

In order to address the proposed empirical research question, the present Dissertation employs Panel Data estimation, applied to a large sample encompassing seven countries (including the U.S.). The economic and financial data were extracted from trusted sources such as OECD, Refinitiv Eikon, and Federal Reserve Bank of St. Louis databases.

The present Dissertation's main findings suggest that restricting the analysis to a given area and then to a given country, the estimations tend to gain forecasting power for recessions, once it takes into consideration each country's particularities. In addition, some dependent variables are deemed to be better forecasted by the yield curve and other economic variables depending on the country and country block, i.e., the predictive power of explanatory variables varies according to the predicted variable and the country. Finaly, the predictive power for recessions is not uniquely a consequence of the yield curve and its lags as predictors, but also a result of the impact of the lags of the dependent variable itself.

The present Dissertation is structured as follows: Section 2 briefly contextualizes the discussion of Business Cycle theory, focusing on it dynamic and characteristics. Section 3 presents and summarizes the main existing academic literature about recession predictions, interest rates, and monetary policy, which will provide inputs to address the empirical research question and critical analysis. Section 4 presents the dataset and corresponding data sources and considerations, as well as the description of the variables, the descriptive statistics and the methodology applied to perform the study. Section 5 subsequently displays the empirical results and the discussions regarding the main findings and provides an overview of the robustness tests performed. Finaly, Section 6 concludes and discusses the main limitations and future research.

2. Business Cycles Contextualising Chapter

According to Burns & Mitchell (1946, p.3),

> *"Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle".*

The length of business cycles corresponds approximately to a period between 1 to 12 years. Usually, it presents a pattern, occurring in a sequence of phases and being recurrent over the years, in spite of not being periodic (Burns & Mitchell, 1946, p.3).

A particularity of this process is the synchronized coordinated movement of many economic variables and indicators, which corroborates in leads and lags of moderate length, throughout the duration of a given business cycle. Despite its idiosyncratic and heterogeneity, a whole number of activities tends to expand and contract together in a high cyclical convergence, thus constituting aggregates of economic activity. In addition, the essence of a given business cycle varies with, and also depends on, the main characteristics of the economy. Moreover, each cycle varies in terms of duration, diffusion and amplitude (Zarnowitz, 1991, pp.8-12; Aviat et al., 2021, p.3).

There is no consensus among economists as to what dynamics propels a change from one cycle to the subsequent cycle, i.e., what triggers this cyclical behaviour. Burns & Mitchell (1946) and Schumpeter (1939), as cited by Zarnowitz (1991, pp.11-12), considered business cycles not only a form of an economic turmoil, but also an inherent aspect of economic growth, an economic phenomenon deeply rooted in and inseparable to capitalist economies. Friedman & Schwartz (1965, p.63) claims that fluctuations in the money supply might be one of its systematic causes. Other researchers point to disturbing events that precede economic fluctuations, such as bad weather and natural disasters, panics and speculative manias, wars, and political upheavals (Zarnowitz, 1991, p.7).

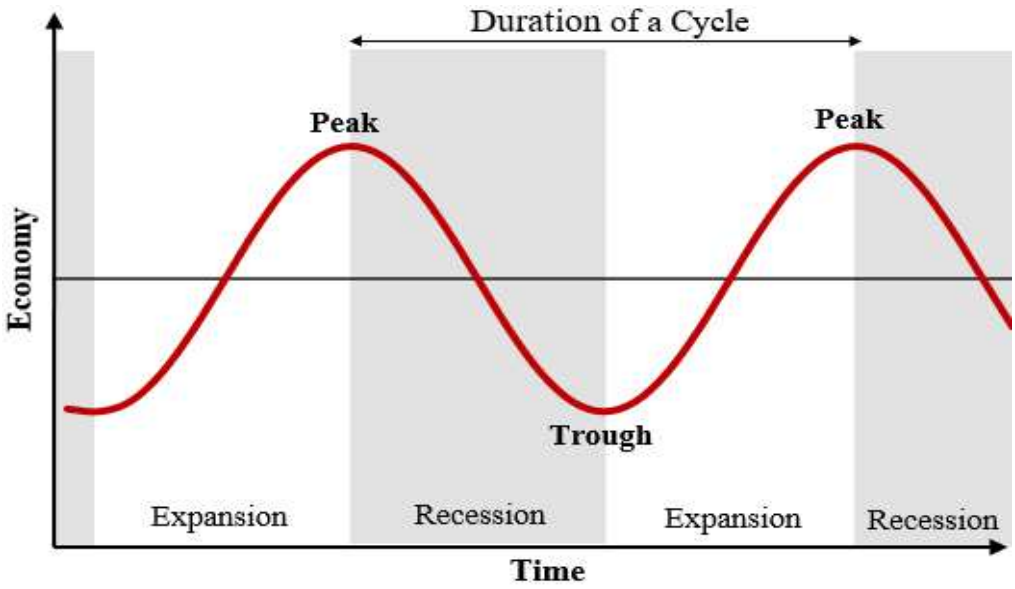
A given business cycle is typically divided in two phases, (i) the expansion and (ii) the contraction (also called a recession). The former corresponds to a significant increase in economic activity from the trough to the peak of economic activity (Broadberry et al., 2023, p.1144; Aviat et al., 2021, p.3). On the other hand, a recession is defined by the NBER's Business Cycle Dating Committee as a *"significant decline in economic activity that is spread across the economy and lasts more than a few months"* (Claessens & Kose, 2009, p.52), which directly affects the measures of aggregate real economic activity, such as industrial production, unemployment rates, real income, etc. A recession corresponds to the *"period between a peak of economic activity and its subsequent trough"* (NBER, 2024; Claessens & Kose, 2009, p.52).

Figure 1 below illustrates the continuous dynamics of business cycle evolution. The peaks represent the zenith of the economic activity, where production and growth reach its maximum before decelerating and slowing down. An accentuated decline in economic activity over time occurs after the peak of economic activity. This contraction process (a recession) ends when the aggregate economic activity reaches its minimum point of that period, known in the literature as a trough. The trough gives continuity to the cycle, which begins by a slight growth of economic activity in comparison to the preceding stage and proceeds its slowly recovery until the growth rate becomes positive again and after that, it gradually accelerates until it reaches its peak. Accordingly, peaks and troughs correspond to business cycle turning points (NBER, 2024; Zarnowitz, 1991, p.12; Burns & Mitchell, 1946, p.3; Broadberry et al., 2023, p.1144; Aviat et al., 2021, pp.3-4).

Each cycle's duration typically corresponds to the time period between two consecutive peaks, or two consecutive troughs. Another perspective posits that each cycle is composed by two peaks and one trough, or by two troughs and one peaks. The duration of a business cycle is typically given by the duration period of one expansion stage and by the duration period of one recession stage.

Figure 1

Representation of a Business Cycle



Source: Elaborated by the Author based on NBER data

A recession typically impacts the economy broadly while spreading to different sectors, and some measures of the aggregate real economic activity are used to identify potential recessions, as well as the different stages of a specific business cycle. These measures include nonfarm payroll employment, real personal consumption expenditures, real personal income less transfers, employment, retail sales, and industrial production, among others (NBER, 2024; Zarnowitz, 1991, p.14). The latter three are employed in this Dissertation as indicators of recessions in the countries comprised in our sample.

Although the determinants of recessions are multiple and heterogeneous, researchers have been analysing metrics and indicators to foresee and recognise indicators of potential recessions. Since the end of World War II, every U.S. recession has been typically preceded by a yield curve inversion, which happens when the short-term interest rates exceed long-term interest rates. Usually, the long-term interest rates are typically higher, because it includes and prices the future uncertainty and risks of economic downturns. Therefore, over the years the yield curve has being critically regarded as a reliable predictor of recessions and of future economic activity, since it signals recessions up to 18 months before they occur (Estrella & Mishkin, 1995; Sabes & Sahuc, 2023, p.1; Benzoni et al., 2018, p.2).

3. Literature Review

The present section summarizes and critically reviews the most relevant academic literature regarding the analyses of the relationship between yield curve inversions and the occurrence of recessions, i.e., the predictive power of the yield curve (Section 3.1.), within the context of the discussion of Business Cycle theory, while critically reviewing the relation between the interest rates and Monetary Policy (Section 3.2.).

3.1. The Predictive Power of Yield Curve for Recessions

Bernanke (1990) compares the predictive power of some interest rate variables and spreads against some indicators of real macroeconomic activity, such as the industrial production index, unemployment rate, capacity utilization, retail sales, money supply, among others, and the inflation rate. To evaluate the univariate forecasting power of the individual interest rates and spreads, the author estimates three in-sample, one-month-ahead prediction equations, using monthly data for the 1961 to 1989 period. In the first prediction equation, the macroeconomic variable forecasted was regressed on a constant, a trend, six lags of itself and six lags of the interest rate variable. The second equation augmented the first one by adding six lags of CPI inflation and six lags of real money growth as explanatory variables. Lastly, the third equation augmented the first equation by adding six lags of the growth rate of an index of leading indicators to the independent variables. Subsequently, the author conducts a multivariate analysis to compare the predictive power of each interest rate and spreads. They find that the spread between the commercial paper rate and the Treasury bill rate has historically been a particularly good predictor, although its spread is becoming a less reliable predictor than it used to be (Bernanke, 1990, pp.8-9).

Following this line of argumentation, the forecasting power of three interest rates (Federal funds rate, three-month Treasury bill rate, and the ten-year Treasury bond rate), and money was tested by Bernanke & Blinder (1992), taking into consideration nine real economic activity variables.

By using Granger-causality tests, each variable was regressed by six lags of itself, six lags of the log of the CPI, six lags of the log of the M1 and M2 money supplies, and six lags of each interest rate, for the sample period from July 1959 to December 1989. The authors point that the Federal funds rate is the best predictive variable, while the M1 presents virtually no predictive power. Apart from Granger testing, a Vector Autoregressive (VAR) model is also assessed to quantify the percentage of the variance of the forecasted variable attributable to variations in explanatory variables for a 24-month horizon. The authors' results suggest that a greater part of each forecasted variable's variation is due to lagged variations on itself, and in a smaller part on account of the Federal funds rate, and the three-month Treasury bill rate. As a conclusion, the Federal funds rate concentrates much of the information content of interest rates, and therefore, the monetary policy real effects can be transmitted directly through interest rates, rather than through monetary aggregates (Bernanke & Blinder, 1992, pp. 904-908).

Estrella & Mishkin (1995) also investigate the performance of U.S. financial variables, such as interest rates, spreads, stock prices, currencies, and monetary aggregates, as predictors of economic recessions for a period of 1 to 8 quarters ahead. The authors employ a recession variable (dependent variable), which is estimated with a probit model equation and takes the value of 1 if the economy is in recession in a certain quarter, and 0 otherwise. This variable is estimated using the spread quarter data between 1960 and 1995, showing to what values of the spread variable correspond to estimated probabilities of a recession four quarters in the future. Subsequently, they run in-sample and an out-of-sample models using the financial variables as predictors of recessions. Their main findings suggest that, for the period corresponding to 1 to 2 quarter horizons, stock prices and other macroeconomic indicators, namely the lagged growth in real GDP and the Commerce Department's index of leading economic indicators, are typically good recession predictors. On the other hand, beyond the 2-quarter horizon, the slope of the yield curve constitutes the most accurate predictor, especially when it is the unique predictor.

The evidence of the yield curve as a predictor of future economic activity was re-examined by Chinn & Kucko (2015) for the United States, as well as for other advanced economies, for the 1970 to 2013 period. Industrial production growth, selected as the measure of economic activity, was regressed in both within-sample and out-of-sample models, with the yield curve as an explanatory variable. Despite the estimated coefficient for the yield curve being positive and statistically significant for all countries, which suggests a forecasting power of the yield spread, the models' explanatory power (as observed through R-squared values) varies considerably

across analysed countries. While the yield spread in the United States, Germany, and Canada can explain more than 20% of the variation in the industrial production growth, in Italy, Japan and Sweden this variable explains less than 10% (Chinn & Kucko, 2015, p.135). The authors find that European country models perform better than those related to other countries when concerning more recent data. Similarly to Bernanke (1990) and Sabes & Sahuc (2023), the authors point out that the predictive power of the yield curve has deteriorated in the last half of the sample period.

Concomitantly, Sabes & Sahuc (2023) investigate the slope of the yield curve at the Euro-area level as a potential predictor of recessions during the 1970 to 2022 period. The authors use monthly data to calculate the yield spread as the difference between the long-term interest rate (10 years) and the short-term interest rate (3-month). They use a probit model to evaluate the probability of a future recession, through the estimation of a binary dependent variable that takes the value of 1 if a recession occurs within the next 12 months and 0 otherwise. This model assumes that recession probabilities can be described as a function of the yield spread. Finally, the authors employ an AUROC metric, i.e., area under the receiver operating characteristics, to evaluate the efficiency of the probit model in predicting recessions. This methodology signals how much the model is capable of distinguishing among categories. They conclude that the yield spread is generally a good predictor of recessions at the aggregate level of the EU, despite its forecasting capability being weakened after the 2008-2009 Global Financial Crisis.

The reasoning behind the yield curve slope being a known predictor of recessions is analysed by Benzoni et al. (2018). The authors claim that it has been consensual that the yield curve holds information about the current and expected future monetary policy practices, which is also connected to expectations of the future trajectory of business cycle evolution. Simultaneously, the yield curve is an expression of market behaviour towards several risk factors. Thus, the yield curve comprises both the expected interest-rate path and risk premium (Benzoni et al., 2018, pp.2-3).

Nevertheless, the setting of interest rates involves the perception of market players and investors regarding the future path of both inflation and real interest rates. Analogously, the risk premium must compensate the risk taken by bondholders and investors concerning the uncertainty of future inflation and the future real interest-rate path. Therefore, the different information held by the slope of each component of the risk premium and monetary policy about future economic scenarios may be valuable to forecasts (Benzoni et al., 2018, p.3).

3.2. Interest Rates and Monetary Policy

Friedman and Schwartz (1963), as cited by several authors (Bernanke, 1983, p.10; Bernanke & Blinder, 1992, p.904; Plosser, 1990, p.10), were the first to report the real effects of money, arising from changes in monetary aggregates, which directly impacts the real economy. This indicates that variations in the nominal quantity of money, the stock of money, correspond to a relevant impulse to business cycles, i.e., they generate monetary non-neutrality (Plosser, 1990, p.4).

Over the last two decades of the 20th century until recently, there has been a lively academic debate in the U.S. about the proper choice between Monetary policy and Fiscal policy. The latter has been losing prestige as a mechanism to stabilize the aggregate economy, due to the concerns about the sustainability of governmental budget deficits and/or public debts, and also the uncertainty regarding the ability to adequately time the actions to provide stabilization outcomes. As a result, the former (namely conventional Monetary policy) has been gaining credibility as the most appropriate (and sole) tool to promote the price stability goal and a sustainable growth path (Mishkin, 1996, p.1; Friedman, 2000, p.1).

Monetary policy pertains to the measures and decisions undertaken by Central Banks to control the cost and availability of money in the economy (ECB, 2021). The main aim of monetary policy consists of preventing the occurrence of inflation or deflation, i.e., to achieve price stability, beyond assuring maximum levels of employment and output (Friedman, 2000, pp.3-4; Mishkin, 1996, p.1). Given that financial markets are the unique place where Central's Bank monetary policy operations take place, the effectiveness of these policies are typically associated with effective transmission mechanisms, which only affect the economy over time, involving lags of months and possibly years (Friedman, 2000, pp.4,13).

The key monetary transmission mechanism is the interest rate channel. The interest rate is the reward for parting with liquidity, and the determination of the actual interest rate is given by the quantity of money, in addition to the liquidity-preference (Keynes, 1936, p.175; Mishkin, 1996, p.2). When interest rates are low, the monetary transmission to economic activity is substantially weaker (Ahmed et al., 2024, p.1).

Despite being necessary to push inflation down in the near term and support aggregate demand, the persistence of low interest rates can nevertheless lead to a major risk to long-term macroeconomic stability and resilience. This can happen once credit supply and financial

intermediation may be weakened by undermining banks' ability to build up capital through interest margins and profits. In addition, financial vulnerabilities and downside risks in the long term could be generated through debt increases, which implies in a rise of the debt service burdens over time (Ahmed et al., 2024, p.14).

An expansionary monetary policy, through which there is an increase in the money supply, implies in a decrease in real interest rates, which thus lowers the cost of capital, corroborating in an increase of investment spending, and thus enabling a rise in aggregate demand and in output. In contrast, a contractionary monetary policy promotes a decrease in the money supply, leading to an increase in the real interest rates, raising the cost of capital, and consequently lowering investment spending, thereby shrinking aggregate demand and output. This implies that there is a negative correlation between the contemporaneous real interest rate and the future growth output. This monetary policy channel operates through both businesses' investment spending and consumers' decisions about housing and consumer durable expenditure (Mishkin, 1996, p.2; Friedman, 1979, p.1; Friedman, 2000, p.8; Estrella & Hardouvelis, 1991, p. 566, 569).

Instead, the real long-term interest rate is the most impacting on consumer and investment spending. Regarding the determination of the long-term interest rate, there are two predominant theories to explain it: the Expectations theory of the Term structure, and the Demand-Supply model. The first states that the long-term interest rate is the average of the current and expected future short-term rates, which implies that variations in the nominal short-term interest rate, influenced by Central Banks, lead to a corresponding variation in both real long-term interest rate and in real short-term interest rate via sticky prices. Conversely, the second postulates that the long-term interest rate is a consequence of the equilibrium between the issuer's supply of bonds and investor's demand for these bonds (Mishkin, 1996, pp.2-3; Friedman, 1979, p.7; Greenwood et al., 2023, p.2; Sabes & Sahuc, 2023, p.1).

On the other hand, the short-term interest rates and the overnight rate are profoundly impacted by the rates established by Central Banks, once they can use their authority as the sole issuer in the money supply curve to stipulate the maximum and minimum bounds to short rates and overnight, i.e., the marginal lending rate and the deposit rate, respectively. Furthermore, these monetary authorities also set a benchmark central rate, the "repo" rate (European Parliament, 1999 p.6). The Federal funds rate and the nominal 3-month Treasury bill rate are typically the

interest rates which are most related to Central bank's monetary policy (Estrella & Hardouvelis, 1991, pp. 566, 569).

Typically, the Central Bank's conventional monetary policy strategy is to increase interest rates to avoid a rise in price levels, and thus inflation, with the aim of stimulating savings and diminishing consumer expenditure, that ultimately lead to a decline in investment spending and a consequent slowdown in future output. Analogously, a decrease in interest rates is induced, when the inflation is stabilized, which leads to a rise on investment and consumer spending, lowering the unemployment and heating the economic activity (Mishkin, 1996, p.3; Estrella & Hardouvelis, 1991, p. 566).

Beyond the interest rate channel, there are other monetary policy transmission channels that are only briefly mentioned here, given space constraints. These are the Asset Price channels, and Credit channels. The former includes the Exchange rate, Equity price, and Housing and land price channels. While the latter is composed by the banking lending, and the balance-sheet channels (Mishkin, 1996, pp.4-15; Cecchetti et al., 2009, pp.3-7).

Regardless of the vast literature and decades of academic research concerning the predictive power of interest rates and yield curve for economic recessions, the primary focus of previous research is mainly related to the United States, leading to a gap within the literature when it comes to the other countries. Furthermore, most of these academic studies were conducted less recently, a fact which urges a re-examination of the empirical evidence towards different countries, by taking into consideration a more recent period of time.

Consequently, this Dissertation aims to critically analyse the ability of the yield curve to predict recessions through indicators of real economic activity across the G7 countries, with historical data covering the last 28 years (1995-2023). It contributes to the academic literature by extending the discussion to a greater number of countries to a recent time span, as well as investigating the causes behind the apparent relationship between yield curve inversions and recessions. Furthermore, it also contributes by connecting this monetary policy mechanism to business cycle theory, and also by employing panel data analysis to provide efficient estimations. This model will be further discussed in Section 4.

4. Data and Methodology

The present section describes the data sample collection and sources (sub-section 3.1), some statistics regarding the sample (sub-section 3.2), as well as the empirical methodology (sub-section 3.3) employed by the Dissertation.

4.1. Data

This Dissertation examines the ability of the forecasting variable, the Yield Curve, to predict other macroeconomic variables, as represented by six indicators of real economic activity. These variables are the Unemployment rate, Consumer Price Index, Industrial Production Index, Composite Leading Indicator, Retail Sales Index, and the M2 Money Supply. The variable yield curve was calculated by subtracting the Short-Term interest rate (3-Month) from the Long-Term interest rate (10-years). The variables are the same as those used by Bernanke (1990), and by Bernanke & Blinder (1992).

The present Dissertation greatly expands Bernanke (1990) and Bernanke & Blinder (1992) by applying these authors' empirical methodology to a panel of countries, while also encompassing a more recent time frame. Accordingly, the dataset is extracted for the G7 countries, i.e., United States, Canada, Japan, United Kingdom, France, Germany, and Italy, for the period corresponding to June of 1995 to August of 2023, and using a monthly periodicity. This time window is chosen based on the availability of the data for the variables for all the countries included in the sample, thus avoiding missing observations. The dataset is extracted from the following databases: (I) OECD Data, (II) OECD Stat, (III) Refinitiv Eikon, (IV) Federal Reserve Bank of St. Louis database.

The above-mentioned authors' original idea, nonetheless, was to use data regarding to a longer time period, given that the United States, for example, has some data series available from 1947 onwards; however, given that the majority of countries' time series starts from about 1980 onwards, some variables such as Germany's money supply is available only from 1995

onwards. Likewise, the latest data available for the variable composite leading indicator is August of 2023. The overall period corresponds to 338 months, which corroborates to 2366 observations for each variable, totalizing 16 562 observations.

Along their papers, Bernanke (1990), and Bernanke & Blinder (1992) also employed more variables than the ones used in this Dissertation, such as capacity utilisation, housing starts, employed persons, personal income, new orders of manufacturing durable goods, and personal consumption expenditures; however, these variables are not available on a monthly basis for all the G7 countries.

Regarding the chronology of recessions and expansions, the present Dissertation employs the NBER measure for the United States, the Business Cycle Clock from Eurostat, the French Business Cycle Dating Committee, the German Council of Economic Experts, and the CEPR-EABCN Euro Area Business Cycle Dating Committee, for Italy, Germany and France; the ESCoE for the United Kingdom, and the recession indicator from the OECD Composite Leading Indicators for other countries.

Variables description, units, and sources are described in Table 1 below, as well as their respective abbreviations.

Table 1

Variables Definitions and Sources

Variables description, units, abbreviations, and respective sources.

Variable		Units	Source
UR	Unemployment Rate	% Total labour force	OECD Data
CPI	Consumer Price Index	% Change from previous period	OECD Stat
M2	Money Supply M2	% Change month-over-month	Refinitiv Eikon
CLI	Composite Leading Indicator	Trend restored	Refinitiv Eikon
IPI	Industrial Production Index	Total, Index	OECD Data
RSI	Retail Sales Index	Total retail trade, Volume, sa, Index	OECD Stat
LTIR	Long-term interest rate	% 10-year Government Bond yields	St. Louis Fed
STIR	Short-term interest rate	% 3-Month or 90-day rates, Interbank rates	St. Louis Fed; Refinitiv Eikon (Japan)
YC	Yield Curve	-	-

Notes: St. Louis Fed - Federal Reserve Bank of St. Louis database; Refinitiv Eikon - Refinitiv Eikon database.

4.1.1. Variables

The predicted variables are the Unemployment rate, Industrial Production Index, and Retail Sales Index. The Consumer Price Index (CPI), Composite Leading Indicator, and the M2 Money Supply, are simultaneously predicted variables and explanatory variables in different specifications.

The Industrial Production Index measures monthly changes in the price-adjusted output of industry, i.e., the value added of industry, such as mining, manufacturing, electricity, gas and water, representing the value of output less the values of intermediate consumption and consumption of fixed capital. It is an estimative of the production levels (EUROSTAT, 2023; Statistisches Bundesamt, 2024). On the other hand, the Retail Sales Index measures the monthly

changes of the deflated turnover of retail trade, where the main objective is to present a short-term indicator of the changes in the volume and value of sales of goods by retail businesses, assuring an efficient gauge of economic performance and consumer spending (EUROSTAT, 2023; ONS, 2023).

Furthermore, the Composite Leading Indicator consists of a compilation of economic activity components, such as consumer and manufacturing confidence indicators, share prices, housing permits, manufacturing new orders, among others, which differentiate among countries once they are selected based on economic importance, cyclical behaviour, and availability criteria. This indicator was created to provide anticipated traces of business cycles' turning points through variations of the economic activity around its long-term potential level, by displaying short-term economic movements (OECD, 2024).

The main forecasting variable, Yield Curve, was calculated for each country by subtracting the Short-term interest rate (3-Month or 90-day Rates and Yields: Interbank Rates) from the Long-term interest rate (Long-Term Government Bond Yields: 10-years).

4.2. Descriptive Statistics

In order to more accurately describe the variables used in the model, Table 2 reports the summary statistics for each variable of the data sample considering all G7 countries. Simultaneously, Table 1 in Appendix A displays the summary statistics table for each of the countries separately to enable a comparison between their economic indicator variables.

Table 2

Summary Statistics

Main summary statistics for each variable of the data sample considering all G7 countries together.

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	2.20	14.70	7.10	2.54	7.00	0.26	-0.77
Yield Curve	-2.31	5.57	1.08	1.13	1.01	0.35	0.46
Composite leading indicator	60.06	118.35	93.62	11.78	95.40	-0.59	-0.11
Consumer Price Index	-1.91	3.41	0.15	0.34	0.15	0.60	5.93
Money Supply	-11.31	17.82	0.40	2.51	0.44	0.02	2.55
Industrial production index	58.29	133.28	99.48	10.90	99.72	-0.01	0.96
Retail Sales Index	54.00	127.10	95.01	14.84	97.10	-0.63	0.21
LT Interest rate	-0.65	12.21	3.14	2.04	3.20	0.40	0.09
ST Interest rate	-0.58	10.96	2.05	2.17	1.17	0.85	-0.02

Notes: Min. – Minimum; Max. – Maximum; Std. Dev. – Standard Deviation; Skew – Skewness; Excess Kurt - Excess Kurtosis

4.3. Methodology

4.3.1. Panel Data Analysis

This Dissertation adopts Panel Data regression estimations to investigate the yield curve as a predictor of economic recessions and business cycle's turning points for the G7 countries. According to Gujarati & Porter (2009, p.587), Panel Data analysis combines both time series and cross-sectional data, which confers it a spatial and temporal dimensions. Thus, it enables the regression analysis of a range of variables from a group of countries within a specific time window and, whenever a considerable number of observations is present, this empirical methodology is capable of minimizing possible regression biases.

In the specific case of the present Dissertation, Panel Data estimation takes into account the heterogeneity arising from the interaction of countries and time, as per the specific variables for each country, using a higher informative joint dataset and variability in observations, while

providing efficient econometric estimations with less collinearity between country-specific variables. Another advantage of this methodology is its suitability to address the dynamics of change through the analysis of successive cross-sectional data (Gujarati & Porter, 2009, pp.588-589).

Despite these advantages, panel data presents some estimation and inference drawbacks, such as heteroscedasticity and autocorrelation, characteristic problems of cross-sectional data and time series data, respectively. Another possible issue might be the cross-correlation in individual units at the same point in time (Gujarati & Porter, 2009, p.652).

The STATA 17 version statistical software is used to provide regression estimation analysis, after conducting some pre-estimation steps.

The first step is to prepare the panel dataset ensuring that all variables from all countries have correspondent observations. By relying on a strongly balanced panel data, it is possible to avoid computation and estimation issues (Park, 2011, pp.2-4; Gujarati & Porter, 2009, p.589).

Secondly, stationarity tests (i.e., unit root testing) were performed. The aim is to check whether all variables are stationary, in order to avoid spurious regressions (Gujarati & Porter, 2009, p.742, 753). Three tests are used to demonstrate stationarity: (I) the Im–Pesaran–Shin test, (II) the Levin–Lin–Chu test, and (III) the Fisher-type based on the Augmented Dickey-Fuller test. Non-stationary variables (unemployment rate, yield curve and composite leading indicator) were then first-differenced, and a final stationarity test was conducted.

Subsequently, the Hausman Test is conducted in order to ascertain whether fixed effects or random effects are more appropriate (Park, 2011, p. 13). The rejection of the null hypothesis leads to the conclusion that individual effects are significantly correlated with at least one regressors in the model, and therefore the fixed effects model should be the most suitable model. Otherwise, if it is not possible to reject the null hypothesis, and the p-value (Prob>chi2) is greater than 5%, the random effects model should be consistent and more efficient (Park, 2011, p. 13; Gujarati & Porter, 2009, p. 600; Park, 2011, p. 13). The Hausman Test results and the choice between fixed and random effects models, as well as stationarity tests results, are further discussed in the section 4.

4.3.2. Empirical methodology

As in Bernanke (1990) and Bernanke & Blinder (1992), for each macroeconomic variable there are three prediction equations, on which the lags of the predicted variable were used as explanatory variables. The variable was lagged from 1 up to 6 months, in order to analyse how the past (i.e., lagged) values of the variable influence their current values.

The following regression specifications take the unemployment rate variable as an example to illustrate each of the three prediction equations, although the variables industrial production index, retail sales index, CPI inflation, composite leading indicator, and M2 money supply, were also estimated as predicted variables by the same prediction equations.

– In the first equation, the macroeconomic variable being forecasted was regressed on a constant, six lags of itself, the current yield curve variable and six lags of the yield curve:

$$UR_{i,t} = \alpha + \beta_1 UR_{i,t-1} + \beta_2 UR_{i,t-2} + \beta_3 UR_{i,t-3} + \beta_4 UR_{i,t-4} + \beta_5 UR_{i,t-5} + \beta_6 UR_{i,t-6} + \beta_7 YC_{i,t} + \beta_8 YC_{i,t-1} + \beta_9 YC_{i,t-2} + \beta_{10} YC_{i,t-3} + \beta_{11} YC_{i,t-4} + \beta_{12} YC_{i,t-5} + \beta_{13} YC_{i,t-6} + \mu_i + \varepsilon_{i,t} \quad (1)$$

– The second equation augmented the first equation by adding six lags of CPI inflation and six lags of M2 money supply growth, as well as their respective current values, to the explanatory side of the equation:

$$UR_{i,t} = \alpha + \beta_1 UR_{i,t-1} + \beta_2 UR_{i,t-2} + \beta_3 UR_{i,t-3} + \beta_4 UR_{i,t-4} + \beta_5 UR_{i,t-5} + \beta_6 UR_{i,t-6} + \beta_7 YC_{i,t} + \beta_8 YC_{i,t-1} + \beta_9 YC_{i,t-2} + \beta_{10} YC_{i,t-3} + \beta_{11} YC_{i,t-4} + \beta_{12} YC_{i,t-5} + \beta_{13} YC_{i,t-6} + \beta_{14} CPI_{i,t} + \beta_{15} CPI_{i,t-1} + \beta_{16} CPI_{i,t-2} + \beta_{17} CPI_{i,t-3} + \beta_{18} CPI_{i,t-4} + \beta_{19} CPI_{i,t-5} + \beta_{20} CPI_{i,t-6} + \beta_{21} M2_{i,t} + \beta_{22} M2_{i,t-1} + \beta_{23} M2_{i,t-2} + \beta_{24} M2_{i,t-3} + \beta_{25} M2_{i,t-4} + \beta_{26} M2_{i,t-5} + \beta_{27} M2_{i,t-6} + \mu_i + \varepsilon_{i,t} \quad (2)$$

– The third equation augmented the *first* equation by adding six lags of the index of composite leading indicators and its current value to the explanatory side of the equation:

$$UR_{i,t} = \alpha + \beta_1 UR_{i,t-1} + \beta_2 UR_{i,t-2} + \beta_3 UR_{i,t-3} + \beta_4 UR_{i,t-4} + \beta_5 UR_{i,t-5} + \beta_6 UR_{i,t-6} + \beta_7 YC_{i,t} + \beta_8 YC_{i,t-1} + \beta_9 YC_{i,t-2} + \beta_{10} YC_{i,t-3} + \beta_{11} YC_{i,t-4} + \beta_{12} YC_{i,t-5} + \beta_{13} YC_{i,t-6} + \beta_{14} CLI_{i,t} + \beta_{15} CLI_{i,t-1} + \beta_{16} CLI_{i,t-2} + \beta_{17} CLI_{i,t-3} + \beta_{18} CLI_{i,t-4} + \beta_{19} CLI_{i,t-5} + \beta_{20} CLI_{i,t-6} + \mu_i + \varepsilon_{i,t} \quad (3)$$

where $UR_{i,t}$ is the unemployment rate of country i at time t; α represents the constant term; β_1 to β_{27} are estimated regression coefficients expressing the change in the explained variable $UR_{i,t}$ for a change in the explanatory variables by 1%; $YC_{i,t}$ is the yield curve of country i at time t; $CPI_{i,t}$ is the inflation rate of country i at time t; $M2_{i,t}$ is the M2 money supply of country i at time t; $UR_{i,t-1}$… $UR_{i,t-6}$ are the unemployment rates of country i one month before up to 6 months

before; $YC_{i,t-1}$ … $YC_{i,t-6}$ are the yield curve of country i one month before up to 6 months before; $CPI_{i,t-1}$ … $CPI_{i,t-6}$ are the inflation rate of country i one month before up to 6 months before; $M2_{i,t-1}$ … $M2_{i,t-6}$ are the M2 money supply of country i one month before up to 6 months before; $CLI_{i,t-1}$ … $CLI_{i,t-6}$ are the index values of the composite leading indicator of country i one month before up to 6 months before; μ_i is the country-specific intercept; and $\varepsilon_{i,t}$ represents the error term of country i at time t.

5. Empirical Analysis and Results

The present section describes and critically discusses the empirical findings associated with the empirical model estimations. Sub-section 5.1. displays and discusses the baseline regression results regarding the estimation of the G7 group of countries through the Panel Data model estimations. Sub-section 5.2. then fragments the analysis into geographical blocks according to their geographic locations and political economy similarities, namely the European and the North American blocks (Sub-section 5.2.1.); subsequently, estimates for each country are individually provided through OLS regressions (Sub-section 5.2.2.).

Sub-section 5.3. consists of the robustness test performed using the same sample used in the baseline regression but substituting the yield curve (as an explanatory variable) by the long-term interest rate (Sub-section 5.3.1.), and by the short-term interest rate (Sub-section 5.3.2.). The analysis and comparisons between yield curve and other interest rates are presented in Sub-section 5.3.3.

5.1. The G7 Group Baseline Results

This sub-section presents the empirical results estimated with the GLS model, to investigate the yield curve and other variables as predictors of recessions. The baseline results are composed by the G7 group, i.e., seven of the world's greater economies.

Regarding the chronology of recessions, Figure 2 displays the yield curve spread and recession dates over time for the United States and other countries. The rectangular shaded areas correspond to periods of recession for each country, whereas the solid line represents the yield curve slope over the years.

The case of the United States illustrates perfectly well the idea that an inversion of the yield curve slope, which happens when the short-term interest rate is higher than the long-term interest rate because of uncertainties regarding the near future, precedes by some months the

beginning of a given recession. In each of the three recessions occurred in the analysed period, it is possible to see a previous yield curve inversion, although an inversion is not always preceded by a recession.

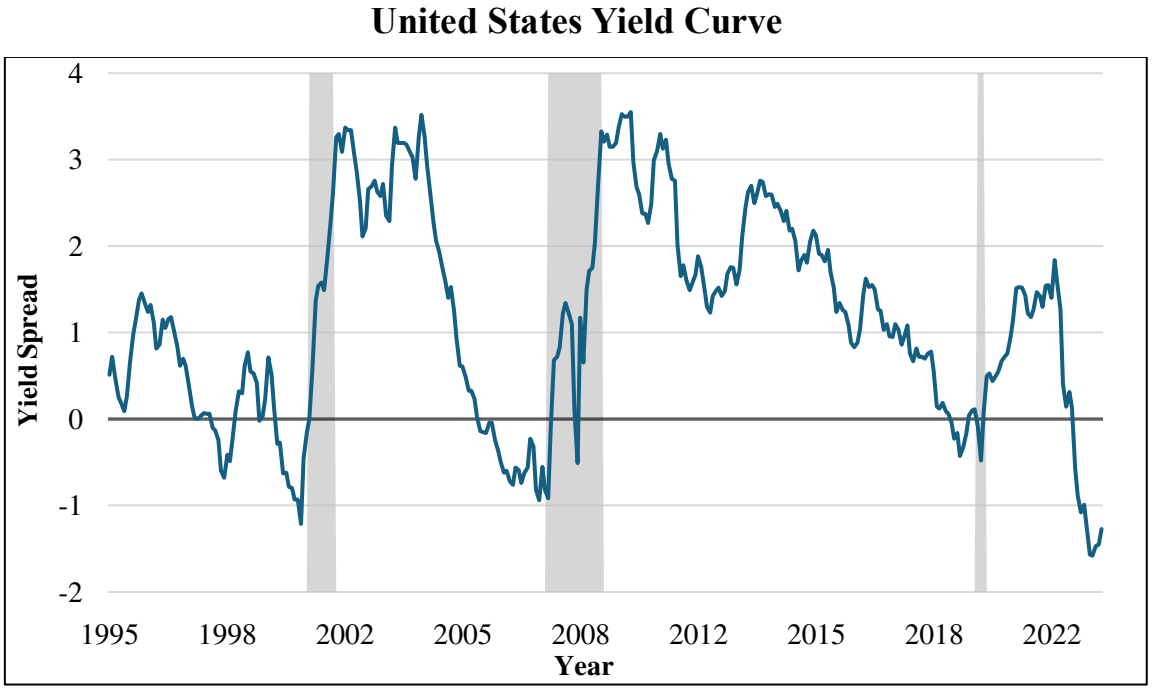
For other countries, however, the inversion of the yield curve does not seem to act as a perfectly accurate sign of a coming recession in all countries. This is apparently the case of Italy, France, and Japan, where regarding the first two, the yield curve inversion only preceded the 2008 Global Financial Crisis in both cases, but not pointed to other recessions occurring in the adopted time span. In the case of Japan, only the 2020 covid-19 recession was duly signalled by a curve inversion.

The yield curve inversion also appears to be an effective recession indicator in Germany, United Kingdom, and Canada, because in all of them, every recession was preceded by an inversion of the yield curve. A plausible reason for this, as discussed in Benzoni et al. (2018, pp.2-3), could be the efficiency of monetary policy instruments in reacting to market behaviour toward several risk factors and uncertainties, while linking expectations of the future evolution of business cycles, possible due to information symmetry.

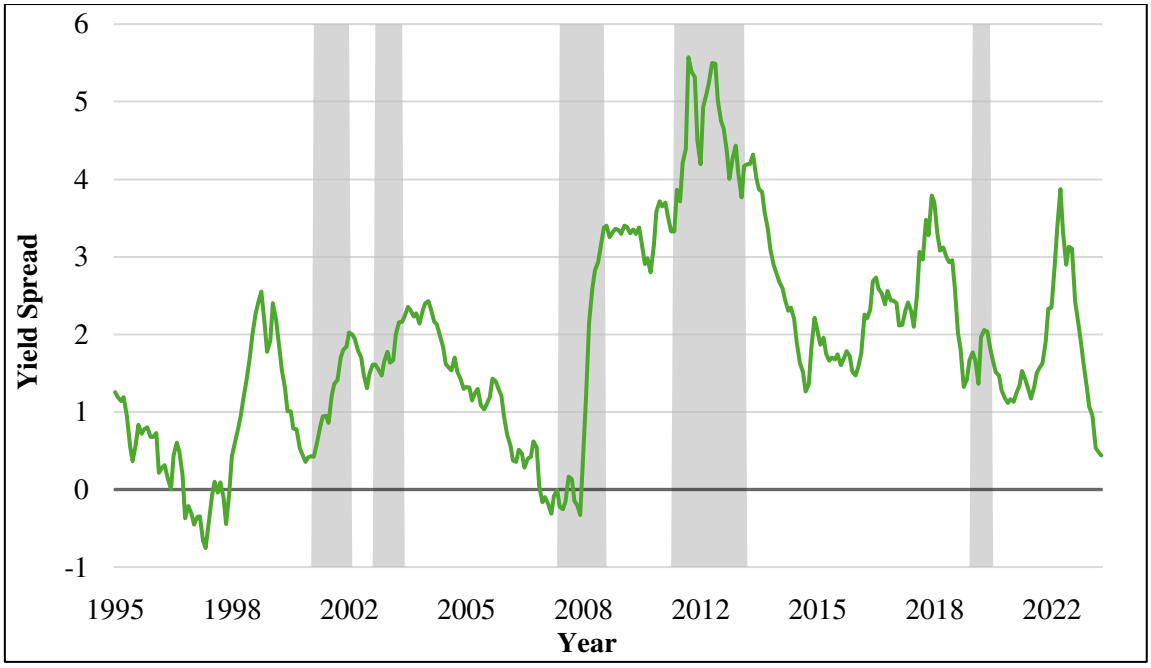
Figure 2

Yield Curve spread and Recession dates

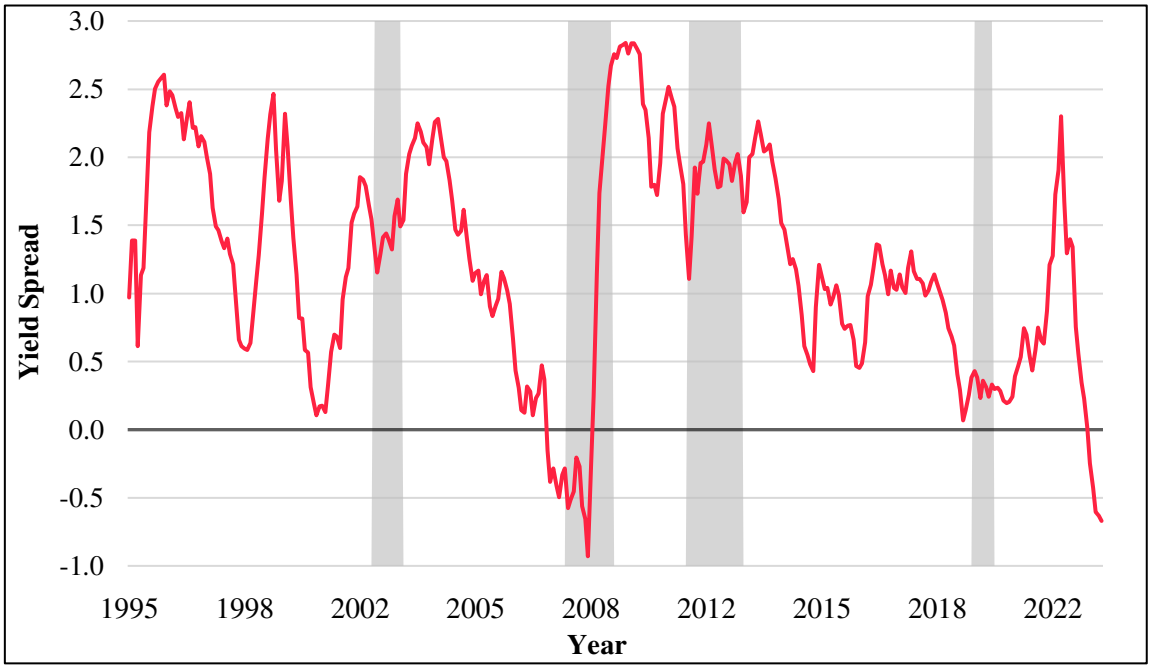
The shaded areas represent periods of recession, and the line represents the difference between the 10 year and the 3-month interest rates, i.e., a proxy for the yield curve. Data are monthly from July 1995 to August 2023; each graph corresponds to one country.



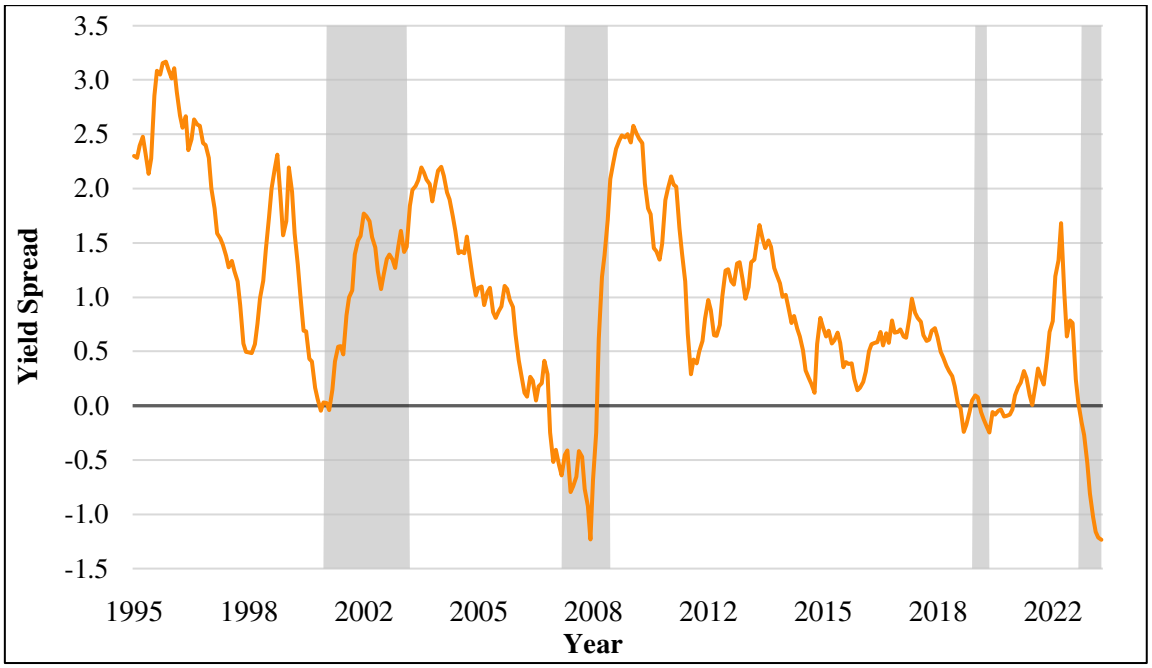
Italy Yield Curve



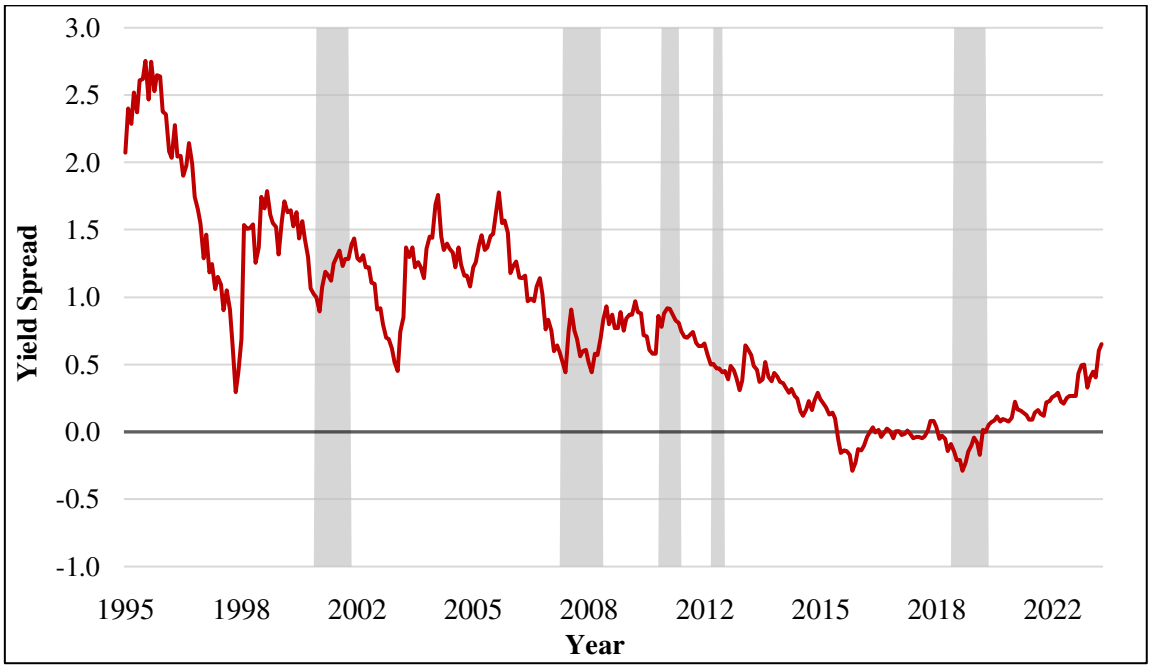
France Yield Curve



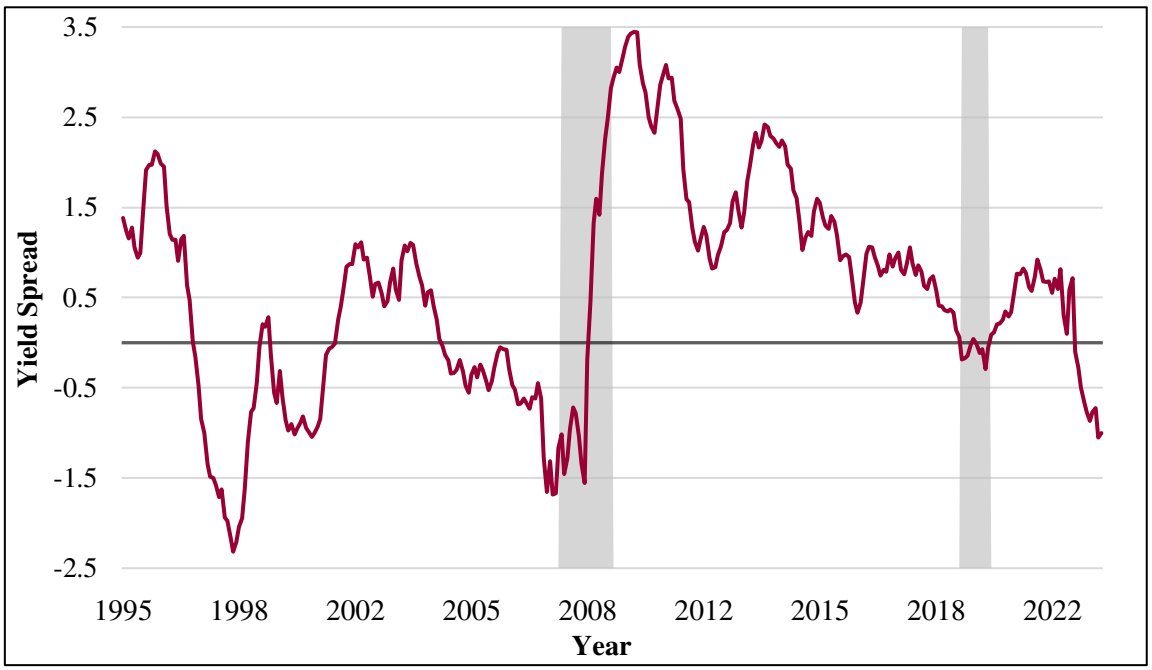
Germany Yield Curve



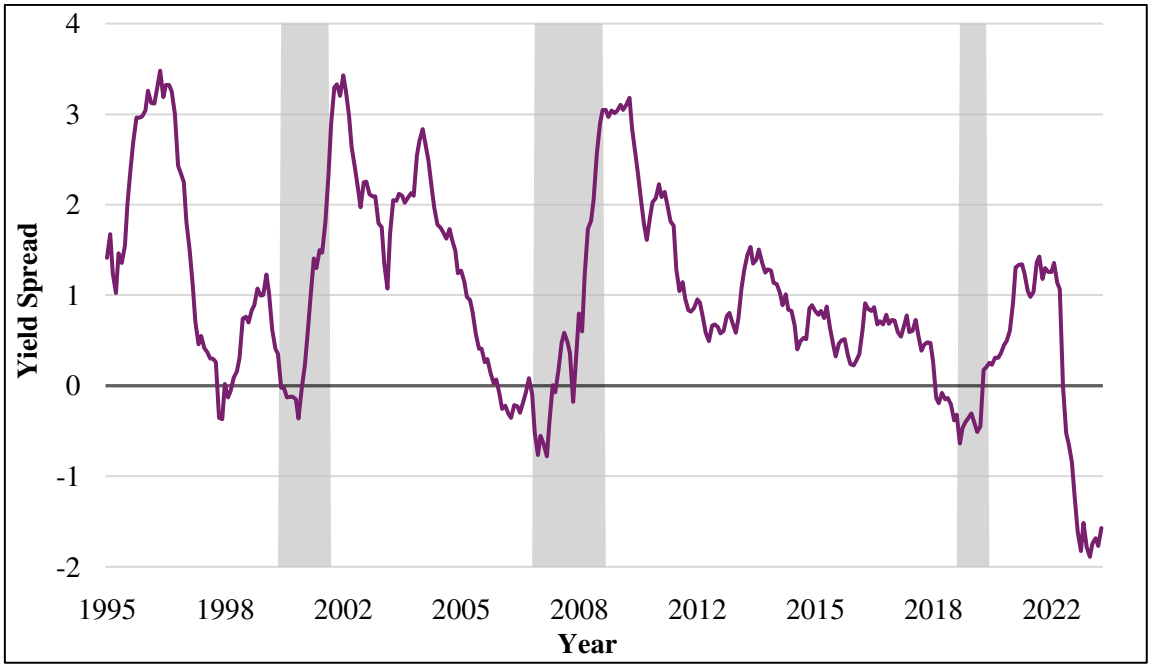
Japan Yield Curve



United Kingdom Yield Curve



Canada Yield Curve



Three unit root tests were performed to demonstrate stationarity: (I) the Im–Pesaran–Shin test, (II) the Levin–Lin–Chu test, and (III) the Fisher-type based on the Augmented Dickey-Fuller test. Six of the variables proved to be stationary, while for the other three stationarity had to be induced. Table 3 below shows the stationarity test results (underlined values represent non-stationary values).

Non-stationary variables (unemployment rate, yield curve, and composite leading indicator) were first-differenced and a final stationarity test was conducted (Table 3 – Panel B).

Table 3

Stationarity Test

Both tables below display the results of the stationarity test. All the values correspond to the p-values; underlined values represent non-stationary values. The first table (Panel A) corresponds to test results before transforming variables; while the second (Panel B), report the stationarity test after the non-stationary variables were first differenced.

Panel A: Before transforming variables

	UR	YC	CPI	M2	CLI	IPI	RSI	LTIR	STIR
Im–Pesaran–Shin	0.2541	0.4684	0.0000	0.0000	0.5051	0.0003	0.0048	0.0005	0.0272
Levin–Lin–Chu	0.1789	0.5559	0.0000	0.0000	0.0020	0.0001	0.0139	0.0000	0.1104
Fisher-type (ADF)	0.2708	0.5207	0.0000	0.0000	0.5300	0.0002	0.0054	0.0004	0.0282

Panel B: After transforming variables

	UR	YC	CPI	M2	CLI	IPI	RSI	LTIR	STIR
Im–Pesaran–Shin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0048	0.0005	0.0272
Levin–Lin–Chu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0139	0.0000	0.1104
Fisher-type (ADF)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0054	0.0004	0.0282

The Hausman Test results signals that the null hypothesis is not rejected, given that the p-value (Prob>chi2) was greater than 5%, suggesting that the Random Effect model is more relevant. Therefore, the Random Effect model is estimated by generalized least squares (GLS).

In addition, a correlation analysis is performed, in order to investigate the relationship between the variables and their expected response. Table 4 below presents the correlation matrix of coefficients regarding the G7 countries data sample. Generally, the correlation coefficients are not of a significant magnitude, in fact most of them are indeed lower than 50%.

As expected, the yield curve, long and short-term interest rates are overall positively but mildly correlated with the unemployment rate, inflation, and money supply, which means that an upward trend in these economic variables is followed by an increase in interest rates and vice versa. This relationship is in line with monetary policies' mechanisms, as discussed by several authors such as Friedman (2000, pp.3-4), Mishkin (1996, p.1), Friedman (1979, p.1), and Estrella & Hardouvelis (1991, p. 566, 569). That is, once an increase in monetary supply boosts economic activity, this should typically lead to an increase in inflation, and a subsequent rise in interest rates by central banks in order to stabilize inflation. Simultaneously, an increase in interest rates then decelerates the initial economic expansion, then leads to an increase in the unemployment rate, and a consequent decrease in consumption, investment, production and economic indicators, such as industrial production index, retail sales index, and composite leading indicator, all of them negatively correlated with interest rates.

Nevertheless, the biggest correlation coefficient displayed in the Table concerns to the relation between long and short-term interest rates, about 85%. This also coincides with Mishkin (1996, pp.2-3), Friedman (1979, p.7), Greenwood et al. (2023, p.2), and Sabes & Sahuc (2023, p.1) approaches, as these authors claim that the determination of the long-term interest rate is rooted in short-term interest rate expectations, despite the first being more impacting on economic activity, as demonstrated in the table by the magnitude of long-term coefficients when compared to the short-term ones.

Table 4
Correlation Matrix

The table presents all pairwise correlation coefficients between each variable. The sample includes the G7 countries in the period corresponding to 1995 to 2023.

	UR	YC	CPI	M2	CLI	IPI	RSI	LTIR	STIR
Unemployment Rate	1.0000								
Yield Curve	0.4491	1.0000							
Inflation	-0.0301	0.0045	1.0000						
Money Supply	0.0102	0.0009	0.0275	1.0000					
Composite Leading	-0.1616	-0.0922	0.0864	-0.0005	1.0000				
Industrial Production	-0.0909	-0.1461	0.0346	0.0126	0.5218	1.0000			
Retail Sales	-0.2336	-0.1128	0.0876	-0.0256	0.8559	0.3622	1.0000		
LT Interest rate	0.3730	0.1604	0.0750	0.0034	-0.6668	-0.1076	-0.5687	1.0000	
ST Interest rate	0.1169	-0.3704	0.0682	0.0027	-0.5794	-0.0251	-0.4763	0.8574	1.0000

The analysis of the baseline regression results presented in Table 5 shows that in general, the dependent variable is prone to be more impacted by explanatory variables in recent past months than in distant past months. In other words, the estimated coefficients tend to be higher in its current value and one-month lagged value, than in five or six-month lagged values. For example, the current value of the unemployment rate is more associated to the value of unemployment rate one month ago, than to the unemployment rate six months ago.

The yield curve seems to have more influence on the industrial production index than in other variables (Panel C), since it presented the bigger coefficients for that variable, such as -0.972, and this finding is supported by Chinn & Kucko (2015, p.135), despite the authors having registered a positive correlation between the variables. The negative impact of interest rates on industrial production found here may be a consequence of the opportunity cost of investing money on highly remunerated sovereign bonds rather than investing it on the production. Furthermore, higher interest rates tend to discourage consumption expenditures because the opportunity cost of savings increases, thus contributing to a decrease in aggregate demand, and consequently, in industrial production.

Concerning to the magnitude of the coefficients, a large part of the coefficients is also economically important. Taking as an example the result obtained for the unemployment rate in the first equation (Panel B), the estimated coefficient of 0.164 implies that for each percentage point increase in the yield curve spread, the unemployment rate growth over the next period will increase by 0.164 percentage points on average for the G7 countries.

In addition, the composite leading indicator seems to have a significant impact on both industrial production (Panel C) and retail sales index (Panel D), as it presents a coefficient of 2.537 and 2.485, respectively, and both statistically significant at 0.01 level.

Please note that the equations displayed by Table 5 are not incremental, as our methodological approach very closely follows Bernanke (1990)'s methodology. Each panel from the table corresponds to the respective dependent variable to be analysed. For each dependent variable there are three prediction equations: (1) in the first equation, the forecasted variable has as explanatory variables the six lags of itself, the current yield curve variable and six lags of the yield curve; (2) the second equation has in the explanatory side of the equation the six lags of itself, the current yield curve variable, six lags of the yield curve, six lags of CPI inflation, and six lags of M2 money supply growth, as well as their respective current values; (3) the third equation has as explanatory variables the six lags of itself, the current yield curve variable, six lags of the yield curve, six lags of the index of composite leading indicators and its current value.

As mentioned previously, the variables unemployment rate, industrial production index, and retail sales, are only used as dependent variables; while the variables money supply, consumer price index, and composite leading indicator, are also regressed as dependent variables, but also further act as explanatory variables for all the regressed variables, in equations 2 and 3, respectively. The regression of the composite leading only has two equations because the third equation would repeat the predictive variables and results of the first equation.

Table 5
Baseline Regression Results

The table displays baseline regression results and coefficients. Dependent variables in columns, and (1), (2), (3) correspond to each of the three different forecasting equations for the dependent variable. Each panel corresponds to the dependent variable. The equations are not incremental. Explained variables and their lags (L1. to L6.) are presented in rows. Statistically significant coefficients represented as *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Panel A: Consumer Price Index

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	0.152***	0.154***	0.158***
	(0.0323)	(0.0299)	(0.0312)
L2. Yield Curve	0.0176	0.0235	0.0209
	(0.0528)	(0.0538)	(0.0513)
L3. Yield Curve	-0.0366	-0.0391	-0.0375
	(0.0297)	(0.0318)	(0.0293)
L4. Yield Curve	0.0440	0.0444	0.0429
	(0.0526)	(0.0536)	(0.0528)
L5. Yield Curve	0.0509	0.0453	0.0488
	(0.0437)	(0.0448)	(0.0438)
L6. Yield Curve	-0.123**	-0.127***	-0.134***
	(0.0348)	(0.0356)	(0.0397)
Yield Curve	0.0224	0.0319	0.0371
	(0.0269)	(0.0253)	(0.0263)
L1. Consumer Price	0.170*	0.186**	0.183**
	(0.0786)	(0.0815)	(0.0813)
L2. Consumer Price	0.0652	0.0750	0.0776
	(0.0534)	(0.0496)	(0.0490)
L3. Consumer Price	-0.0499	-0.0388	-0.0368
	(0.0291)	(0.0244)	(0.0251)
L4. Consumer Price	0.0395	0.0533*	0.0522*
	(0.0260)	(0.0279)	(0.0278)
L5. Consumer Price	0.0240	0.0349	0.0377
	(0.0465)	(0.0494)	(0.0501)
L6. Consumer Price	0.0745	0.0898	0.0915
	(0.0741)	(0.0728)	(0.0739)
Money Supply		0.00476**	
		(0.00237)	
L1. Money Supply		-0.00435**	
		(0.00201)	
L2. Money Supply		0.0005	
		(0.00292)	
L3. Money Supply		0.0015	
		(0.00188)	
L4. Money Supply		-0.0023	
		(0.00179)	
L5. Money Supply		0.0033	
		(0.00308)	
L6. Money Supply		-0.0001	
		(0.00218)	
Composite Leading			0.0151
			(0.0159)
L1. Composite Leading			-0.0021
			(0.00948)
L2. Composite Leading			0.0115
			(0.0175)
L3. Composite Leading			-0.0140
			(0.0210)
L4. Composite Leading			0.0204
			(0.0167)
L5. Composite Leading			0.0051
			(0.0208)
L6. Composite Leading			0.0189***
			(0.00609)
Constant	0.105***	0.0925***	0.0872***
	(0.0116)	(0.0168)	(0.0192)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0597	0.0770	0.0763

Panel B: Unemployment Rate

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.160	0.156	0.178*
	(0.113)	(0.118)	(0.0937)
L2. Unemployment Rate	-0.116***	-0.117***	-0.129***
	(0.0321)	(0.0296)	(0.0306)
L3. Unemployment Rate	-0.0614**	-0.0654**	-0.0742**
	(0.0307)	(0.0302)	(0.0363)
L4. Unemployment Rate	-0.112***	-0.116***	-0.104***
	(0.0358)	(0.0352)	(0.0348)
L5. Unemployment Rate	-0.00156	-0.00653	-0.00493
	(0.0162)	(0.0171)	(0.0201)
L6. Unemployment Rate	-0.0229	-0.0196	-0.0142
	(0.0527)	(0.0551)	(0.0458)
L1. Yield Curve	-0.0726	-0.0614	-0.0670*
	(0.0495)	(0.0487)	(0.0345)
L2. Yield Curve	0.0409***	0.0409***	0.0592***
	(0.00995)	(0.0109)	(0.0199)
L3. Yield Curve	-0.0124	-0.00804	-0.00960
	(0.0313)	(0.0270)	(0.0301)
L4. Yield Curve	0.0198	0.0277	0.0246
	(0.0147)	(0.0182)	(0.0203)
L5. Yield Curve	0.000979	0.0108	0.00978
	(0.0421)	(0.0449)	(0.0391)
L6. Yield Curve	0.0583**	0.0482**	0.0807***
	(0.0257)	(0.0245)	(0.0259)
Yield Curve	0.164***	0.158***	0.151**
	(0.0590)	(0.0564)	(0.0619)
Consumer Price		-0.0957***	
		(0.0350)	
L1. Consumer Price		0.00526	
		(0.0329)	
L2. Consumer Price		-0.0260	
		(0.0245)	
L3. Consumer Price		-0.000348	
		(0.0263)	
L4. Consumer Price		-0.0495**	
		(0.0213)	
L5. Consumer Price		-0.00522	
		(0.0142)	
L6. Consumer Price		0.0434***	
		(0.0125)	
Money Supply		0.00375	
		(0.00435)	
L1. Money Supply		0.000358	
		(0.00305)	
L2. Money Supply		-0.00290	
		(0.00248)	
L3. Money Supply		0.00133	
		(0.00134)	
L4. Money Supply		-0.00106	
		(0.00205)	
L5. Money Supply		-0.00432***	
		(0.000949)	
L6. Money Supply		-0.00152	
		(0.00190)	
Composite Leading			-0.150
			(0.156)
L1. Composite Leading			0.0515
			(0.0652)
L2. Composite Leading			-0.0382
			(0.0437)
L3. Composite Leading			-0.0571***
			(0.0108)
L4. Composite Leading			-0.00388
			(0.0179)
L5. Composite Leading			-0.0389***
			(0.00867)
L6. Composite Leading			0.000715
			(0.0148)
Constant	-0.0105***	0.0110	0.0148
	(0.00162)	(0.0116)	(0.0163)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0687	0.0870	0.1270

Panel C: Industrial Production Index

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-0.0130	-0.0342	-0.289***
	(0.132)	(0.105)	(0.104)
L2. Yield Curve	0.0821	-0.0222	-0.169
	(0.192)	(0.186)	(0.173)
L3. Yield Curve	0.247	0.233	0.219***
	(0.179)	(0.186)	(0.0836)
L4. Yield Curve	-0.229**	-0.284***	-0.141
	(0.106)	(0.0919)	(0.129)
L5. Yield Curve	-0.160	-0.158	-0.154
	(0.120)	(0.0965)	(0.113)
L6. Yield Curve	0.0383	0.0168	-0.167**
	(0.139)	(0.116)	(0.0677)
Yield Curve	-0.966***	-0.972***	-0.940***
	(0.298)	(0.317)	(0.172)
Consumer Price		0.151	
		(0.134)	
L1. Consumer Price		0.342***	
		(0.116)	
L2. Consumer Price		-0.0698	
		(0.124)	
L3. Consumer Price		0.141*	
		(0.0828)	
L4. Consumer Price		-0.0998	
		(0.0790)	
L5. Consumer Price		0.0589	
		(0.0841)	
L6. Consumer Price		-0.267**	
		(0.128)	
Money Supply		-0.00468	
		(0.00907)	
L1. Money Supply		0.0299**	
		(0.0148)	
L2. Money Supply		0.0152	
		(0.0180)	
L3. Money Supply		0.0186**	
		(0.00832)	
L4. Money Supply		-0.000411	
		(0.00737)	
L5. Money Supply		0.0216***	
		(0.00638)	
L6. Money Supply		-0.00914	
		(0.0199)	
Composite Leading			2.537***
			(0.425)
L1. Composite Leading			0.0853
			(0.192)
L2. Composite Leading			-0.0685
			(0.169)
L3. Composite Leading			0.0226
			(0.264)
L4. Composite Leading			-0.186
			(0.166)
L5. Composite Leading			0.0665
			(0.0792)
L6. Composite Leading			-0.165**
			(0.0644)
L1. Industrial Production	1.018***	1.016***	0.845***
	(0.0224)	(0.0233)	(0.0585)
L2. Industrial Production	-0.195***	-0.201***	0.125**
	(0.0584)	(0.0564)	(0.0508)
L3. Industrial Production	0.118*	0.125*	0.0638
	(0.0709)	(0.0674)	(0.0607)
L4. Industrial Production	0.0136	0.00949	-0.0355
	(0.0625)	(0.0597)	(0.0491)
L5. Industrial Production	0.00351	0.0107	-0.00556
	(0.0547)	(0.0536)	(0.0385)
L6. Industrial Production	0.0203***	0.0182***	0.00223
	(0.00654)	(0.00642)	(0.0181)
Constant	2.142***	2.119***	0.308
	(0.402)	(0.399)	(0.326)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.9666	0.9670	0.9796

Panel D: Retail Sales Index

VARIABLES	Retail Sales Index (1)	Retail Sales Index (2)	Retail Sales Index (3)
L1. Yield Curve	-0.00004	0.0064	-0.284
	(0.240)	(0.200)	(0.194)
L2. Yield Curve	0.377**	0.366**	-0.0326
	(0.158)	(0.175)	(0.114)
L3. Yield Curve	0.0905	0.0882	0.0014
	(0.173)	(0.181)	(0.132)
L4. Yield Curve	-0.219	-0.242**	-0.250**
	(0.135)	(0.122)	(0.127)
L5. Yield Curve	-0.198**	-0.197***	-0.200**
	(0.0931)	(0.0580)	(0.0934)
L6. Yield Curve	0.0024	-0.0396	-0.145**
	(0.122)	(0.114)	(0.0632)
Yield Curve	-0.241	-0.238	-0.269
	(0.297)	(0.288)	(0.220)
Consumer Price		0.0017	
		(0.309)	
L1. Consumer Price		-0.137	
		(0.171)	
L2. Consumer Price		-0.0065	
		(0.193)	
L3. Consumer Price		-0.104	
		(0.0998)	
L4. Consumer Price		0.0121	
		(0.178)	
L5. Consumer Price		0.0285	
		(0.0944)	
L6. Consumer Price		-0.124	
		(0.132)	
Money Supply		-0.0059	
		(0.00717)	
L1. Money Supply		0.0415***	
		(0.0139)	
L2. Money Supply		0.0252	
		(0.0163)	
L3. Money Supply		0.0224***	
		(0.00753)	
L4. Money Supply		0.0162	
		(0.0127)	
L5. Money Supply		-0.0017	
		(0.00914)	
L6. Money Supply		-0.0087	
		(0.0172)	
Composite Leading			2.485***
			(0.390)
L1. Composite Leading			-0.194
			(0.205)
L2. Composite Leading			0.154
			(0.182)
L3. Composite Leading			0.242
			(0.179)
L4. Composite Leading			-0.200*
			(0.116)
L5. Composite Leading			-0.278
			(0.321)
L6. Composite Leading			-0.489***
			(0.136)
L1. Retail Sales Index	0.725***	0.722***	0.612***
	(0.0916)	(0.0892)	(0.0995)
L2. Retail Sales Index	-0.0468	-0.0443	0.105
	(0.0892)	(0.0884)	(0.116)
L3. Retail Sales Index	0.101***	0.0988***	0.0624
	(0.0306)	(0.0315)	(0.0450)
L4. Retail Sales Index	0.0724***	0.0769***	0.0805***
	(0.0131)	(0.0126)	(0.0199)
L5. Retail Sales Index	0.0267	0.0260	0.0744
	(0.0446)	(0.0456)	(0.0556)
L6. Retail Sales Index	0.112***	0.112***	0.0636*
	(0.0228)	(0.0232)	(0.0387)
Constant	1.071***	0.998***	0.219
	(0.221)	(0.220)	(0.182)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.9804	0.9805	0.9873

Panel E: Money Supply M2

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	0.442***	0.343**	0.429***
	(0.167)	(0.143)	(0.161)
L2. Yield Curve	0.0490	0.0173	0.0059
	(0.161)	(0.165)	(0.160)
L3. Yield Curve	0.458	0.442	0.428
	(0.294)	(0.287)	(0.303)
L4. Yield Curve	-0.279	-0.288	-0.295
	(0.214)	(0.200)	(0.229)
L5. Yield Curve	0.711**	0.739**	0.741**
	(0.312)	(0.298)	(0.322)
L6. Yield Curve	0.399***	0.465***	0.377***
	(0.112)	(0.121)	(0.0958)
Yield Curve	-0.387	-0.461*	-0.350
	(0.244)	(0.254)	(0.226)
Consumer Price		0.264*	
		(0.147)	
L1. Consumer Price		-0.231	
		(0.155)	
L2. Consumer Price		0.0980	
		(0.0871)	
L3. Consumer Price		-0.135	
		(0.138)	
L4. Consumer Price		-0.167	
		(0.209)	
L5. Consumer Price		-0.102	
		(0.162)	
L6. Consumer Price		-0.222*	
		(0.116)	
L1. Money Supply	0.0089	0.0098	0.0033
	(0.0149)	(0.0152)	(0.0169)
L2. Money Supply	0.0465**	0.0438*	0.0426*
	(0.0210)	(0.0228)	(0.0222)
L3. Money Supply	0.0572**	0.0564**	0.0529**
	(0.0241)	(0.0242)	(0.0241)
L4. Money Supply	-0.0012	-0.0011	-0.0052
	(0.0334)	(0.0354)	(0.0325)
L5. Money Supply	-0.0205	-0.0229	-0.0223
	(0.0314)	(0.0307)	(0.0320)
L6. Money Supply	0.0528***	0.0538***	0.0536***
	(0.0182)	(0.0177)	(0.0197)
Composite Leading			0.283**
			(0.120)
L1. Composite Leading			-0.0437
			(0.0401)
L2. Composite Leading			0.320***
			(0.0862)
L3. Composite Leading			-0.187***
			(0.0426)
L4. Composite Leading			-0.0899
			(0.0806)
L5. Composite Leading			0.188
			(0.161)
L6. Composite Leading			0.0911
			(0.0972)
Constant	0.365***	0.440***	0.313***
	(0.0338)	(0.0817)	(0.0329)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0189	0.0230	0.0282

Panel F: Composite Leading Indicator

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.0957	0.0803
	(0.0596)	(0.0537)
L2. Yield Curve	0.114**	0.107**
	(0.0517)	(0.0521)
L3. Yield Curve	0.0054	0.0012
	(0.0369)	(0.0411)
L4. Yield Curve	0.0075	0.0044
	(0.0281)	(0.0258)
L5. Yield Curve	-0.0192	-0.0157
	(0.0117)	(0.0159)
L6. Yield Curve	0.0746*	0.0731**
	(0.0424)	(0.0352)
Yield Curve	-0.0024	-0.0207
	(0.0948)	(0.0940)
Consumer Price		0.0254
		(0.0280)
L1. Consumer Price		-0.0524***
		(0.0163)
L2. Consumer Price		-0.0248*
		(0.0145)
L3. Consumer Price		-0.0142
		(0.0196)
L4. Consumer Price		-0.0751**
		(0.0358)
L5. Consumer Price		-0.0050
		(0.0167)
L6. Consumer Price		-0.0358**
		(0.0171)
Money Supply		0.00806**
		(0.00331)
L1. Money Supply		0.00925*
		(0.00527)
L2. Money Supply		0.0127***
		(0.00403)
L3. Money Supply		0.00366**
		(0.00155)
L4. Money Supply		-0.00101
		(0.00155)
L5. Money Supply		-0.0013
		(0.00188)
L6. Money Supply		-0.0063
		(0.00450)
L1. Composite Leading	0.581***	0.567***
	(0.0918)	(0.0900)
L2. Composite Leading	-0.435***	-0.440***
	(0.0748)	(0.0770)
L3. Composite Leading	0.188*	0.182*
	(0.107)	(0.107)
L4. Composite Leading	-0.0383	-0.0397
	(0.0850)	(0.0846)
L5. Composite Leading	0.0479	0.0480
	(0.0557)	(0.0541)
L6. Composite Leading	0.0419	0.0414
	(0.0298)	(0.0275)
Constant	0.0671***	0.0866***
	(0.0183)	(0.0218)
Observations	2,324	2,324
Number of country	7	7
R-squared	0.2830	0.2977

With the exception of consumer price, the third equation is the one that has the greatest predictive power for recessions when looking at the G7 countries as a group, although the general R-squared of variables is not high. The R-squared of the Industrial production index and the Retail sales Index shows a good predictive power of the yield curve and lagged variables for recessions, always higher than 0.9. On the other hand, the yield curve seams not to be a trustable predictor of the M2 money supply, as the R-squared is low on average (lower than 0.03). This obvious and expected result happens because the interest rate is typically a monetary policy instrument.

The predictive power of recessions observed in the tables is not uniquely a consequence of the yield curve and its lags as predictors, but also a result of the impact of the lags of the dependent variable itself. It is possible to notice that the current value of an economic activity indicator is deeply influenced by some of its past values, which is in line with Bernanke & Blinder (1992, pp. 904-908).

In addition, aside from yield curve, the other explanatory variables, i.e., the consumer price, M2 money supply, and the composite leading indicator, also contribute to increase the explanatory power of the regressions. This is evinced by the increase in the R-squared observed on the second equations in comparison to the first equations, which correspond to the moment when the consumer price and M2 money supply variables are added as predictive variables.

Nevertheless, the R-squared of the third predictive equation is even higher than the one observed in the second equation in almost all cases, despite the large number of explanatory variables. It suggests that the composite leading indicator is a better predictor of the economic activity than the consumer price and money supply together.

The low R-squared presented by some specifications could be due to the large size of sample composed by seven diverse countries, with different economies, which implies significant heterogeneity in the observations.

5.2. Fragmented Regression Analysis

Since the G7 is a heterogeneous group of countries, the yield curve and other explanatory variables may affect macroeconomic indicators in different intensities. Therefore, it is crucial to examine whether the yield curve holds forecasting power in each country individually, since the performance at the aggregate level can hide strong heterogeneity among individual countries (Sabes & Sahuc, 2023, p.6).

Before performing individual regressions for each country, G7 countries were divided into two different blocks according to their geographic and political economy similarities. One of the blocks consists of the European countries block, formed by Germany, France, Italy and the United Kingdom. The other one is the North American countries block, composed by Canada and United States, neighbouring countries and members of NAFTA. The main justification for dividing G7 countries into blocks is to analyse whether political economic similarities of countries for each group is captured by the regional bloc estimation through an improvement in regression explanation power and significance level.

In Sub-section 5.2.1., G7 countries were thus divided into two different blocks according to their geographic locations and political economy similarities. Sub-section 5.2.2. displays the regression results regarding the estimations of each country that compose the G7 individually.

5.2.1. Blocks of Countries

In order to perform the estimation of the two different blocks of countries, the European and North American blocks, a Panel Data analysis is estimated (using the Hausman Test's recommendation for a Random effect variant).

First of all, a correlation analysis is performed to investigate the relationship between the variables and their expected response and compare them. Table 6 presents the correlation matrix of coefficients regarding the European and American blocks of countries.

Table 6

Country Groups Correlation Matrix

The tables present all pairwise correlation coefficients between each variable. The first matrix includes the European countries sample, while the second presents the American countries, both in the period corresponding to 1995 to 2023.

European Countries

	Unempl. Rate	Consumer Price	Money Supply	Composite L.	Industrial P.	Retail Sales	LTIR	STIR	Yield Curve
Unemployment Rate	1.0000								
Consumer Price	-0.1233	1.0000							
Money Supply	-0.0474	0.0078	1.0000						
Composite Leading	-0.2642	0.1088	0.0058	1.0000					
Industrial Production	-0.1262	0.0559	0.0334	0.4494	1.0000				
Retail Sales	-0.2123	0.1104	-0.0142	0.8421	0.2215	1.0000			
LT Interest rate	0.3156	0.0255	-0.0046	-0.6576	0.0607	-0.5009	1.0000		
ST Interest rate	0.0307	0.0313	-0.0037	-0.6246	0.1225	-0.4537	0.8591	1.0000	
Yield Curve	0.4999	-0.0155	-0.0009	0.0479	-0.1304	-0.0063	0.1032	-0.4204	1.0000

American Countries

	Unempl. Rate	Consumer Price	Money Supply	Composite L.	Industrial P.	Retail Sales	LTIR	STIR	Yield Curve
Unemployment Rate	1.0000								
Consumer Price	-0.1199	1.0000							
Money Supply	0.1097	0.0428	1.0000						
Composite Leading	-0.1928	0.1071	0.0171	1.0000					
Industrial Production	-0.3144	0.0962	-0.0232	0.8036	1.0000				
Retail Sales	-0.3892	0.1476	-0.0029	0.9140	0.7080	1.0000			
LT Interest rate	-0.0492	0.0054	-0.0592	-0.8651	-0.6438	-0.7763	1.0000		
ST Interest rate	-0.3189	-0.0048	-0.0634	-0.6084	-0.3508	-0.4891	0.8056	1.0000	
Yield Curve	0.4653	0.0159	0.0212	-0.2244	-0.3383	-0.2970	0.0872	-0.5199	1.0000

As expected, the macroeconomic variables presented different connections across the two groups. The correlation between the composite leading indicator and the industrial production index in American countries is almost two times bigger than in European countries, suggesting that the industry production of the first has a major percentage weight in the leading indicator

than does the second. Nevertheless, in both groups there is a significant relation between retail sales and the leading indicator, coefficients higher than 0.8.

Furthermore, the expressive correlation between industrial production and retail sales indicates that industrial production in America is quite oriented towards consumer goods sold by retailers. Moreover, in both groups the interest rates behave identically among themselves: there is a negative relation between short-term interest rates and yield curves, and a positive relation between long-term interest rates and yield curves, and the coefficients have nearly the same magnitude.

Table 7 and Table 8 below presents the regression results obtained for European and North American countries, respectively. With the exception of the third equation, when the composite leading indicator is included, the unemployment rate is better forecasted by the yield curve in European countries (Table 7, Panel B). The third predictive equation shows that the composite leading indicator has a significative forecasting power regarding unemployment rate in America (Table 8, Panel B), since the explanatory power of the regression jumped from 0.0756 (first column) to 0.6874 (third column) after adding that specific variable.

Additionally, the analysis of the estimated coefficients shows that, in general, money supply in Europe is a better forecaster of macroeconomic variables, while in North America consumer price is a better predictor than money supply, given the amount of statistically significant coefficients. Also, the second equation, which includes money supply, consumer price, and yield curve as independent variables, works better as predictors in North America than in Europe and the G7 group.

Regarding the European group, with exception of the unemployment rate and consumer price, the coefficients on the yield spread are negative and highly significant for the first lag and current value of that variable, as in Sabes & Sahuc (2023, p.5).

Despite of the yield curve being the explanatory variable with the best forecasting power in both groups of countries as well as in the G7 group, this indicator has proved to be more significant in Europe than in each one of the others. Moreover, the composite leading indicator, included in the third equation in both groups of countries (Tables 7 and 8), displayed statistically significant coefficients for all the dependent variables (third column, all panels), but with a higher magnitude when estimating industrial production (Panel C) and retail sales (Panel D).

Both in Europe and North America, industrial production index carries an autoregressive aspect, because it is in great part predicted by its lagged values, which are, in its majority, statistically significant and with a high magnitude. Moreover, the other predictors, especially the yield curve and composite leading were also statistically significant, all this implying an expressive R-squared superior to 0.96, such as the retail sales index (Tables 7 and 8, Panels C and D).

Nonetheless, the yield curve and money supply are better predictors of consumer price in American countries rather than in Europe, although the R-squared is not expressive in either of the groups, being lower than 0.2. A possible reason for this may be the heterogeneity of consumer price levels within the European group, composed by four different countries, while consumer price in the American group is more homogeneous once this group is only formed by two similar countries.

Consequently, the fragmentation of the G7 group into two blocks corroborated in an increase of statistically significant coefficients in both European and American countries in relation to the G7 group, which points to a general improvement of the regression forecasting power. Moreover, an increase of the R-squared of the equations is also observed, since the specifications better capture countries' particularities, enabling a more focused analysis.

Table 7

European countries Regression Results

The table displays regression results and coefficients. Dependent variables in columns, and (1), (2), (3) correspond to each of the three different forecasting equations for the dependent variable. Each panel corresponds to one dependent variable. The equations are not incremental. Explained variables and their lags (L1. to L6.) are presented in rows. Statistically significant coefficients represented as *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Panel A: Consumer Price Index

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	0.169***	0.170***	0.169***
	(0.0304)	(0.0305)	(0.0325)
L2. Yield Curve	0.0061	0.0153	0.0111
	(0.0825)	(0.0867)	(0.0800)
L3. Yield Curve	-0.0703	-0.0704	-0.0667
	(0.0527)	(0.0547)	(0.0524)
L4. Yield Curve	-0.0059	-0.0017	-0.0055
	(0.0815)	(0.0847)	(0.0808)
L5. Yield Curve	0.0894	0.0875	0.0932
	(0.0623)	(0.0648)	(0.0584)
L6. Yield Curve	-0.0757**	-0.0760**	-0.0763**
	(0.0351)	(0.0349)	(0.0387)
Yield Curve	0.0180	0.0186	0.0199
	(0.0457)	(0.0423)	(0.0422)
L1. Consumer Price	0.0332	0.0349	0.0315
	(0.0373)	(0.0371)	(0.0382)
L2. Consumer Price	0.147***	0.146***	0.145***
	(0.0477)	(0.0471)	(0.0474)
L3. Consumer Price	-0.0075	-0.0085	-0.0064
	(0.0351)	(0.0353)	(0.0357)
L4. Consumer Price	0.0316	0.0344	0.0305
	(0.0311)	(0.0316)	(0.0303)
L5. Consumer Price	0.0761	0.0773*	0.0757
	(0.0479)	(0.0464)	(0.0497)
L6. Consumer Price	0.168	0.170	0.171
	(0.121)	(0.119)	(0.122)
Money Supply		0.0016	
		(0.00134)	
L1. Money Supply		-0.00464**	
		(0.00235)	
L2. Money Supply		0.0014	
		(0.00314)	
L3. Money Supply		0.0030	
		(0.00226)	
L4. Money Supply		-0.0011	
		(0.00245)	
L5. Money Supply		0.00646*	
		(0.00331)	
L6. Money Supply		0.0010	
		(0.00180)	
Composite Leading			-0.0073
			(0.0115)
L1. Composite Leading			-0.0114
			(0.00787)
L2. Composite Leading			0.0089
			(0.0225)
L3. Composite Leading			-0.0229
			(0.0238)
L4. Composite Leading			0.0143
			(0.0216)
L5. Composite Leading			-0.0001
			(0.0239)
L6. Composite Leading			0.0202**
			(0.00859)
Constant	0.0919***	0.0880***	0.0921***
	(0.0105)	(0.0115)	(0.0110)
Observations	1,328	1,328	1,328
Number of country	4	4	4
R-squared	0.0783	0.0839	0.0812

Panel B: Unemployment Rate

VARIABLES	Unemployment	Unemployment	Unemployment
	(1)	(2)	(3)
L1. Unemployment Rate	0.270*	0.280*	0.241
	(0.155)	(0.167)	(0.184)
L2. Unemployment Rate	-0.0223	-0.0291	-0.0290
	(0.0780)	(0.0802)	(0.0704)
L3. Unemployment Rate	-0.162***	-0.157***	-0.162***
	(0.0202)	(0.0225)	(0.0196)
L4. Unemployment Rate	-0.0726	-0.0536	-0.0641
	(0.0713)	(0.0498)	(0.0779)
L5. Unemployment Rate	0.0115	-0.0017	0.0136
	(0.0540)	(0.0471)	(0.0496)
L6. Unemployment Rate	0.159***	0.164***	0.160***
	(0.00873)	(0.00859)	(0.00967)
L1. Yield Curve	-0.0123	-0.0004	-0.0212
	(0.0250)	(0.0193)	(0.0250)
L2. Yield Curve	0.0352***	0.0294**	0.0261**
	(0.00626)	(0.0119)	(0.0122)
L3. Yield Curve	-0.0067	0.0015	-0.0100
	(0.0338)	(0.0184)	(0.0327)
L4. Yield Curve	-0.0042	-0.0032	-0.0078
	(0.0165)	(0.0183)	(0.0173)
L5. Yield Curve	-0.0479	-0.0451	-0.0410
	(0.0455)	(0.0445)	(0.0459)
L6. Yield Curve	0.0823*	0.0670*	0.0855**
	(0.0447)	(0.0380)	(0.0392)
Yield Curve	0.0749	0.0723	0.0626
	(0.0540)	(0.0461)	(0.0515)
Consumer Price		-0.0445***	
		(0.0167)	
L1. Consumer Price		0.0514	
		(0.0337)	
L2. Consumer Price		-0.0657	
		(0.0432)	
L3. Consumer Price		-0.0254	
		(0.0298)	
L4. Consumer Price		-0.0075	
		(0.0204)	
L5. Consumer Price		0.0065	
		(0.00568)	
L6. Consumer Price		0.0545**	
		(0.0272)	
Money Supply		-0.0001	
		(0.00134)	
L1. Money Supply		0.00382*	
		(0.00217)	
L2. Money Supply		0.0005	
		(0.00159)	
L3. Money Supply		0.0013	
		(0.000914)	
L4. Money Supply		-0.0003	
		(0.00294)	
L5. Money Supply		-0.00338***	
		(0.00104)	
L6. Money Supply		-0.0002	
		(0.00204)	
Composite Leading			0.0079
			(0.0511)
L1. Composite Leading			-0.0052
			(0.0422)
L2. Composite Leading			0.0005
			(0.0122)
L3. Composite Leading			-0.0449**
			(0.0215)
L4. Composite Leading			-0.0159***
			(0.00490)
L5. Composite Leading			-0.0272**
			(0.0138)
L6. Composite Leading			-0.0179
			(0.0135)
Constant	-0.00993***	-0.0051	-0.0009
	(0.00116)	(0.00526)	(0.00260)
Observations	1,328	1,328	1,328
Number of country	4	4	4
R-squared	0.1757	0.208	0.2059

Panel C: Industrial Production Index

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-0.177	-0.111	-0.203
	(0.167)	(0.141)	(0.140)
L2. Yield Curve	0.0042	-0.0721	-0.244
	(0.342)	(0.343)	(0.335)
L3. Yield Curve	0.0643	0.0624	0.145
	(0.274)	(0.303)	(0.142)
L4. Yield Curve	-0.0723	-0.131	0.0778
	(0.122)	(0.0864)	(0.115)
L5. Yield Curve	-0.439***	-0.391***	-0.359***
	(0.0724)	(0.0438)	(0.0751)
L6. Yield Curve	0.220	0.0865	-0.211**
	(0.151)	(0.154)	(0.105)
Yield Curve	-1.118**	-1.095**	-1.011***
	(0.467)	(0.520)	(0.0778)
Consumer Price		0.0092	
		(0.0279)	
L1. Consumer Price		0.223	
		(0.150)	
L2. Consumer Price		0.0205	
		(0.203)	
L3. Consumer Price		0.111	
		(0.139)	
L4. Consumer Price		-0.209**	
		(0.0910)	
L5. Consumer Price		0.0798	
		(0.114)	
L6. Consumer Price		-0.107	
		(0.138)	
Money Supply		0.0075	
		(0.00980)	
L1. Money Supply		0.0462***	
		(0.0158)	
L2. Money Supply		0.0262***	
		(0.00893)	
L3. Money Supply		0.0238*	
		(0.0132)	
L4. Money Supply		0.0024	
		(0.0104)	
L5. Money Supply		0.0226**	
		(0.00910)	
L6. Money Supply		-0.0293	
		(0.0265)	
Composite Leading			2.593***
			(0.527)
L1. Composite Leading			0.131
			(0.269)
L2. Composite Leading			-0.0254
			(0.203)
L3. Composite Leading			-0.0746
			(0.328)
L4. Composite Leading			-0.202
			(0.183)
L5. Composite Leading			0.0334
			(0.0859)
L6. Composite Leading			-0.229***
			(0.0617)
L1. Industrial Production	0.988***	0.986***	0.773***
	(0.0267)	(0.0297)	(0.0682)
L2. Industrial Production	-0.232***	-0.237***	0.176**
	(0.0425)	(0.0447)	(0.0706)
L3. Industrial Production	0.175***	0.179***	0.116***
	(0.0495)	(0.0480)	(0.0361)
L4. Industrial Production	-0.0210	-0.0213	-0.0763***
	(0.0711)	(0.0713)	(0.0260)
L5. Industrial Production	0.0402	0.0455	0.0086
	(0.0576)	(0.0596)	(0.0613)
L6. Industrial Production	0.0327***	0.0287***	-0.0019
	(0.00753)	(0.00829)	(0.0176)
Constant	1.858***	1.891***	0.359
	(0.401)	(0.434)	(0.257)
Observations	1,328	1,328	1,328
Number of country	4	4	4
R-squared	0.9676	0.9679	0.9827

Panel D: Retail Sales Index

VARIABLES	Retail Sales Index (1)	Retail Sales Index (2)	Retail Sales Index (3)
L1. Yield Curve	-0.216	-0.176	-0.262
	(0.209)	(0.219)	(0.245)
L2. Yield Curve	0.506***	0.550**	-0.0105
	(0.184)	(0.214)	(0.208)
L3. Yield Curve	-0.252***	-0.303***	-0.235*
	(0.0413)	(0.0547)	(0.122)
L4. Yield Curve	-0.0527	-0.0821	-0.103
	(0.193)	(0.145)	(0.219)
L5. Yield Curve	-0.301**	-0.241**	-0.261**
	(0.140)	(0.120)	(0.105)
L6. Yield Curve	0.0606	0.0147	-0.251*
	(0.180)	(0.199)	(0.137)
Yield Curve	-0.211	-0.229	-0.198
	(0.490)	(0.438)	(0.214)
Consumer Price		-0.145	
		(0.0926)	
L1. Consumer Price		-0.457***	
		(0.118)	
L2. Consumer Price		0.223	
		(0.214)	
L3. Consumer Price		-0.195***	
		(0.0559)	
L4. Consumer Price		-0.291	
		(0.240)	
L5. Consumer Price		-0.0282	
		(0.118)	
L6. Consumer Price		0.0757	
		(0.165)	
Money Supply		-0.0045	
		(0.00424)	
L1. Money Supply		0.0234***	
		(0.00836)	
L2. Money Supply		0.0132	
		(0.0146)	
L3. Money Supply		0.0236***	
		(0.00587)	
L4. Money Supply		0.0112	
		(0.0175)	
L5. Money Supply		-0.0078	
		(0.0129)	
L6. Money Supply		-0.0257	
		(0.0199)	
Composite Leading			2.391***
			(0.496)
L1. Composite Leading			-0.155
			(0.269)
L2. Composite Leading			-0.0592
			(0.266)
L3. Composite Leading			0.304
			(0.210)
L4. Composite Leading			-0.257*
			(0.151)
L5. Composite Leading			-0.289
			(0.494)
L6. Composite Leading			-0.547***
			(0.164)
L1. Retail Sales Index	0.702***	0.699***	0.563***
	(0.115)	(0.115)	(0.117)
L2. Retail Sales Index	-0.0121	-0.0126	0.237**
	(0.0793)	(0.0799)	(0.115)
L3. Retail Sales Index	0.0706***	0.0668**	0.0021
	(0.0264)	(0.0267)	(0.0623)
L4. Retail Sales Index	0.0790***	0.0819***	0.0561*
	(0.0226)	(0.0239)	(0.0295)
L5. Retail Sales Index	0.0137	0.0143	0.0831
	(0.0786)	(0.0792)	(0.112)
L6. Retail Sales Index	0.136***	0.142***	0.0559
	(0.0326)	(0.0310)	(0.0696)
Constant	1.168***	1.077***	0.311
	(0.240)	(0.265)	(0.218)
Observations	1,328	1,328	1,328
Number of country	4	4	4
R-squared	0.9793	0.9795	0.9888

Panel E: Money Supply M2

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	0.617***	0.500***	0.622***
	(0.00831)	(0.0765)	(0.0309)
L2. Yield Curve	-0.197	-0.201	-0.244
	(0.165)	(0.190)	(0.166)
L3. Yield Curve	0.926***	0.895***	0.954***
	(0.253)	(0.267)	(0.270)
L4. Yield Curve	-0.712**	-0.675**	-0.753**
	(0.288)	(0.284)	(0.301)
L5. Yield Curve	1.347***	1.361***	1.393***
	(0.181)	(0.168)	(0.202)
L6. Yield Curve	0.442**	0.512***	0.434**
	(0.190)	(0.178)	(0.182)
Yield Curve	-0.673**	-0.750***	-0.593**
	(0.296)	(0.281)	(0.256)
Consumer Price		0.112	
		(0.101)	
L1. Consumer Price		-0.224	
		(0.264)	
L2. Consumer Price		0.118	
		(0.120)	
L3. Consumer Price		-0.338*	
		(0.197)	
L4. Consumer Price		-0.105	
		(0.161)	
L5. Consumer Price		-0.360**	
		(0.176)	
L6. Consumer Price		-0.211	
		(0.213)	
L1. Money Supply	0.0264***	0.0252**	0.0176
	(0.00891)	(0.0123)	(0.0138)
L2. Money Supply	0.0206	0.0146	0.0164
	(0.0187)	(0.0188)	(0.0172)
L3. Money Supply	0.0957***	0.0946***	0.0904***
	(0.00599)	(0.00669)	(0.00826)
L4. Money Supply	-0.0451	-0.0493*	-0.0505**
	(0.0278)	(0.0265)	(0.0228)
L5. Money Supply	0.0118	0.0097	0.0091
	(0.0261)	(0.0272)	(0.0279)
L6. Money Supply	0.0753***	0.0741***	0.0794***
	(0.0113)	(0.0121)	(0.0114)
Composite Leading			0.328***
			(0.0388)
L1. Composite Leading			-0.0165
			(0.0351)
L2. Composite Leading			0.398***
			(0.0532)
L3. Composite Leading			-0.229***
			(0.0695)
L4. Composite Leading			-0.0700
			(0.118)
L5. Composite Leading			0.225
			(0.209)
L6. Composite Leading			0.0926
			(0.128)
Constant	0.347***	0.516***	0.289***
	(0.0302)	(0.0614)	(0.0208)
Observations	1,328	1,328	1,328
Number of country	4	4	4
R-squared	0.0398	0.0464	0.057

Panel F: Composite Leading Indicator

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	-0.0008	-0.0029
	(0.0549)	(0.0580)
L2. Yield Curve	0.178**	0.173**
	(0.0744)	(0.0774)
L3. Yield Curve	-0.0764***	-0.0965***
	(0.0165)	(0.0254)
L4. Yield Curve	0.0374	0.0319
	(0.0340)	(0.0315)
L5. Yield Curve	-0.0387***	-0.0427***
	(0.00718)	(0.0145)
L6. Yield Curve	0.135***	0.120***
	(0.0325)	(0.0354)
Yield Curve	-0.0560	-0.0694
	(0.173)	(0.173)
Consumer Price		-0.0195
		(0.0250)
L1. Consumer Price		-0.0856***
		(0.0200)
L2. Consumer Price		-0.0140
		(0.0241)
L3. Consumer Price		-0.0195
		(0.0285)
L4. Consumer Price		-0.128**
		(0.0526)
L5. Consumer Price		0.0085
		(0.0141)
L6. Consumer Price		-0.0340
		(0.0355)
Money Supply		0.0123***
		(0.00314)
L1. Money Supply		0.0081
		(0.00802)
L2. Money Supply		0.0155***
		(0.00418)
L3. Money Supply		0.0030
		(0.00281)
L4. Money Supply		-0.00360***
		(0.000592)
L5. Money Supply		-0.00413**
		(0.00160)
L6. Money Supply		-0.0109*
		(0.00635)
L1. Composite Leading	0.596***	0.579***
	(0.111)	(0.110)
L2. Composite Leading	-0.512***	-0.522***
	(0.0594)	(0.0578)
L3. Composite Leading	0.222*	0.214
	(0.130)	(0.133)
L4. Composite Leading	-0.0885	-0.0922
	(0.112)	(0.114)
L5. Composite Leading	0.0565	0.0539
	(0.0794)	(0.0783)
L6. Composite Leading	0.0259	0.0248
	(0.0460)	(0.0440)
Constant	0.0667***	0.110***
	(0.0228)	(0.0251)
Observations	1,328	1,328
Number of country	4	4
R-squared	0.3021	0.3223

Table 8

North American countries Regression Results

The table displays regression results and coefficients. Dependent variables in columns, and (1), (2), (3) correspond to each of the three different forecasting equations for the dependent variable. Each panel corresponds to one dependent variable. The equations are not incremental. Explained variables and their lags (L1. to L6.) are presented in rows. Statistically significant coefficients represented as *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Panel A: Consumer Price Index

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	0.176***	0.168***	0.154***
	(0.0456)	(0.0362)	(0.0468)
L2. Yield Curve	0.0264	0.0211	0.0018
	(0.124)	(0.131)	(0.138)
L3. Yield Curve	-0.0149	-0.0056	-0.0224
	(0.0247)	(0.0277)	(0.0247)
L4. Yield Curve	0.0347	0.0328	0.0367
	(0.0329)	(0.0362)	(0.0419)
L5. Yield Curve	-0.0111***	-0.0152***	-0.0128***
	(0.00108)	(0.00290)	(0.00410)
L6. Yield Curve	-0.144***	-0.146***	-0.160***
	(0.0276)	(0.0277)	(0.0179)
Yield Curve	0.0272	0.0265	0.0393
	(0.0406)	(0.0386)	(0.0380)
L1. Consumer Price	0.396**	0.402**	0.393**
	(0.161)	(0.160)	(0.154)
L2. Consumer Price	-0.0967	-0.0941	-0.0827
	(0.0668)	(0.0695)	(0.0777)
L3. Consumer Price	0.0143**	0.00488***	0.0223***
	(0.00600)	(0.000206)	(0.00850)
L4. Consumer Price	0.0329	0.0506***	0.0280
	(0.0311)	(0.0152)	(0.0316)
L5. Consumer Price	-0.0531**	-0.0638***	-0.0548**
	(0.0231)	(0.0236)	(0.0232)
L6. Consumer Price	-0.0196***	-0.0155***	-0.0094
	(0.00271)	(0.00231)	(0.00571)
Money Supply		0.0140*	
		(0.00773)	
L1. Money Supply		-0.0018	
		(0.00570)	
L2. Money Supply		-0.0014	
		(0.00306)	
L3. Money Supply		0.00714***	
		(0.001000)	
L4. Money Supply		-0.0133***	
		(0.00314)	
L5. Money Supply		-0.0034	
		(0.00476)	
L6. Money Supply		0.0115***	
		(0.00107)	
Composite Leading			0.0870***
			(0.0181)
L1. Composite Leading			0.0399
			(0.0459)
L2. Composite Leading			-0.0311
			(0.0535)
L3. Composite Leading			-0.0209
			(0.0598)
L4. Composite Leading			0.0386
			(0.0553)
L5. Composite Leading			0.0267***
			(0.00722)
L6. Composite Leading			0.0130
			(0.0289)
Constant	0.142***	0.133***	0.113***
	(0.0158)	(0.00865)	(0.0215)
Observations	664	664	664
Number of country	2	2	2
R-squared	0.1794	0.1901	0.1929

Panel B: Unemployment Rate

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.122	0.0856	0.423***
	(0.170)	(0.195)	(0.0148)
L2. Unemployment Rate	-0.141***	-0.133***	0.209
	(0.0389)	(0.0208)	(0.169)
L3. Unemployment Rate	-0.0311***	-0.0345***	0.105***
	(0.00805)	(0.0114)	(0.00196)
L4. Unemployment Rate	-0.122***	-0.135***	-0.0133
	(0.0149)	(0.00122)	(0.0661)
L5. Unemployment Rate	-0.0123	-0.0257***	-0.0466
	(0.00869)	(0.00588)	(0.0343)
L6. Unemployment Rate	-0.0949***	-0.0952***	-0.0704***
	(0.00157)	(0.00257)	(0.000611)
L1. Yield Curve	-0.164*	-0.132*	0.0674**
	(0.0850)	(0.0689)	(0.0270)
L2. Yield Curve	0.0186	0.0213**	0.0720
	(0.0241)	(0.00943)	(0.0495)
L3. Yield Curve	-0.0432	-0.0343	-0.0505**
	(0.0842)	(0.0888)	(0.0231)
L4. Yield Curve	0.0626***	0.0793***	-0.00661
	(0.0128)	(0.0218)	(0.0548)
L5. Yield Curve	0.0839	0.129**	-0.0069
	(0.0624)	(0.0505)	(0.0290)
L6. Yield Curve	0.0420*	0.0250	-0.0154
	(0.0247)	(0.0395)	(0.0343)
Yield Curve	0.295***	0.291***	0.231***
	(0.0230)	(0.0229)	(0.0425)
Consumer Price		-0.224***	
		(0.0445)	
L1. Consumer Price		-0.0511**	
		(0.0234)	
L2. Consumer Price		0.0120**	
		(0.00561)	
L3. Consumer Price		0.0465	
		(0.0283)	
L4. Consumer Price		-0.101***	
		(0.00262)	
L5. Consumer Price		-0.0560**	
		(0.0250)	
L6. Consumer Price		0.0072	
		(0.00674)	
Money Supply		0.0334	
		(0.0555)	
L1. Money Supply		-0.0110	
		(0.0185)	
L2. Money Supply		-0.0224	
		(0.0177)	
L3. Money Supply		-0.0052	
		(0.0107)	
L4. Money Supply		-0.0173	
		(0.0187)	
L5. Money Supply		-0.0088	
		(0.0128)	
L6. Money Supply		-0.0027	
		(0.00636)	
Composite Leading			-1.476***
			(0.220)
L1. Composite Leading			0.422***
			(0.145)
L2. Composite Leading			0.428***
			(0.163)
L3. Composite Leading			0.0372
			(0.198)
L4. Composite Leading			0.216***
			(0.0563)
L5. Composite Leading			-0.0751
			(0.126)
L6. Composite Leading			-0.0413**
			(0.0187)
Constant	-0.00942***	0.0799***	0.0781***
	(0.00275)	(0.0158)	(0.00120)
Observations	664	664	664
Number of country	2	2	2
R-squared	0.0756	0.1322	0.6874

Panel C: Industrial Production Index

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	0.352***	0.181	-0.165
	(0.0685)	(0.206)	(0.105)
L2. Yield Curve	-0.0365	-0.101	-0.254***
	(0.0224)	(0.205)	(0.0565)
L3. Yield Curve	0.373*	0.317	0.300**
	(0.218)	(0.206)	(0.133)
L4. Yield Curve	-0.317***	-0.411**	-0.210**
	(0.0103)	(0.202)	(0.102)
L5. Yield Curve	0.117	-0.00643	0.164**
	(0.169)	(0.202)	(0.0644)
L6. Yield Curve	-0.282***	-0.209	-0.216
	(0.104)	(0.196)	(0.189)
Yield Curve	-0.855**	-0.849***	-0.761*
	(0.404)	(0.198)	(0.460)
Consumer Price		0.594***	
		(0.135)	
L1. Consumer Price		0.205	
		(0.146)	
L2. Consumer Price		-0.150	
		(0.146)	
L3. Consumer Price		0.132	
		(0.146)	
L4. Consumer Price		0.0868	
		(0.148)	
L5. Consumer Price		0.123	
		(0.148)	
L6. Consumer Price		-0.0968	
		(0.137)	
Money Supply		-0.0407	
		(0.0267)	
L1. Money Supply		-0.00642	
		(0.0268)	
L2. Money Supply		0.0675**	
		(0.0267)	
L3. Money Supply		0.0285	
		(0.0263)	
L4. Money Supply		0.0166	
		(0.0267)	
L5. Money Supply		0.0373	
		(0.0266)	
L6. Money Supply		0.0327	
		(0.0266)	
Composite Leading			2.091***
			(0.214)
L1. Composite Leading			0.473
			(0.313)
L2. Composite Leading			-0.531
			(0.533)
L3. Composite Leading			-0.182***
			(0.00920)
L4. Composite Leading			-0.0642***
			(0.0231)
L5. Composite Leading			0.0737
			(0.169)
L6. Composite Leading			0.0451***
			(0.0107)
L1. Industrial Production	1.166***	1.121***	1.054***
	(0.0329)	(0.0400)	(0.0510)
L2. Industrial Production	-0.380***	-0.337***	-0.0778
	(0.0207)	(0.0599)	(0.0510)
L3. Industrial Production	0.218***	0.198***	0.106***
	(0.00851)	(0.0615)	(0.00366)
L4. Industrial Production	-0.0441***	-0.0559	-0.0684
	(0.0132)	(0.0614)	(0.0432)
L5. Industrial Production	0.0541***	0.0740	0.0270
	(0.0137)	(0.0598)	(0.0278)
L6. Industrial Production	-0.0376***	-0.0286	-0.0446**
	(0.00324)	(0.0392)	(0.0209)
Constant	2.374***	2.572***	0.150
	(0.0330)	(0.594)	(0.166)
Observations	664	664	664
Number of country	2	2	2
R-squared	0.9754	0.9771	0.9849

Panel D: Retail Sales Index

VARIABLES	Retail Sales Index (1)	Retail Sales Index (2)	Retail Sales Index (3)
L1. Yield Curve	0.482**	0.281	-0.390
	(0.242)	(0.212)	(0.332)
L2. Yield Curve	0.105	-0.0192	-0.273
	(0.160)	(0.205)	(0.182)
L3. Yield Curve	0.399	0.346	0.221
	(0.339)	(0.445)	(0.221)
L4. Yield Curve	-0.351***	-0.441***	-0.261**
	(0.100)	(0.165)	(0.118)
L5. Yield Curve	0.0398	-0.0816	0.0805
	(0.180)	(0.173)	(0.107)
L6. Yield Curve	-0.235*	-0.126	-0.114**
	(0.140)	(0.105)	(0.0557)
Yield Curve	-0.158	-0.324	-0.262
	(0.601)	(0.501)	(0.727)
Consumer Price		0.561	
		(0.416)	
L1. Consumer Price		0.0470	
		(0.338)	
L2. Consumer Price		-0.428	
		(0.574)	
L3. Consumer Price		-0.0125	
		(0.132)	
L4. Consumer Price		0.306***	
		(0.0772)	
L5. Consumer Price		-0.110***	
		(0.0181)	
L6. Consumer Price		-0.247***	
		(0.0770)	
Money Supply		0.0138	
		(0.0692)	
L1. Money Supply		0.119*	
		(0.0684)	
L2. Money Supply		0.117**	
		(0.0556)	
L3. Money Supply		0.0597**	
		(0.0288)	
L4. Money Supply		0.0289	
		(0.0555)	
L5. Money Supply		0.0249**	
		(0.00972)	
L6. Money Supply		-0.0263	
		(0.0187)	
Composite Leading			3.370***
			(0.608)
L1. Composite Leading			-0.438
			(0.562)
L2. Composite Leading			-0.0996
			(0.571)
L3. Composite Leading			-0.0913
			(0.180)
L4. Composite Leading			0.0551
			(0.182)
L5. Composite Leading			-0.429***
			(0.165)
L6. Composite Leading			-0.109
			(0.290)
L1. Retail Sales Index	0.977***	0.942***	0.890***
	(0.134)	(0.160)	(0.139)
L2. Retail Sales Index	-0.388	-0.348	-0.265
	(0.299)	(0.319)	(0.228)
L3. Retail Sales Index	0.325	0.306	0.264*
	(0.211)	(0.224)	(0.153)
L4. Retail Sales Index	-0.0486	-0.0502	-0.0137
	(0.110)	(0.132)	(0.0735)
L5. Retail Sales Index	0.0688	0.0801	0.0920*
	(0.0727)	(0.0832)	(0.0541)
L6. Retail Sales Index	0.0636***	0.0670***	0.0339
	(0.00922)	(0.0135)	(0.0435)
Constant	0.518***	0.417***	-0.217***
	(0.0242)	(0.0280)	(0.0233)
Observations	664	664	664
Number of country	2	2	2
R-squared	0.9885	0.9891	0.9924

Panel E: Money Supply M2

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	0.431	0.254	0.394*
	(0.447)	(0.269)	(0.225)
L2. Yield Curve	0.183	0.150	0.253***
	(0.260)	(0.176)	(0.0483)
L3. Yield Curve	0.158	0.0910	0.190
	(0.432)	(0.267)	(0.278)
L4. Yield Curve	0.0267	-0.0095	0.0598
	(0.0990)	(0.146)	(0.108)
L5. Yield Curve	-0.117	-0.0047	-0.114
	(0.237)	(0.0678)	(0.163)
L6. Yield Curve	0.216**	0.308**	0.215
	(0.0920)	(0.125)	(0.254)
Yield Curve	0.0451	-0.0428	0.0331
	(0.198)	(0.294)	(0.250)
Consumer Price		0.361	
		(0.462)	
L1. Consumer Price		-0.408***	
		(0.0236)	
L2. Consumer Price		0.0571	
		(0.128)	
L3. Consumer Price		0.247***	
		(0.0292)	
L4. Consumer Price		-0.802	
		(0.535)	
L5. Consumer Price		0.407***	
		(0.148)	
L6. Consumer Price		-0.391	
		(0.276)	
L1. Money Supply	-0.0452	-0.0305	-0.0489
	(0.0701)	(0.0649)	(0.0821)
L2. Money Supply	0.0349	0.0313	0.0388
	(0.0348)	(0.0372)	(0.0678)
L3. Money Supply	-0.0243**	-0.0341**	-0.0166
	(0.00985)	(0.0144)	(0.0463)
L4. Money Supply	0.155***	0.170***	0.159***
	(0.00619)	(0.0193)	(0.0227)
L5. Money Supply	0.0299***	0.0238	0.0354***
	(0.0105)	(0.0174)	(0.00258)
L6. Money Supply	0.0164***	0.0120***	0.0199***
	(0.000884)	(0.000314)	(0.00577)
Composite Leading			0.185
			(1.049)
L1. Composite Leading			-0.405***
			(0.136)
L2. Composite Leading			0.0750
			(0.338)
L3. Composite Leading			-0.0919
			(0.0924)
L4. Composite Leading			0.0428
			(0.194)
L5. Composite Leading			-0.0613
			(0.227)
L6. Composite Leading			0.0718
			(0.179)
Constant	0.455***	0.551***	0.474***
	(0.0677)	(0.0571)	(0.00874)
Observations	664	664	664
Number of country	2	2	2
R-squared	0.0385	0.0684	0.0432

Panel F: Composite Leading Indicator

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.250***	0.208***
	(0.0600)	(0.0486)
L2. Yield Curve	0.0552***	0.0445
	(0.0145)	(0.0309)
L3. Yield Curve	0.0395**	0.0365
	(0.0157)	(0.0263)
L4. Yield Curve	-0.0311***	-0.0337***
	(0.00378)	(0.00352)
L5. Yield Curve	-0.0313	-0.0323
	(0.0343)	(0.0508)
L6. Yield Curve	-0.0201***	0.0036
	(0.00112)	(0.00511)
Yield Curve	0.0401	-0.0203
	(0.0366)	(0.0430)
Consumer Price		0.0763
		(0.0815)
L1. Consumer Price		-0.0748***
		(0.000576)
L2. Consumer Price		-0.0628***
		(0.0226)
L3. Consumer Price		-0.0492***
		(0.0151)
L4. Consumer Price		0.0092
		(0.0272)
L5. Consumer Price		-0.0465***
		(0.00282)
L6. Consumer Price		-0.0361
		(0.0309)
Money Supply		0.0039
		(0.0254)
L1. Money Supply		0.0249***
		(0.00670)
L2. Money Supply		0.0214
		(0.0183)
L3. Money Supply		0.0086
		(0.00920)
L4. Money Supply		0.0093
		(0.0128)
L5. Money Supply		0.0014
		(0.00498)
L6. Money Supply		-0.00497***
		(0.000571)
L1. Composite Leading	0.436***	0.388***
	(0.147)	(0.125)
L2. Composite Leading	-0.0902	-0.0768
	(0.0627)	(0.0755)
L3. Composite Leading	0.0454	0.0473
	(0.0943)	(0.0792)
L4. Composite Leading	0.0421***	0.0372***
	(0.00384)	(0.0134)
L5. Composite Leading	0.0437*	0.0467**
	(0.0229)	(0.0199)
L6. Composite Leading	0.0419**	0.0523
	(0.0193)	(0.0319)
Constant	0.0805**	0.0838***
	(0.0319)	(0.00896)
Observations	664	664
Number of country	2	2
R-squared	0.2459	0.2971

In both groups, regarding the estimation of the composite leading indicator, a substantial number of yield curve coefficients are statistically significant. This pattern is recurrent in the second equation of that indicator, where, in Europe, money supply presented a great number of statistically significant coefficients, whereas in America, instead of money supply, the same results were found in consumer price index coefficients. Thus, both groups reported a similar forecasting power in this variable.

5.2.2. Individual Countries Analysis

In order to test whether, by fragmenting the data sample into individual countries, the predictive power of equations improves significantly than in the case involving blocks of countries, each one of the seven countries was regressed separately. To examine the forecasting power of explanatory variables in each country that composes the G7 group individually, variables were regressed using the Ordinary Least Squares (OLS) method.

Table 2 in Appendix B displays the correlation matrix of each country. The correlation between composite leading and variables other than industrial production and retail sales, is extremely low in United States.

Generally, money supply presented low correlation with other variables for all countries, usually lower than 0.15. The same applies to the correlation between consumer price and other variables. The signs of the correlations also vary country by country.

Table 3 in Appendix C displays regression results for countries regarding the R-squared and p-values, and after that, each country's regression results and corresponding coefficients. It is possible to notice that the explanatory variable that better forecasts the macroeconomic variables actually varies according to the country in question.

The results found show that, in contrast to Sabes & Sahuc (2023), when narrowing the sample, first from G7 group to European and American countries, and after that from these two groups to the seven individual countries, the regressions have gaining forecasting power for recessions. Generally, the R-squared increased as the regression was restricted to a given area and then to a given country.

Even within the two groups of countries, the forecasting power of the yield curve and other explanatory variables varies considerably. The unemployment rate in Germany, for example, presented a R-squared value almost two times bigger than the others in individual European countries in the first and second equations. However, in the third equation, it has lost part of its predictive power, while France and Italy have doubled theirs. As a conclusion, it is possible to say that, concerning the unemployment rate, the yield curve, money supply and consumer price are good forecasters for Germany, but Italy and France improve on their regressions by adding the composite leading indicator.

Looking at the results of each European country individually, it is possible to notice that the explanatory variables are not good predictors of money supply, since none of the countries presented statistically significant equations. This differs from the result found at the European aggregate level that, despite the low predictive power, all equations were statistically significant, which points to an interdependence between European countries due to, in great extent, the common currency shared by them.

Sabes & Sahuc (2023) claimed that the good performance at the European aggregate level is essentially because of the information contained in the yield curve of Germany, a finding that contrasts with the results presented here, given that Germany performed better only in two of the six variables (in unemployment rate and industrial production). Also, its performance regarding the last variable is in line with Chinn & Kucko (2015), although the R-squared obtained here were much higher than the one found by these authors.

The same also applies to North American countries: the R-squared increased as the regression was restricted to a given area and then to a given country, especially in the case of United States, where regressions presented strong forecasting power mainly when including consumer price, money supply and composite leading indicator as explanatory variables. To illustrate, the R-squared of the unemployment rate regression jumped from 0.0625 in the first equation to 0.8543 in the third equation.

Considering all countries, the United States is the one where consumer price and money supply were better forecasted by the explanatory variables, presenting 0.36 and 0.62, respectively as R-squared. According to Bernanke (1990, p.30), an explanation for this lies in the fact that the yield spread in that country may calibrate more efficiently the available information about both monetary policy and expected default risk, which is government debt's interest rates. Generally,

individual country regressions for consumer price and money supply did not perform well in terms of R-squared and significance level.

Japan presented a much bigger predictive power regarding the composite leading indicator in comparison to the other countries. Its R-squared reached a value of 0.9382, followed by 0.6885 from Canada. However, in general, Japan's results for other variables demonstrated the lower forecasting power in relation to other countries regressions, suggesting that the yield curve may not be a very accurate predictor to economic activity. This might also imply that the Japanese yield curve may not hold enough information about expectations of the future of the economy and default risk as the other economies' yield curves.

5.3. Robustness Tests

In this section, robustness tests are presented with alternative predictive variables. Instead of using the yield curve, two additional groups of estimations are used, the first having the long-term interest rate as substitute of the yield curve (Sub-section 5.3.1.), while the second uses the short-term interest rate as predictor (Sub-section 5.3.2.).

5.3.1. Long-term Interest Rate

As in the baseline estimations using the yield curve as an explanatory variable, in order to examine the forecasting power of the long-term interest rate regarding the G7 group, the Random Effects model is estimated by using generalized least squares (GLS). The regression results are presented in Table 9 below.

The higher coefficient of the long-term rate was found in each of the money supply equations, almost equal to 1.0, and exhibited statistical significance at the 0.01 level. Nevertheless, the forecasting equations of money supply had an extremely low R-squared, such as in baseline results.

In general, the R-squared coefficients and corresponding statistical significance found regarding the long-term rate as a predictor were very similar to the values presented by the baseline results.

Table 9
Long-Term Interest Rate Regression Results

The table displays regression results and coefficients. Dependent variables in columns, and (1), (2), (3) correspond to each of the three different forecasting equations for the dependent variable. Each panel corresponds to one dependent variable. The equations are not incremental. Explained variables and their lags (L1. to L6.) are presented in rows. Statistically significant coefficients represented as *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Panel A: Consumer Price Index

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
LT Interest rate	0.222***	0.215***	0.220***
	(0.0378)	(0.0400)	(0.0404)
L1. LT Interest rate	-0.0080	-0.0039	-0.0067
	(0.0533)	(0.0529)	(0.0517)
L2. LT Interest rate	-0.161***	-0.160**	-0.156**
	(0.0557)	(0.0527)	(0.0590)
L3. LT Interest rate	-0.109	-0.101	-0.108
	(0.0752)	(0.0737)	(0.0781)
L4. LT Interest rate	0.127**	0.124*	0.126*
	(0.0533)	(0.0559)	(0.0552)
L5. LT Interest rate	0.0043	0.0002	0.0046
	(0.0883)	(0.0882)	(0.0868)
L6. LT Interest rate	-0.0649	-0.0733	-0.0784
	(0.0512)	(0.0495)	(0.0504)
L1. Consumer Price	0.150*	0.138	0.135
	(0.0837)	(0.0814)	(0.0832)
L2. Consumer Price	0.0521	0.0381	0.0395
	(0.0499)	(0.0528)	(0.0514)
L3. Consumer Price	-0.0596**	-0.0720**	-0.0721**
	(0.0233)	(0.0283)	(0.0285)
L4. Consumer Price	0.0306	0.0199	0.0168
	(0.0257)	(0.0247)	(0.0253)
L5. Consumer Price	0.0152	0.00197	0.00116
	(0.0497)	(0.0464)	(0.0465)
L6. Consumer Price	0.0737	0.0609	0.0583
	(0.0753)	(0.0738)	(0.0755)
Money Supply		0.0039	
		(0.00223)	
L1. Money Supply		-0.00529**	
		(0.00204)	
L2. Money Supply		-0.0010	
		(0.00304)	
L3. Money Supply		-0.0002	
		(0.00180)	
L4. Money Supply		-0.0031	
		(0.00183)	
L5. Money Supply		0.0017	
		(0.00302)	
L6. Money Supply		-0.0010	
		(0.00260)	
Composite Leading			0.0024
			(0.0137)
L1. Composite Leading			-0.0062
			(0.00942)
L2. Composite Leading			-0.0007
			(0.0183)
L3. Composite Leading			-0.0265
			(0.0204)
L4. Composite Leading			0.0046
			(0.0175)
L5. Composite Leading			-0.0026
			(0.0205)
L6. Composite Leading			0.0074
			(0.00659)
Constant	0.0886**	0.130***	0.131***
	(0.0351)	(0.0215)	(0.0211)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0935	0.085	0.083

Panel B: Unemployment Rate

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.156	0.156	0.176*
	(0.113)	(0.118)	(0.0942)
L2. Unemployment Rate	-0.116***	-0.115***	-0.127***
	(0.0328)	(0.0305)	(0.0286)
L3. Unemployment Rate	-0.0635*	-0.0647**	-0.0751*
	(0.0332)	(0.0329)	(0.0412)
L4. Unemployment Rate	-0.111***	-0.113***	-0.102***
	(0.0368)	(0.0358)	(0.0349)
L5. Unemployment Rate	-0.0015	-0.0036	-0.0050
	(0.0172)	(0.0173)	(0.0230)
L6. Unemployment Rate	-0.0184	-0.0138	-0.0073
	(0.0521)	(0.0540)	(0.0446)
LT Interest rate	-0.0744**	-0.0535*	-0.0609**
	(0.0379)	(0.0278)	(0.0298)
L1. LT Interest rate	-0.0692	-0.0646	-0.0566
	(0.0502)	(0.0544)	(0.0368)
L2. LT Interest rate	0.126**	0.111*	0.121**
	(0.0635)	(0.0582)	(0.0522)
L3. LT Interest rate	-0.0217	-0.0228	-0.0466
	(0.0279)	(0.0312)	(0.0296)
L4. LT Interest rate	0.0400	0.0485	0.0345
	(0.0366)	(0.0408)	(0.0337)
L5. LT Interest rate	-0.0268	-0.0314	-0.0255
	(0.0204)	(0.0246)	(0.0226)
L6. LT Interest rate	0.0266	0.0146	0.0353*
	(0.0247)	(0.0350)	(0.0210)
Consumer Price		-0.0829***	
		(0.0301)	
L1. Consumer Price		0.0191	
		(0.0318)	
L2. Consumer Price		-0.0195	
		(0.0286)	
L3. Consumer Price		0.0033	
		(0.0263)	
L4. Consumer Price		-0.0513**	
		(0.0212)	
L5. Consumer Price		-0.0102	
		(0.0178)	
L6. Consumer Price		0.0348**	
		(0.0176)	
Money Supply		0.0038	
		(0.00441)	
L1. Money Supply		0.0007	
		(0.00296)	
L2. Money Supply		-0.0028	
		(0.00231)	
L3. Money Supply		0.0011	
		(0.00141)	
L4. Money Supply		-0.0015	
		(0.00202)	
L5. Money Supply		-0.00430***	
		(0.000752)	
L6. Money Supply		-0.0014	
		(0.00198)	
Composite Leading			-0.145
			(0.153)
L1. Composite Leading			0.0500
			(0.0674)
L2. Composite Leading			-0.0344
			(0.0412)
L3. Composite Leading			-0.0552***
			(0.0132)
L4. Composite Leading			-0.0008
			(0.0193)
L5. Composite Leading			-0.0390***
			(0.00989)
L6. Composite Leading			0.0005
			(0.0147)
Constant	-0.0154**	-0.0017	0.0048
	(0.00642)	(0.0102)	(0.0108)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0676	0.0819	0.1214

Panel C: Industrial Production Index

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
LT Interest rate	-0.0631	-0.172	-0.218***
	(0.287)	(0.281)	(0.0600)
L1. LT Interest rate	0.625**	0.692**	0.476***
	(0.260)	(0.286)	(0.141)
L2. LT Interest rate	-0.0793	-0.155	0.0348
	(0.280)	(0.249)	(0.166)
L3. LT Interest rate	-0.207	-0.0890	0.113
	(0.262)	(0.280)	(0.233)
L4. LT Interest rate	-0.404*	-0.439**	-0.234
	(0.219)	(0.219)	(0.179)
L5. LT Interest rate	-0.198	-0.166	-0.229
	(0.266)	(0.253)	(0.251)
L6. LT Interest rate	0.340**	0.337*	0.0652
	(0.171)	(0.196)	(0.138)
Consumer Price		0.0905	
		(0.133)	
L1. Consumer Price		0.294**	
		(0.117)	
L2. Consumer Price		-0.105	
		(0.123)	
L3. Consumer Price		0.122	
		(0.0769)	
L4. Consumer Price		-0.0693	
		(0.0765)	
L5. Consumer Price		0.114	
		(0.103)	
L6. Consumer Price		-0.192	
		(0.140)	
Money Supply		-0.0056	
		(0.00797)	
L1. Money Supply		0.0289*	
		(0.0159)	
L2. Money Supply		0.0165	
		(0.0193)	
L3. Money Supply		0.0216**	
		(0.00881)	
L4. Money Supply		0.0016	
		(0.00796)	
L5. Money Supply		0.0220***	
		(0.00561)	
L6. Money Supply		-0.0109	
		(0.0177)	
Composite Leading			2.530***
			(0.442)
L1. Composite Leading			0.0523
			(0.183)
L2. Composite Leading			-0.100
			(0.165)
L3. Composite Leading			-0.0119
			(0.275)
L4. Composite Leading			-0.218
			(0.163)
L5. Composite Leading			0.0469
			(0.0805)
L6. Composite Leading			-0.140**
			(0.0668)
L1. Industrial Production	1.023***	1.023***	0.860***
	(0.0224)	(0.0234)	(0.0593)
L2. Industrial Production	-0.194***	-0.200***	0.126**
	(0.0590)	(0.0566)	(0.0521)
L3. Industrial Production	0.120*	0.125*	0.0638
	(0.0724)	(0.0689)	(0.0624)
L4. Industrial Production	0.0138	0.0098	-0.0352
	(0.0630)	(0.0604)	(0.0491)
L5. Industrial Production	0.0009	0.0080	-0.0112
	(0.0532)	(0.0522)	(0.0391)
L6. Industrial Production	0.0160**	0.0125**	-0.0085
	(0.00643)	(0.00627)	(0.0190)
Constant	2.060***	2.046***	0.292
	(0.368)	(0.368)	(0.361)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.9665	0.9668	0.9793

Panel D: Retail Sales Index

VARIABLES	Retail Sales Index (1)	Retail Sales Index (2)	Retail Sales Index (3)
LT Interest rate	-0.0119	0.0069	-0.108
	(0.500)	(0.459)	(0.246)
L1. LT Interest rate	-0.0063	-0.0196	-0.216
	(0.434)	(0.433)	(0.262)
L2. LT Interest rate	0.137	0.124	0.200
	(0.377)	(0.348)	(0.254)
L3. LT Interest rate	-0.306	-0.338	0.125
	(0.310)	(0.350)	(0.166)
L4. LT Interest rate	-0.191	-0.212	-0.0512
	(0.299)	(0.291)	(0.247)
L5. LT Interest rate	-0.0740	-0.0499	-0.0258
	(0.250)	(0.221)	(0.200)
L6. LT Interest rate	0.372***	0.407***	0.0303
	(0.126)	(0.124)	(0.0849)
Consumer Price		0.0349	
		(0.307)	
L1. Consumer Price		-0.0972	
		(0.165)	
L2. Consumer Price		0.0380	
		(0.198)	
L3. Consumer Price		-0.0404	
		(0.0822)	
L4. Consumer Price		0.0939	
		(0.175)	
L5. Consumer Price		0.110	
		(0.0910)	
L6. Consumer Price		-0.0424	
		(0.126)	
Money Supply		-0.0064	
		(0.00790)	
L1. Money Supply		0.0419***	
		(0.0123)	
L2. Money Supply		0.0267*	
		(0.0159)	
L3. Money Supply		0.0236***	
		(0.00769)	
L4. Money Supply		0.0168	
		(0.0133)	
L5. Money Supply		-0.00321	
		(0.00988)	
L6. Money Supply		-0.0095	
		(0.0161)	
Composite Leading			2.471***
			(0.395)
L1. Composite Leading			-0.201
			(0.202)
L2. Composite Leading			0.146
			(0.178)
L3. Composite Leading			0.243
			(0.184)
L4. Composite Leading			-0.190
			(0.119)
L5. Composite Leading			-0.273
			(0.321)
L6. Composite Leading			-0.468***
			(0.136)
L1. Retail Sales Index	0.721***	0.717***	0.614***
	(0.0912)	(0.0889)	(0.0998)
L2. Retail Sales Index	-0.0486	-0.0457	0.103
	(0.0892)	(0.0885)	(0.116)
L3. Retail Sales Index	0.0997***	0.0971***	0.0599
	(0.0300)	(0.0312)	(0.0448)
L4. Retail Sales Index	0.0728***	0.0770***	0.0795***
	(0.0127)	(0.0119)	(0.0205)
L5. Retail Sales Index	0.0279	0.0269	0.0748
	(0.0444)	(0.0453)	(0.0553)
L6. Retail Sales Index	0.113***	0.113***	0.0642*
	(0.0237)	(0.0240)	(0.0385)
Constant	1.843***	1.796***	0.591*
	(0.371)	(0.344)	(0.330)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.9805	0.9806	0.9872

Panel E: Money Supply M2

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
LT Interest rate	-0.342	-0.335	-0.355
	(0.387)	(0.373)	(0.346)
L1. LT Interest rate	0.501	0.487	0.459
	(0.377)	(0.373)	(0.360)
L2. LT Interest rate	0.373	0.480	0.382
	(0.371)	(0.381)	(0.371)
L3. LT Interest rate	-0.211	-0.180	-0.198
	(0.454)	(0.478)	(0.466)
L4. LT Interest rate	-0.922*	-0.953*	-0.877*
	(0.496)	(0.491)	(0.495)
L5. LT Interest rate	0.895***	0.955***	0.963***
	(0.313)	(0.316)	(0.358)
L6. LT Interest rate	-0.289	-0.435*	-0.370
	(0.227)	(0.243)	(0.272)
Consumer Price		0.269*	
		(0.150)	
L1. Consumer Price		-0.257*	
		(0.140)	
L2. Consumer Price		0.0751	
		(0.0996)	
L3. Consumer Price		-0.166	
		(0.159)	
L4. Consumer Price		-0.169	
		(0.216)	
L5. Consumer Price		-0.118	
		(0.173)	
L6. Consumer Price		-0.261**	
		(0.103)	
L1. Money Supply	0.0119	0.0127	0.0059
	(0.0149)	(0.0153)	(0.0171)
L2. Money Supply	0.0529***	0.0495**	0.0481**
	(0.0182)	(0.0205)	(0.0199)
L3. Money Supply	0.0596**	0.0588**	0.0541**
	(0.0242)	(0.0243)	(0.0238)
L4. Money Supply	-0.0018	-0.0012	-0.0065
	(0.0332)	(0.0350)	(0.0320)
L5. Money Supply	-0.0221	-0.0240	-0.0241
	(0.0321)	(0.0319)	(0.0328)
L6. Money Supply	0.0515***	0.0525***	0.0525***
	(0.0167)	(0.0166)	(0.0188)
Composite Leading			0.296**
			(0.125)
L1. Composite Leading			-0.0413
			(0.0441)
L2. Composite Leading			0.337***
			(0.0806)
L3. Composite Leading			-0.168***
			(0.0455)
L4. Composite Leading			-0.0831
			(0.0860)
L5. Composite Leading			0.196
			(0.170)
L6. Composite Leading			0.0774
			(0.104)
Constant	0.341***	0.400***	0.294***
	(0.0801)	(0.126)	(0.0804)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0149	0.0198	0.0244

Panel F: Composite Leading Indicator

VARIABLES	Composite Leading (1)	Composite Leading (2)
LT Interest rate	0.0039	0.0249
	(0.101)	(0.0938)
L1. LT Interest rate	0.136	0.144*
	(0.0851)	(0.0833)
L2. LT Interest rate	-0.106**	-0.103**
	(0.0506)	(0.0475)
L3. LT Interest rate	-0.0831	-0.0771
	(0.0554)	(0.0526)
L4. LT Interest rate	-0.0596	-0.0799*
	(0.0407)	(0.0448)
L5. LT Interest rate	0.0072	0.0225
	(0.0351)	(0.0300)
L6. LT Interest rate	0.105***	0.0749***
	(0.0299)	(0.0214)
Consumer Price		0.0161
		(0.0273)
L1. Consumer Price		-0.0617***
		(0.0192)
L2. Consumer Price		-0.0354**
		(0.0161)
L3. Consumer Price		-0.0199
		(0.0169)
L4. Consumer Price		-0.0756**
		(0.0353)
L5. Consumer Price		-0.0004
		(0.0199)
L6. Consumer Price		-0.0367**
		(0.0176)
Money Supply		0.00837***
		(0.00324)
L1. Money Supply		0.0102*
		(0.00530)
L2. Money Supply		0.0131***
		(0.00404)
L3. Money Supply		0.00398**
		(0.00164)
L4. Money Supply		-0.0014
		(0.00167)
L5. Money Supply		-0.0015
		(0.00187)
L6. Money Supply		-0.0068
		(0.00452)
L1. Composite Leading	0.580***	0.564***
	(0.0929)	(0.0919)
L2. Composite Leading	-0.434***	-0.440***
	(0.0735)	(0.0750)
L3. Composite Leading	0.189*	0.181*
	(0.108)	(0.109)
L4. Composite Leading	-0.0389	-0.0413
	(0.0847)	(0.0836)
L5. Composite Leading	0.0481	0.0477
	(0.0546)	(0.0533)
L6. Composite Leading	0.0401	0.0391
	(0.0299)	(0.0270)
Constant	0.0559***	0.0699***
	(0.0179)	(0.0257)
Observations	2,324	2,324
Number of country	7	7
R-squared	0.284	0.3003

5.3.2. Short-term Interest Rate

Just as in estimated equations of the long-term interest rate and the yield curve, estimations using the short-term interest rate as an explanatory variable regarding the G7 group was regressed by using the generalized least squares (GLS) model. The regression results are presented in Table 10 below.

The estimation using the short-term rate leads to a higher quantity of statistically significant coefficients at 0.01 level. Moreover, some interest rate coefficients in the predictive regression of money supply presented expressive magnitudes, higher than 2.0 and statistically significant.

The statistically significant coefficients at 0.01 level are usually observed in the current value of the explanatory variable, or in some cases, it is more common until the third lag of that variable.

Analogously, the predictive power of the dependent variable tends to be higher in the third equation for all variables with the exception of the consumer price index.

Table 10

Short-Term Interest Rate Regression Results

The table displays regression results and coefficients. Dependent variables in columns, and (1), (2), (3) correspond to each of the three different forecasting equations for the dependent variable. Each panel corresponds to one dependent variable. The equations are not incremental. Explained variables and their lags (L1. to L6.) are presented in rows. Statistically significant coefficients represented as *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Panel A: Consumer Price Index

VARIABLES	Consumer Price	Consumer Price	Consumer Price
	(1)	(2)	(3)
ST Interest rate	0.284***	0.281***	0.282***
	(0.0404)	(0.0366)	(0.0384)
L1. ST Interest rate	-0.305***	-0.298***	-0.310***
	(0.0746)	(0.0716)	(0.0707)
L2. ST Interest rate	-0.0216	-0.0427	-0.0166
	(0.0840)	(0.0844)	(0.0814)
L3. ST Interest rate	-0.0426	-0.0213	-0.0475
	(0.149)	(0.150)	(0.156)
L4. ST Interest rate	0.0693	0.0641	0.0775
	(0.0804)	(0.0786)	(0.0843)
L5. ST Interest rate	0.0728	0.0708	0.0706
	(0.0754)	(0.0757)	(0.0775)
L6. ST Interest rate	-0.0555	-0.0469	-0.0483
	(0.0499)	(0.0511)	(0.0533)
L1. Consumer Price	0.154*	0.170**	0.168**
	(0.0782)	(0.0805)	(0.0813)
L2. Consumer Price	0.0472	0.0574	0.0598
	(0.0526)	(0.0495)	(0.0482)
L3. Consumer Price	-0.0600*	-0.0482*	-0.0467*
	(0.0286)	(0.0249)	(0.0250)
L4. Consumer Price	0.0283	0.0413	0.0404
	(0.0266)	(0.0279)	(0.0276)
L5. Consumer Price	0.0035	0.0144	0.0150
	(0.0473)	(0.0504)	(0.0509)
L6. Consumer Price	0.0589	0.0734	0.0737
	(0.0761)	(0.0750)	(0.0763)
Money Supply		0.00478**	
		(0.00203)	
L1. Money Supply		-0.00521**	
		(0.00213)	
L2. Money Supply		-0.0001	
		(0.00279)	
L3. Money Supply		-0.00004	
		(0.00147)	
L4. Money Supply		-0.00318*	
		(0.00183)	
L5. Money Supply		0.0022	
		(0.00276)	
L6. Money Supply		0.0006	
		(0.00263)	
Composite Leading			0.0137
			(0.0174)
L1. Composite Leading			-0.0082
			(0.00976)
L2. Composite Leading			0.0072
			(0.0176)
L3. Composite Leading			-0.0199
			(0.0221)
L4. Composite Leading			0.0119
			(0.0183)
L5. Composite Leading			0.0009
			(0.0205)
L6. Composite Leading			0.0115
			(0.00784)
Constant	0.117***	0.0928***	0.0904***
	(0.0143)	(0.0247)	(0.0287)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.059	0.0752	0.0731

Panel B: Unemployment Rate

VARIABLES	Unemployment	Unemployment	Unemployment
	(1)	(2)	(3)
L1. Unemployment Rate	0.133	0.135	0.157*
	(0.111)	(0.116)	(0.0897)
L2. Unemployment Rate	-0.120***	-0.118***	-0.129***
	(0.0300)	(0.0276)	(0.0280)
L3. Unemployment Rate	-0.0699**	-0.0710**	-0.0815**
	(0.0287)	(0.0278)	(0.0360)
L4. Unemployment Rate	-0.115***	-0.117***	-0.107***
	(0.0358)	(0.0347)	(0.0347)
L5. Unemployment Rate	-0.0143	-0.0157	-0.0203
	(0.0169)	(0.0171)	(0.0216)
L6. Unemployment Rate	-0.0295	-0.0235	-0.0194
	(0.0533)	(0.0542)	(0.0465)
ST Interest rate	-0.398***	-0.382***	-0.366***
	(0.126)	(0.115)	(0.0996)
L1. ST Interest rate	0.420***	0.409***	0.421***
	(0.136)	(0.127)	(0.113)
L2. ST Interest rate	-0.0385	-0.0471	-0.0828
	(0.0609)	(0.0646)	(0.0744)
L3. ST Interest rate	0.0357	0.0284	0.0335
	(0.0422)	(0.0262)	(0.0323)
L4. ST Interest rate	0.0056	0.0213	0.0010
	(0.0920)	(0.0893)	(0.0815)
L5. ST Interest rate	-0.0550	-0.0654	-0.0732
	(0.0801)	(0.0787)	(0.0743)
L6. ST Interest rate	0.0298	0.0350	0.0661*
	(0.0354)	(0.0336)	(0.0396)
Consumer Price		-0.0773***	
		(0.0295)	
L1. Consumer Price		0.0270	
		(0.0307)	
L2. Consumer Price		-0.0081	
		(0.0281)	
L3. Consumer Price		0.0177	
		(0.0295)	
L4. Consumer Price		-0.0394**	
		(0.0175)	
L5. Consumer Price		0.0008	
		(0.0123)	
L6. Consumer Price		0.0469***	
		(0.0148)	
Money Supply		0.0037	
		(0.00430)	
L1. Money Supply		0.0011	
		(0.00307)	
L2. Money Supply		-0.0022	
		(0.00201)	
L3. Money Supply		0.00263**	
		(0.00115)	
L4. Money Supply		-0.0011	
		(0.00189)	
L5. Money Supply		-0.00358***	
		(0.000793)	
L6. Money Supply		-0.0017	
		(0.00183)	
Composite Leading			-0.147
			(0.153)
L1. Composite Leading			0.0520
			(0.0645)
L2. Composite Leading			-0.0330
			(0.0411)
L3. Composite Leading			-0.0518***
			(0.0123)
L4. Composite Leading			0.0025
			(0.0192)
L5. Composite Leading			-0.0373***
			(0.00859)
L6. Composite Leading			0.0049
			(0.0158)
Constant	-0.0123***	-0.0071	0.0099
	(0.00442)	(0.00627)	(0.0114)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0942	0.1069	0.146

Panel C: Industrial Production Index

VARIABLES	Industrial Production	Industrial Production	Industrial Production
	(1)	(2)	(3)
ST Interest rate	1.400***	1.344***	1.053***
	(0.321)	(0.320)	(0.369)
L1. ST Interest rate	-0.843***	-0.773***	-0.501
	(0.308)	(0.299)	(0.544)
L2. ST Interest rate	-0.298	-0.242	-0.162
	(0.335)	(0.314)	(0.472)
L3. ST Interest rate	-0.584***	-0.595***	-0.551***
	(0.208)	(0.213)	(0.214)
L4. ST Interest rate	0.422**	0.440**	0.442**
	(0.170)	(0.204)	(0.198)
L5. ST Interest rate	-0.583*	-0.627**	-0.372
	(0.307)	(0.315)	(0.254)
L6. ST Interest rate	0.495**	0.465*	0.102
	(0.250)	(0.255)	(0.167)
Consumer Price		0.0415	
		(0.131)	
L1. Consumer Price		0.237**	
		(0.118)	
L2. Consumer Price		-0.156	
		(0.116)	
L3. Consumer Price		0.0313	
		(0.103)	
L4. Consumer Price		-0.154*	
		(0.0833)	
L5. Consumer Price		0.0472	
		(0.0761)	
L6. Consumer Price		-0.263**	
		(0.113)	
Money Supply		-0.0051	
		(0.00612)	
L1. Money Supply		0.0286**	
		(0.0133)	
L2. Money Supply		0.0110	
		(0.0187)	
L3. Money Supply		0.0157**	
		(0.00736)	
L4. Money Supply		-0.0011	
		(0.00803)	
L5. Money Supply		0.0185***	
		(0.00569)	
L6. Money Supply		-0.0102	
		(0.0178)	
Composite Leading			2.523***
			(0.433)
L1. Composite Leading			0.0805
			(0.191)
L2. Composite Leading			-0.0636
			(0.169)
L3. Composite Leading			-0.00654
			(0.252)
L4. Composite Leading			-0.200
			(0.167)
L5. Composite Leading			0.0433
			(0.0820)
L6. Composite Leading			-0.183***
			(0.0646)
L1. Industrial Production	1.010***	1.011***	0.842***
	(0.0214)	(0.0228)	(0.0595)
L2. Industrial Production	-0.200***	-0.206***	0.120**
	(0.0593)	(0.0571)	(0.0487)
L3. Industrial Production	0.122*	0.128*	0.0668
	(0.0716)	(0.0684)	(0.0613)
L4. Industrial Production	0.0159	0.0111	-0.0348
	(0.0615)	(0.0588)	(0.0479)
L5. Industrial Production	0.0096	0.0167	-0.0010
	(0.0541)	(0.0530)	(0.0394)
L6. Industrial Production	0.0217***	0.0181**	0.0011
	(0.00723)	(0.00756)	(0.0196)
Constant	2.121***	2.125***	0.375
	(0.423)	(0.438)	(0.373)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.9669	0.9672	0.9798

Panel D: Retail Sales Index

VARIABLES	Retail Sales Index (1)	Retail Sales Index (2)	Retail Sales Index (3)
ST Interest rate	0.573	0.610	0.395
	(0.717)	(0.718)	(0.589)
L1. ST Interest rate	-0.512	-0.546	-0.432
	(0.908)	(0.898)	(0.496)
L2. ST Interest rate	-0.547	-0.495	-0.185
	(0.379)	(0.393)	(0.419)
L3. ST Interest rate	0.211	0.138	0.216
	(0.251)	(0.287)	(0.183)
L4. ST Interest rate	0.295	0.299	0.409
	(0.408)	(0.439)	(0.330)
L5. ST Interest rate	-0.161	-0.105	-0.152
	(0.334)	(0.360)	(0.326)
L6. ST Interest rate	0.0991	0.0627	-0.261
	(0.177)	(0.196)	(0.187)
Consumer Price		-0.0272	
		(0.315)	
L1. Consumer Price		-0.136	
		(0.145)	
L2. Consumer Price		0.0047	
		(0.210)	
L3. Consumer Price		-0.104	
		(0.109)	
L4. Consumer Price		0.0237	
		(0.171)	
L5. Consumer Price		0.0619	
		(0.0979)	
L6. Consumer Price		-0.0864	
		(0.125)	
Money Supply		-0.0053	
		(0.00745)	
L1. Money Supply		0.0409***	
		(0.0117)	
L2. Money Supply		0.0218	
		(0.0154)	
L3. Money Supply		0.0196***	
		(0.00751)	
L4. Money Supply		0.0170	
		(0.0126)	
L5. Money Supply		-0.0012	
		(0.00979)	
L6. Money Supply		-0.0089	
		(0.0162)	
Composite Leading			2.482***
			(0.396)
L1. Composite Leading			-0.199
			(0.201)
L2. Composite Leading			0.137
			(0.170)
L3. Composite Leading			0.227
			(0.187)
L4. Composite Leading			-0.207*
			(0.116)
L5. Composite Leading			-0.279
			(0.321)
L6. Composite Leading			-0.487***
			(0.136)
L1. Retail Sales Index	0.722***	0.720***	0.615***
	(0.0903)	(0.0885)	(0.0994)
L2. Retail Sales Index	-0.0477	-0.0453	0.107
	(0.0876)	(0.0874)	(0.114)
L3. Retail Sales Index	0.100***	0.0977***	0.0615
	(0.0307)	(0.0318)	(0.0450)
L4. Retail Sales Index	0.0732***	0.0778***	0.0776***
	(0.0135)	(0.0129)	(0.0193)
L5. Retail Sales Index	0.0278	0.0272	0.0723
	(0.0443)	(0.0454)	(0.0555)
L6. Retail Sales Index	0.112***	0.112***	0.0626
	(0.0219)	(0.0224)	(0.0382)
Constant	1.421***	1.306***	0.415
	(0.272)	(0.254)	(0.309)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.9804	0.9805	0.9872

Panel E: Money Supply M2

VARIABLES	Money Supply	Money Supply	Money Supply
	(1)	(2)	(3)
ST Interest rate	0.268	0.293	0.195
	(0.422)	(0.412)	(0.419)
L1. ST Interest rate	-1.088**	-1.035**	-1.068*
	(0.533)	(0.497)	(0.552)
L2. ST Interest rate	2.090**	2.095**	2.182**
	(1.049)	(1.049)	(1.073)
L3. ST Interest rate	-1.625	-1.620	-1.676
	(1.116)	(1.110)	(1.185)
L4. ST Interest rate	-0.0072	-0.0502	0.0533
	(0.440)	(0.441)	(0.483)
L5. ST Interest rate	-0.551	-0.590	-0.527
	(0.635)	(0.596)	(0.592)
L6. ST Interest rate	0.923*	0.926*	0.853*
	(0.501)	(0.484)	(0.449)
Consumer Price		0.265**	
		(0.128)	
L1. Consumer Price		-0.203	
		(0.132)	
L2. Consumer Price		0.0812	
		(0.118)	
L3. Consumer Price		-0.174	
		(0.151)	
L4. Consumer Price		-0.111	
		(0.207)	
L5. Consumer Price		-0.0548	
		(0.155)	
L6. Consumer Price		-0.201	
		(0.130)	
L1. Money Supply	0.0097	0.0113	0.0043
	(0.0160)	(0.0167)	(0.0180)
L2. Money Supply	0.0489***	0.0467**	0.0452**
	(0.0179)	(0.0195)	(0.0194)
L3. Money Supply	0.0601**	0.0600**	0.0562**
	(0.0254)	(0.0257)	(0.0256)
L4. Money Supply	0.0012	0.0011	-0.0028
	(0.0327)	(0.0349)	(0.0317)
L5. Money Supply	-0.0270	-0.0293	-0.0291
	(0.0288)	(0.0283)	(0.0294)
L6. Money Supply	0.0522***	0.0526***	0.0528***
	(0.0175)	(0.0167)	(0.0194)
Composite Leading			0.292**
			(0.129)
L1. Composite Leading			-0.0734***
			(0.0258)
L2. Composite Leading			0.337***
			(0.0938)
L3. Composite Leading			-0.204***
			(0.0465)
L4. Composite Leading			-0.0586
			(0.0764)
L5. Composite Leading			0.179
			(0.161)
L6. Composite Leading			0.108
			(0.0985)
Constant	0.328***	0.373***	0.274***
	(0.0545)	(0.0864)	(0.0556)
Observations	2,324	2,324	2,324
Number of country	7	7	7
R-squared	0.0191	0.0224	0.0284

Panel F: Composite Leading Indicator

VARIABLES	Composite Leading (1)	Composite Leading (2)
ST Interest rate	0.0269	0.0513
	(0.120)	(0.127)
L1. ST Interest rate	0.0831	0.101
	(0.281)	(0.280)
L2. ST Interest rate	-0.265	-0.286
	(0.255)	(0.264)
L3. ST Interest rate	0.122	0.133
	(0.162)	(0.177)
L4. ST Interest rate	-0.106	-0.139
	(0.107)	(0.115)
L5. ST Interest rate	0.0484	0.0587
	(0.0646)	(0.0735)
L6. ST Interest rate	0.0894**	0.0831*
	(0.0429)	(0.0449)
Consumer Price		0.0240
		(0.0309)
L1. Consumer Price		-0.0533***
		(0.0138)
L2. Consumer Price		-0.0281**
		(0.0143)
L3. Consumer Price		-0.0192
		(0.0237)
L4. Consumer Price		-0.0742**
		(0.0344)
L5. Consumer Price		0.0024
		(0.0168)
L6. Consumer Price		-0.0317*
		(0.0182)
Money Supply		0.00851**
		(0.00356)
L1. Money Supply		0.00929*
		(0.00507)
L2. Money Supply		0.0126***
		(0.00400)
L3. Money Supply		0.00351***
		(0.00129)
L4. Money Supply		-0.0017
		(0.00202)
L5. Money Supply		-0.0012
		(0.00181)
L6. Money Supply		-0.0066
		(0.00462)
L1. Composite Leading	0.578***	0.565***
	(0.0915)	(0.0901)
L2. Composite Leading	-0.439***	-0.446***
	(0.0753)	(0.0779)
L3. Composite Leading	0.186*	0.180*
	(0.104)	(0.105)
L4. Composite Leading	-0.0384	-0.0412
	(0.0837)	(0.0837)
L5. Composite Leading	0.0488	0.0483
	(0.0543)	(0.0525)
L6. Composite Leading	0.0442	0.0416
	(0.0297)	(0.0276)
Constant	0.0662***	0.0810***
	(0.0203)	(0.0258)
Observations	2,324	2,324
Number of country	7	7
R-squared	0.285	0.2992

5.3.3. Discussion and Comparison with yield curve

The explanatory power of the regressions, represented by the R-squared, is almost the same for the dependent variables retail sales index, industrial production index, and composite leading indicator, when they are estimated using the yield curve, short and long-term interest rates as predictive variables.

Considering the first equation of retail sales (Panel D) as an example, the R-squared is 0.9804 when regressed by the yield curve; employing the long-term interest rate as regressor it is equal to 0.9805; while the short-term interest rate led to a value of 0.9804. In other words, regarding to these dependent variables, the predictive power of the regression is not affected by substituting one interest rate for another one.

However, the same cannot be said in relation to the other variables: the short-term interest rate presents a superior predictive power for the unemployment rate in comparison to the yield curve and the long-term rate. The variables presented a R-squared of 0.146, 0.127, and 0.1214, respectively in the third equation.

On the other hand, the results suggests that the consumer price is better predicted by the long-term interest rate (Table 9, Panel A). Considering the first equation of that variable, the regressor leads to a R-squared almost twice the one generated by both the short-term rate and the yield curve, despite of its value being smaller than 0.1. This finding indicates that the consumer price (Panel A) is not efficiently forecasted by any of the three interest rates when analysing the G7 group sample as a whole.

The same can be said regarding money supply: the predictive power presented by the estimations using each one of the three interest rates as predictors was not very efficient, with R-squared values inferior to 0.03, and similar values between the three of them.

For all the estimations using the three interest rates as predictors (Tables 5, 9 and 10), with exception of the consumer price (Panel A), the third equation was the one which presented higher predictive power for all the dependent variables.

Regarding the estimated coefficients, the regressions using each of the three interest rates presented almost the same number of statistically significant coefficients.

A comparison among estimation using different rates suggests that, in some variables, the short-term interest rate presents a slightly superior forecasting power than the yield curve and long-

term interest rate, as pointed by Bernanke (1990, p.13) and Estrella & Hardouvelis (1991, p.566). A reason for short-term interest rate forecasting the economy's performance is because it measures the amount of default risk expected by the market, at the same time that it holds information about monetary policy. Therefore, this variable contains available information regarding the probability of the onset of a recession (Bernanke, 1990, pp.18, 30).

Estrella & Hardouvelis (1991) claims that the short-term interest rate is the most closely associated with the FED policy. Thus, higher interest rates today are related to a lower growth in future output, due to low current investment opportunities (Estrella & Hardouvelis, 1991, p.566). This negative correlation between interest rate and economic output is also captured here by the negative coefficients in the current value of that variable.

Moreover, the forecasting power of the three interest rates, represented by the R-squared, was virtually the same for all variables, with minor differences. It was not observed pronounced discrepancies concerning the predictive power of each predictor. The overall stability of the baseline findings is thus confirmed by the conducted robustness checks.

6. Conclusion

The present Dissertation analyses the efficiency of the yield curve and other macroeconomic variables to predict recessions through indicators of real economic activity across the G7 countries between 1995 and 2023, following Bernanke (1990)'s methodological approach. The main objective is to investigate whether the predictive power of interest rates regarding the state of the economy, frequently studied in the United States, also holds for the other countries.

This is extremely important since the early prediction of economic recessions and crises is crucial for the Central Banks and Governments alike, in order to proceed with the adequate implementation of public policies (monetary and fiscal policies, respectively) which aim to mitigate the social consequences of economic uncertainty and the corresponding volatility.

In order to address the proposed empirical research question, Panel Data estimations were used, duly applied to a sample encompassing seven G7 countries, using economic and financial data from trusted sources such as the OECD, Refinitiv Eikon, and Federal Reserve Bank of St. Louis databases.

The analysis regarding the G7 countries as a whole states that, in general, the dependent variable is prone to be more impacted by the explanatory variables in recent past months than in distant past months. Beyond that, with exception of the inflation, the third predictive equation is the one that presented the greatest predictive power for recessions, which suggests that the composite leading indicator is a better predictor of the economic activity than inflation and money supply together.

The results show a good predictive power of the yield curve and lagged variables for recessions, when considering the Industrial production index and Retail sales index as dependent variables.

Following the academic literature, evidence in favour of the predictive power for recessions is not uniquely a consequence of the yield curve and its lags as predictors, but also a result of the impact of the dependent variable itself lags. That is, the current value of an economic activity indicator is deeply influenced by its past values.

As the regression applications were first restricted to a given area and subsequently regressions were applied to a specific G7 country, the estimations have gained forecasting power for recessions, probably due to the consideration of each country's idiosyncrasies. In addition, some dependent variables were found to be better forecasted by the yield curve and other economic variables depending on the country and country block, i.e., the predictive power of explanatory variables varies according to the predicted variable and the country as regressions become country-specific,

Subsequently, as a robustness test, a performance of two different regressions using the long-term interest rate and short-term interest rate as predictors were also conducted, substituting the yield curve, considering the G7 group data sample and the same time period. These estimations indicate that the forecasting power of the three interest rates was virtually the same for all variables, with some minor differences, i.e., pronounced discrepancies concerning the predictive power of each predictor were not observed, which significantly robustifies the baseline findings.

The present Dissertation' contribution to the academic literature expands the discussion of the predictive power of yield curve, while also expanding the analysis to other countries; nevertheless, the lack of available data previous to 1990 for all countries and variables, as well as the impossibility of finding monthly basis data for some variables were the major limitations to the present research.

Further research on this topic should extend the sample to a greater number of countries, such as the G20 group or the BRICS, in order to investigate whether this forecasting mechanism also applies to developing countries.

The prediction of recessions and study of business cycles are important to do an adequate fiscal budget planning and to achieve the stability of the public debt and the equilibrium of the public accounts, in order to ensure the future sustainability of public debt trajectories and promote the appropriate policy mix between monetary and fiscal policies.

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Appendix

Appendix A

Table 1

Summary Statistics

The Tables below displays the descriptive statistics for each country individually.

Canada

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	4.90	14.10	7.28	1.27	7.15	1.19	4.00
Yield Curve	-1.89	3.48	1.01	1.12	0.84	0.16	-0.13
Composite Leading Indicator	60.06	114.98	89.58	14.96	88.83	-0.16	-0.95
Inflation	-1.04	1.43	0.18	0.37	0.18	0.03	0.70
Money Supply	-10.78	9.91	0.55	2.37	0.51	-0.16	2.39
Industrial Production Index	77.20	109.17	96.12	7.84	96.81	-0.57	-0.17
Retail Sales Index	54.00	125.30	86.89	20.32	86.20	0.16	-1.09

France

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	7.00	12.50	9.40	1.44	9.10	0.64	2.73
Yield Curve	-0.93	2.84	1.23	0.83	1.19	-0.18	2.38
Composite Leading Indicator	72.19	109.92	93.79	10.26	96.00	-0.43	2.29
Inflation	-1.00	1.42	0.14	0.32	0.12	0.15	4.14
Money Supply	-10.18	10.08	0.48	2.84	0.43	-0.07	3.98
Industrial Production Index	68.06	115.26	102.78	6.14	101.72	-0.48	5.13
Retail Sales Index	57.40	127.10	88.47	19.40	85.70	0.26	2.12

Germany

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	4.80	12.70	8.15	2.22	7.85	0.18	1.71
Yield Curve	-1.23	3.17	0.98	0.92	0.88	0.16	2.61
Composite Leading Indicator	77.16	110.84	93.45	9.74	92.28	0.14	1.79
Inflation	-1.03	1.98	0.15	0.37	0.11	0.49	5.65
Money Supply	-8.25	9.51	0.37	2.70	0.45	-0.03	3.69
Industrial Production Index	68.61	107.71	89.65	10.94	93.76	-0.35	1.77
Retail Sales Index	90.70	122.90	99.89	7.52	96.50	1.39	3.75

Italy

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	5.90	13.20	9.61	1.82	9.60	-0.07	1.91
Yield Curve	-0.76	5.57	1.88	1.32	1.70	0.45	2.88
Composite Leading Indicator	90.78	109.76	101.94	4.41	102.38	-0.71	3.28
Inflation	-0.68	3.42	0.17	0.30	0.18	4.11	45.26
Money Supply	-9.16	9.81	0.35	2.78	0.33	-0.09	3.77
Industrial Production Index	58.30	133.29	112.64	11.39	109.14	-0.33	3.18
Retail Sales Index	69.70	113.50	104.10	5.41	105.05	-1.15	8.06

Japan

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	2.20	5.50	3.88	0.93	4.00	-0.05	1.81
Yield Curve	-0.29	2.75	0.80	0.68	0.71	0.63	2.89
Composite Leading Indicator	85.60	102.62	95.53	5.18	95.94	-0.24	1.84
Inflation	-0.90	2.10	0.03	0.33	0.00	1.25	10.33
Money Supply	-9.07	17.83	0.13	3.01	0.20	0.63	6.58
Industrial Production Index	79.63	119.45	102.07	6.68	101.69	0.00	4.24
Retail Sales Index	87.60	120.30	100.01	3.45	99.80	1.14	7.54

United Kingdom

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	3.50	8.60	5.74	1.42	5.30	0.51	2.05
Yield Curve	-2.32	3.45	0.55	1.20	0.64	0.12	2.75
Composite Leading Indicator	65.57	111.93	91.19	12.35	92.24	-0.29	2.15
Inflation	-0.70	2.10	0.20	0.33	0.20	0.35	6.74
Money Supply	-11.32	9.85	0.46	2.48	0.42	-0.27	4.81
Industrial Production Index	83.94	113.32	99.52	7.01	99.95	-0.33	2.41
Retail Sales Index	60.80	124.50	90.84	16.01	91.50	-0.09	2.20

United States

Variable	Min.	Max.	Mean	Std. Dev.	Median	Skew	Excess Kurt
Unemployment Rate	3.40	14.70	5.64	1.85	5.10	1.40	5.05
Yield Curve	-1.58	3.55	1.16	1.24	1.18	0.05	2.19
Composite Leading Indicator	60.36	118.36	89.86	15.54	89.34	0.04	2.09
Inflation	-1.92	1.37	0.21	0.36	0.20	-0.54	6.82
Money Supply	-1.06	6.38	0.53	0.58	0.48	4.74	43.44
Industrial Production Index	70.82	103.21	93.64	7.61	95.84	-1.04	3.59
Retail Sales Index	73.00	124.90	94.89	12.07	94.40	0.52	2.95

Appendix B

Table 2

Correlation Matrix Countries

The table presents all pairwise correlation coefficients between each variable. The sample includes each country of the G7 individually in the period corresponding to 1995 to 2023.

Canada

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.5447	1.0000					
Inflation	-0.1054	0.0215	1.0000				
Money Supply	0.1021	0.0432	0.1019	1.0000			
Composite Leading	-0.4744	-0.4192	0.1099	0.0264	1.0000		
Industrial Production	-0.7763	-0.5636	0.1390	-0.0080	0.8030	1.0000	
Retail Sales	-0.4876	-0.4559	0.1153	0.0075	0.9860	0.7865	1.0000

France

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.4822	1.0000					
Inflation	-0.1721	-0.0112	1.0000				
Money Supply	-0.1139	-0.0338	0.0233	1.0000			
Composite Leading	-0.6753	-0.3730	0.0917	0.0387	1.0000		
Industrial Production	-0.3195	-0.2584	0.0288	0.0842	-0.0819	1.0000	
Retail Sales	-0.6036	-0.3452	0.1102	0.0066	0.9639	-0.2354	1.0000

Germany

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.5134	1.0000					
Inflation	-0.0792	-0.0531	1.0000				
Money Supply	-0.0029	-0.0229	0.0025	1.0000			
Composite Leading	-0.8914	-0.5654	0.1399	0.0091	1.0000		
Industrial Production	-0.8048	-0.6289	0.0726	0.0261	0.8712	1.0000	
Retail Sales	-0.6462	-0.4744	0.1775	-0.0223	0.7571	0.4408	1.0000

Italy

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.1975	1.0000					
Inflation	-0.1924	0.0125	1.0000				
Money Supply	-0.1259	0.0070	0.0127	1.0000			
Composite Leading	-0.6511	0.0929	0.0994	0.1010	1.0000		
Industrial Production	-0.3848	-0.5771	0.1151	0.0469	0.0174	1.0000	
Retail Sales	-0.4564	-0.3402	0.0768	0.0754	0.1379	0.8629	1.0000

Japan

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.4643	1.0000					
Inflation	-0.1832	-0.0736	1.0000				
Money Supply	0.0817	-0.0664	0.0406	1.0000			
Composite Leading	-0.6403	-0.8009	0.1408	-0.0109	1.0000		
Industrial Production	0.0958	0.3143	0.0294	0.0233	-0.1225	1.0000	
Retail Sales	-0.4237	0.1574	0.0359	-0.1758	0.0372	0.1035	1.0000

United Kingdom

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.4901	1.0000					
Inflation	-0.0756	0.0087	1.0000				
Money Supply	0.0130	0.0535	-0.0070	1.0000			
Composite Leading	-0.5267	0.1731	0.1391	-0.0433	1.0000		
Industrial Production	-0.7101	-0.3275	-0.0091	0.0530	0.4765	1.0000	
Retail Sales	-0.5402	0.1603	0.1522	-0.0489	0.9827	0.5005	1.0000

United States

	Unemployment Rate	Yield Curve	Inflation	Money Supply	Composite Leading	Industrial Production	Retail Sales
Unemployment Rate	1.0000						
Yield Curve	0.5738	1.0000					
Inflation	-0.1213	0.0055	1.0000				
Money Supply	0.3280	-0.0373	-0.1629	1.0000			
Composite Leading	-0.0439	-0.0561	0.1039	-0.0033	1.0000		
Industrial Production	-0.2200	-0.1189	0.0685	-0.1127	0.8287	1.0000	
Retail Sales	-0.2118	-0.1521	0.1980	-0.0653	0.9510	0.8175	1.0000

Appendix C

Table 3

Individual Countries Regression Results

a) The table below displays the estimated R-squared, and prob-values in brackets. The predictive variables are presented in rows, and numbers (1), (2), (3) correspond to each of the three equations of that dependent variable. **b)** The tables regarding to each country regression results and coefficients are presented in the following pages. Dependent variables in columns, and (1), (2), (3) correspond to each of the three different forecasting equations for the dependent variable. Each panel corresponds to the dependent variable. The equations are not incremental. Explained variables and their lags (L1. to L6.) are presented in rows. Statistically significant coefficients represented as *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Predicted variable	Canada	France	Germany	Italy	Japan	UK	US
Unemployment Rate							
(1)	0.2573	0.2366	0.4260	0.0522	0.0616	0.2325	0.0625
	(0.0000)	(0.0000)	(0.0000)	(0.1846)	(0.0821)	(0.0000)	(0.0752)
(2)	0.3132	0.2453	0.5083	0.1042	0.0932	0.2731	0.4777
	(0.0000)	(0.0000)	(0.0000)	(0.1442)	(0.2736)	(0.0000)	(0.0000)
(3)	0.5333	0.5925	0.4441	0.3655	0.1737	0.2976	0.8543
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Inflation							
(1)	0.1006	0.0703	0.1178	0.1753	0.1230	0.2754	0.3280
	(0.0011)	(0.0352)	(0.0001)	(0.0000)	(0.0001)	(0.0000)	(0.0000)
(2)	0.1254	0.0974	0.1247	0.1877	0.1595	0.2841	0.3613
	(0.0021)	(0.0356)	(0.0023)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(3)	0.1277	0.0880	0.1362	0.1909	0.1314	0.2897	0.3441
	(0.0017)	(0.0789)	(0.0006)	(0.0000)	(0.0011)	(0.0000)	(0.0000)
Money Supply							
(1)	0.0539	0.0464	0.0344	0.0619	0.0358	0.0552	0.3890
	(0.1610)	(0.2843)	(0.5845)	(0.0795)	(0.5457)	(0.1436)	(0.0000)
(2)	0.1063	0.0560	0.0515	0.0734	0.0409	0.0896	0.4136
	(0.0156)	(0.5594)	(0.6576)	(0.2263)	(0.8610)	(0.0695)	(0.0000)
(3)	0.1193	0.0580	0.0471	0.0823	0.0382	0.1060	0.6234
	(0.0041)	(0.5135)	(0.7516)	(0.1223)	(0.8991)	(0.0161)	(0.0000)
Composite Leading							
(1)	0.6312	0.2323	0.3962	0.5817	0.9356	0.3521	0.1554
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(2)	0.6885	0.2628	0.4245	0.5919	0.9382	0.4056	0.4708
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Industrial Production							
(1)	0.9700	0.8775	0.9670	0.9422	0.9078	0.9421	0.9806
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(2)	0.9724	0.8812	0.9684	0.9428	0.9129	0.9455	0.9878
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(3)	0.9817	0.9520	0.9844	0.9795	0.9235	0.9725	0.9932
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Retail Sales Index							
(1)	0.9907	0.9804	0.9515	0.8787	0.6579	0.9889	0.9826
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(2)	0.9912	0.9808	0.9542	0.8815	0.6950	0.9895	0.9881
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(3)	0.9951	0.9941	0.9593	0.9555	0.6867	0.9955	0.9925
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Canada

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	-0.0299	-0.0228	-0.0114
	(0.102)	(0.103)	(0.103)
L2. Yield Curve	0.240**	0.219**	0.225**
	(0.107)	(0.108)	(0.109)
L3. Yield Curve	-0.152	-0.169	-0.199*
	(0.107)	(0.108)	(0.109)
L4. Yield Curve	0.0078	0.0176	0.0099
	(0.109)	(0.109)	(0.111)
L5. Yield Curve	0.0769	0.0795	0.0991
	(0.106)	(0.106)	(0.108)
L6. Yield Curve	0.0052	-0.0010	0.0156
	(0.105)	(0.106)	(0.107)
Yield Curve	-0.112	-0.111	-0.140
	(0.0985)	(0.0990)	(0.101)
L1. Consumer Price	0.255***	0.258***	0.259***
	(0.0558)	(0.0563)	(0.0568)
L2. Consumer Price	-0.0551	-0.0509	-0.0227
	(0.0576)	(0.0580)	(0.0592)
L3. Consumer Price	0.0180	0.00496	0.0226
	(0.0579)	(0.0582)	(0.0593)
L4. Consumer Price	0.0050	0.0378	-0.0125
	(0.0582)	(0.0595)	(0.0596)
L5. Consumer Price	-0.0798	-0.0864	-0.0868
	(0.0581)	(0.0593)	(0.0595)
L6. Consumer Price	-0.0323	-0.0290	-0.0222
	(0.0566)	(0.0579)	(0.0584)
Money Supply		0.0188**	
		(0.00860)	
L1. Money Supply		0.0032	
		(0.00868)	
L2. Money Supply		-0.0032	
		(0.00866)	
L3. Money Supply		0.0067	
		(0.00846)	
L4. Money Supply		-0.0117	
		(0.00858)	
L5. Money Supply		-0.0074	
		(0.00857)	
L6. Money Supply		0.0111	
		(0.00854)	
Composite Leading			0.0600
			(0.122)
L1. Composite Leading			0.0872
			(0.168)
L2. Composite Leading			-0.0878
			(0.185)
L3. Composite Leading			-0.224
			(0.195)
L4. Composite Leading			0.250
			(0.184)
L5. Composite Leading			-0.0033
			(0.170)
L6. Composite Leading			-0.0070
			(0.120)
Constant	0.160***	0.146***	0.144***
	(0.0287)	(0.0308)	(0.0371)
Observations	332	332	332
R-squared	0.101	0.125	0.128

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.113**	0.0739
	(0.0474)	(0.0464)
L2. Yield Curve	0.0763	0.0522
	(0.0508)	(0.0492)
L3. Yield Curve	0.0910*	0.0985**
	(0.0503)	(0.0489)
L4. Yield Curve	0.0071	0.0110
	(0.0513)	(0.0499)
L5. Yield Curve	-0.0232	-0.0160
	(0.0501)	(0.0485)
L6. Yield Curve	0.0074	0.0191
	(0.0496)	(0.0479)
Yield Curve	-0.0428	-0.0305
	(0.0469)	(0.0454)
Consumer Price		0.0017
		(0.0256)
L1. Consumer Price		-0.0736***
		(0.0263)
L2. Consumer Price		-0.0666**
		(0.0265)
L3. Consumer Price		-0.0444*
		(0.0267)
L4. Consumer Price		-0.0014
		(0.0272)
L5. Consumer Price		-0.0523*
		(0.0271)
L6. Consumer Price		0.0169
		(0.0268)
Money Supply		0.0166***
		(0.00388)
L1. Money Supply		0.0142***
		(0.00400)
L2. Money Supply		0.00979**
		(0.00405)
L3. Money Supply		0.0014
		(0.00402)
L4. Money Supply		0.0001
		(0.00406)
L5. Money Supply		-0.0030
		(0.00404)
L6. Money Supply		-0.0053
		(0.00400)
L1. Composite Leading	0.968***	0.853***
	(0.0561)	(0.0578)
L2. Composite Leading	-0.688***	-0.650***
	(0.0774)	(0.0749)
L3. Composite Leading	0.666***	0.622***
	(0.0836)	(0.0811)
L4. Composite Leading	-0.390***	-0.356***
	(0.0833)	(0.0806)
L5. Composite Leading	0.237***	0.248***
	(0.0773)	(0.0753)
L6. Composite Leading	-0.0473	-0.0135
	(0.0549)	(0.0537)
Constant	0.0407***	0.0671***
	(0.0123)	(0.0165)
Observations	332	332
R-squared	0.631	0.689

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-0.372	-0.576	-0.867
	(0.666)	(0.672)	(0.666)
L2. Yield Curve	1.042	0.676	0.783
	(0.708)	(0.710)	(0.710)
L3. Yield Curve	0.461	0.392	0.0198
	(0.705)	(0.708)	(0.704)
L4. Yield Curve	0.761	0.548	0.571
	(0.717)	(0.716)	(0.714)
L5. Yield Curve	-0.169	-0.241	-0.205
	(0.699)	(0.696)	(0.695)
L6. Yield Curve	-0.463	-0.123	-0.449
	(0.696)	(0.694)	(0.688)
Yield Curve	0.314	0.317	0.622
	(0.649)	(0.649)	(0.649)
Consumer Price		0.804**	
		(0.368)	
L1. Consumer Price		-0.309	
		(0.380)	
L2. Consumer Price		0.169	
		(0.380)	
L3. Consumer Price		0.214	
		(0.381)	
L4. Consumer Price		-1.281***	
		(0.383)	
L5. Consumer Price		0.438	
		(0.388)	
L6. Consumer Price		-0.615	
		(0.378)	
L1. Money Supply	-0.0836	-0.0719	-0.144**
	(0.0563)	(0.0567)	(0.0574)
L2. Money Supply	0.0130	0.0053	-0.0417
	(0.0564)	(0.0567)	(0.0579)
L3. Money Supply	-0.0304	-0.0417	-0.0495
	(0.0560)	(0.0554)	(0.0575)
L4. Money Supply	0.159***	0.187***	0.150***
	(0.0558)	(0.0553)	(0.0573)
L5. Money Supply	0.0399	0.0460	0.0674
	(0.0564)	(0.0561)	(0.0578)
L6. Money Supply	0.0228	0.0206	0.0562
	(0.0561)	(0.0560)	(0.0574)
Composite Leading			3.150***
			(0.782)
L1. Composite Leading			-1.886*
			(1.081)
L2. Composite Leading			2.646**
			(1.198)
L3. Composite Leading			-2.151*
			(1.272)
L4. Composite Leading			0.719
			(1.197)
L5. Composite Leading			-1.348
			(1.091)
L6. Composite Leading			-0.0054
			(0.763)
Constant	0.496***	0.575***	0.360**
	(0.152)	(0.206)	(0.174)
Observations	332	332	332
R-squared	0.054	0.106	0.119

VARIABLES	Unemployment	Unemployment	Unemployment
	(1)	(2)	(3)
L1. Unemployment Rate	0.478***	0.451***	0.448***
	(0.0560)	(0.0577)	(0.0595)
L2. Unemployment Rate	-0.314***	-0.281***	0.0809
	(0.0620)	(0.0634)	(0.0654)
L3. Unemployment Rate	0.0030	-0.0097	0.104
	(0.0640)	(0.0647)	(0.0649)
L4. Unemployment Rate	-0.0683	-0.0863	-0.0951
	(0.0638)	(0.0642)	(0.0649)
L5. Unemployment Rate	-0.0326	-0.0368	-0.149**
	(0.0616)	(0.0620)	(0.0626)
L6. Unemployment Rate	-0.0693	-0.0642	-0.0646
	(0.0557)	(0.0562)	(0.0584)
L1. Yield Curve	0.265***	0.261***	0.187**
	(0.0987)	(0.100)	(0.0813)
L2. Yield Curve	-0.0785	-0.0590	0.0735
	(0.106)	(0.107)	(0.0863)
L3. Yield Curve	0.0353	0.0218	0.0919
	(0.105)	(0.106)	(0.0854)
L4. Yield Curve	-0.155	-0.148	-0.0809
	(0.106)	(0.108)	(0.0866)
L5. Yield Curve	0.128	0.151	0.0768
	(0.104)	(0.105)	(0.0849)
L6. Yield Curve	-0.0296	0.0351	-0.0205
	(0.104)	(0.105)	(0.0842)
Yield Curve	0.0426	-0.0052	0.0429
	(0.0968)	(0.0980)	(0.0799)
Consumer Price		-0.171***	
		(0.0560)	
L1. Consumer Price		-0.0427	
		(0.0580)	
L2. Consumer Price		0.0190	
		(0.0575)	
L3. Consumer Price		0.0565	
		(0.0576)	
L4. Consumer Price		-0.118**	
		(0.0588)	
L5. Consumer Price		0.0027	
		(0.0593)	
L6. Consumer Price		-0.0101	
		(0.0580)	
Money Supply		0.0035	
		(0.00856)	
L1. Money Supply		-0.0180**	
		(0.00858)	
L2. Money Supply		-0.0084	
		(0.00860)	
L3. Money Supply		0.0010	
		(0.00839)	
L4. Money Supply		-0.0074	
		(0.00851)	
L5. Money Supply		-0.0008	
		(0.00851)	
L6. Money Supply		-0.0004	
		(0.00849)	
Composite Leading			-0.772***
			(0.107)
L1. Composite Leading			-0.529***
			(0.151)
L2. Composite Leading			0.982***
			(0.161)
L3. Composite Leading			-0.0385
			(0.179)
L4. Composite Leading			0.470***
			(0.166)
L5. Composite Leading			-0.484***
			(0.166)
L6. Composite Leading			-0.0799
			(0.132)
Constant	-0.0105	0.0533*	0.0632***
	(0.0194)	(0.0315)	(0.0213)
Observations	332	332	332
R-squared	0.257	0.313	0.533

VARIABLES	Retail Sales	Retail Sales	Retail Sales
	(1)	(2)	(3)
L1. Yield Curve	-0.927*	-1.017*	-0.677
	(0.550)	(0.565)	(0.414)
L2. Yield Curve	0.345	0.162	-1.028**
	(0.587)	(0.600)	(0.440)
L3. Yield Curve	0.264	0.121	-0.239
	(0.583)	(0.598)	(0.439)
L4. Yield Curve	0.830	0.935	0.251
	(0.592)	(0.605)	(0.444)
L5. Yield Curve	-0.517	-0.802	-0.188
	(0.578)	(0.589)	(0.433)
L6. Yield Curve	0.278	0.190	0.270
	(0.577)	(0.589)	(0.430)
Yield Curve	-0.435	-0.259	-0.301
	(0.539)	(0.551)	(0.405)
Consumer Price		0.197	
		(0.317)	
L1. Consumer Price		0.289	
		(0.325)	
L2. Consumer Price		-1.010***	
		(0.323)	
L3. Consumer Price		0.194	
		(0.330)	
L4. Consumer Price		0.131	
		(0.333)	
L5. Consumer Price		-0.0830	
		(0.331)	
L6. Consumer Price		-0.126	
		(0.323)	
Money Supply		0.0538	
		(0.0480)	
L1. Money Supply		0.0805*	
		(0.0480)	
L2. Money Supply		0.0968**	
		(0.0481)	
L3. Money Supply		0.0402	
		(0.0474)	
L4. Money Supply		-0.0093	
		(0.0478)	
L5. Money Supply		0.0204	
		(0.0476)	
L6. Money Supply		-0.0417	
		(0.0475)	
Composite Leading			3.537***
			(0.511)
L1. Composite Leading			4.151***
			(0.743)
L2. Composite Leading			-7.032***
			(0.819)
L3. Composite Leading			3.834***
			(0.930)
L4. Composite Leading			-4.006***
			(0.901)
L5. Composite Leading			3.440***
			(0.897)
L6. Composite Leading			-1.990***
			(0.608)
L1. Retail Sales Index	1.109***	1.097***	1.078***
	(0.0560)	(0.0575)	(0.0575)
L2. Retail Sales Index	-0.672***	-0.663***	-0.396***
	(0.0831)	(0.0853)	(0.0819)
L3. Retail Sales Index	0.566***	0.576***	0.382***
	(0.0904)	(0.0926)	(0.0817)
L4. Retail Sales Index	-0.210**	-0.244***	-0.206**
	(0.0902)	(0.0922)	(0.0820)
L5. Retail Sales Index	0.171**	0.201**	0.119
	(0.0828)	(0.0846)	(0.0728)
L6. Retail Sales Index	0.0344	0.0300	0.0257
	(0.0558)	(0.0571)	(0.0477)
Constant	0.491	0.421	-0.315
	(0.489)	(0.487)	(0.386)
Observations	332	332	332
R-squared	0.991	0.991	0.995

VARIABLES	Industrial Production	Industrial Production	Industrial Production
	(1)	(2)	(3)
L1. Yield Curve	-1.416***	-1.391***	-1.038***
	(0.373)	(0.377)	(0.303)
L2. Yield Curve	0.484	0.241	-0.0653
	(0.400)	(0.403)	(0.322)
L3. Yield Curve	-0.0480	0.0688	-0.112
	(0.398)	(0.402)	(0.320)
L4. Yield Curve	0.727*	0.761*	0.322
	(0.403)	(0.407)	(0.324)
L5. Yield Curve	-0.354	-0.568	-0.319
	(0.393)	(0.396)	(0.315)
L6. Yield Curve	0.349	0.177	0.228
	(0.392)	(0.396)	(0.313)
Yield Curve	-0.445	-0.377	-0.464
	(0.366)	(0.370)	(0.294)
Consumer Price		0.814***	
		(0.210)	
L1. Consumer Price		0.256	
		(0.220)	
L2. Consumer Price		-0.198	
		(0.217)	
L3. Consumer Price		0.145	
		(0.218)	
L4. Consumer Price		-0.0651	
		(0.222)	
L5. Consumer Price		0.265	
		(0.222)	
L6. Consumer Price		-0.0113	
		(0.214)	
Money Supply		-0.0155	
		(0.0319)	
L1. Money Supply		-0.0014	
		(0.0319)	
L2. Money Supply		0.0527*	
		(0.0318)	
L3. Money Supply		0.0160	
		(0.0311)	
L4. Money Supply		0.0084	
		(0.0316)	
L5. Money Supply		0.0409	
		(0.0315)	
L6. Money Supply		0.0330	
		(0.0315)	
Composite Leading			2.003***
			(0.391)
L1. Composite Leading			3.119***
			(0.540)
L2. Composite Leading			-4.323***
			(0.594)
L3. Composite Leading			1.406**
			(0.647)
L4. Composite Leading			-2.273***
			(0.623)
L5. Composite Leading			2.500***
			(0.600)
L6. Composite Leading			-0.452
			(0.368)
L1. Industrial Production	1.135***	1.091***	1.119***
	(0.0563)	(0.0578)	(0.0599)
L2. Industrial Production	-0.358***	-0.310***	-0.0184
	(0.0847)	(0.0854)	(0.0850)
L3. Industrial Production	0.222**	0.211**	0.0678
	(0.0869)	(0.0869)	(0.0838)
L4. Industrial Production	-0.0503	-0.0892	-0.209**
	(0.0866)	(0.0868)	(0.0843)
L5. Industrial Production	0.0611	0.0732	-0.0443
	(0.0843)	(0.0851)	(0.0827)
L6. Industrial Production	-0.0340	-0.0081	0.0837
	(0.0555)	(0.0565)	(0.0594)
Constant	2.429**	2.901***	-0.138
	(0.973)	(0.978)	(0.822)
Observations	332	332	332
R-squared	0.970	0.972	0.982

France

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	-0.152	-0.134	-0.139
	(0.102)	(0.103)	(0.104)
L2. Yield Curve	0.295***	0.297***	0.296***
	(0.110)	(0.110)	(0.111)
L3. Yield Curve	0.104	0.131	0.117
	(0.108)	(0.108)	(0.109)
L4. Yield Curve	-0.162	-0.177*	-0.152
	(0.101)	(0.102)	(0.102)
L5. Yield Curve	0.0475	0.0787	0.0373
	(0.101)	(0.102)	(0.102)
L6. Yield Curve	-0.0218	-0.0469	-0.0179
	(0.101)	(0.103)	(0.102)
Yield Curve	-0.0609	-0.0464	-0.0562
	(0.0937)	(0.0946)	(0.0944)
L1. Consumer Price	0.0306	0.0319	0.0265
	(0.0558)	(0.0564)	(0.0563)
L2. Consumer Price	0.0457	0.0350	0.0554
	(0.0558)	(0.0563)	(0.0562)
L3. Consumer Price	0.0271	0.0244	0.0341
	(0.0559)	(0.0564)	(0.0564)
L4. Consumer Price	0.0090	0.0143	0.0073
	(0.0566)	(0.0570)	(0.0576)
L5. Consumer Price	-0.0213	-0.0077	-0.0217
	(0.0570)	(0.0574)	(0.0581)
L6. Consumer Price	0.199***	0.196***	0.207***
	(0.0569)	(0.0569)	(0.0578)
Money Supply		0.0045	
		(0.00628)	
L1. Money Supply		-0.0109*	
		(0.00627)	
L2. Money Supply		0.0084	
		(0.00625)	
L3. Money Supply		0.0025	
		(0.00629)	
L4. Money Supply		0.0053	
		(0.00627)	
L5. Money Supply		0.0087	
		(0.00626)	
L6. Money Supply		0.0057	
		(0.00627)	
Composite Leading			0.0012
			(0.0295)
L1. Composite Leading			-0.0075
			(0.0314)
L2. Composite Leading			0.0190
			(0.0348)
L3. Composite Leading			-0.0297
			(0.0348)
L4. Composite Leading			-0.0017
			(0.0346)
L5. Composite Leading			0.0324
			(0.0312)
L6. Composite Leading			0.0308
			(0.0295)
Constant	0.0981***	0.0861***	0.0912***
	(0.0245)	(0.0258)	(0.0274)
Observations	332	332	332
R-squared	0.070	0.097	0.088

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	-0.104	-0.196
	(0.194)	(0.202)
L2. Yield Curve	-0.0473	-0.103
	(0.209)	(0.218)
L3. Yield Curve	0.290	0.295
	(0.203)	(0.211)
L4. Yield Curve	-0.0723	-0.0894
	(0.193)	(0.200)
L5. Yield Curve	0.0579	0.0530
	(0.193)	(0.200)
L6. Yield Curve	-0.0410	0.0060
	(0.193)	(0.201)
Yield Curve	0.0679	0.0761
	(0.179)	(0.185)
Consumer Price		-0.0011
		(0.111)
L1. Consumer Price		-0.0510
		(0.110)
L2. Consumer Price		0.0391
		(0.110)
L3. Consumer Price		-0.0792
		(0.110)
L4. Consumer Price		-0.297***
		(0.111)
L5. Consumer Price		-0.0568
		(0.113)
L6. Consumer Price		-0.0559
		(0.114)
Money Supply		0.0106
		(0.0123)
L1. Money Supply		-0.0001
		(0.0123)
L2. Money Supply		0.0144
		(0.0122)
L3. Money Supply		0.0015
		(0.0123)
L4. Money Supply		-0.0032
		(0.0122)
L5. Money Supply		-0.0051
		(0.0122)
L6. Money Supply		-0.0102
		(0.0122)
L1. Composite Leading	0.372***	0.360***
	(0.0560)	(0.0572)
L2. Composite Leading	-0.511***	-0.522***
	(0.0596)	(0.0607)
L3. Composite Leading	0.249***	0.242***
	(0.0653)	(0.0663)
L4. Composite Leading	-0.179***	-0.187***
	(0.0655)	(0.0663)
L5. Composite Leading	0.120**	0.119**
	(0.0594)	(0.0601)
L6. Composite Leading	-0.0355	-0.0389
	(0.0562)	(0.0572)
Constant	0.105***	0.172***
	(0.0362)	(0.0547)
Observations	332	332
R-squared	0.232	0.263

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-0.787	-0.750	-0.718
	(0.893)	(0.927)	(0.904)
L2. Yield Curve	0.602	0.191	0.587
	(0.967)	(1.006)	(0.975)
L3. Yield Curve	-0.777	-0.795	-0.776
	(0.940)	(0.973)	(0.952)
L4. Yield Curve	1.601*	1.604*	1.672*
	(0.895)	(0.919)	(0.904)
L5. Yield Curve	-1.307	-1.276	-1.366
	(0.898)	(0.921)	(0.908)
L6. Yield Curve	1.650*	1.663*	1.701*
	(0.900)	(0.922)	(0.910)
Yield Curve	0.237	0.317	0.231
	(0.834)	(0.854)	(0.843)
Consumer Price		0.367	
		(0.511)	
L1. Consumer Price		-0.353	
		(0.509)	
L2. Consumer Price		0.0652	
		(0.508)	
L3. Consumer Price		-0.253	
		(0.509)	
L4. Consumer Price		0.184	
		(0.514)	
L5. Consumer Price		-0.533	
		(0.517)	
L6. Consumer Price		-0.500	
		(0.522)	
L1. Money Supply	0.0336	0.0387	0.0335
	(0.0560)	(0.0568)	(0.0565)
L2. Money Supply	-0.0173	-0.0253	-0.0187
	(0.0556)	(0.0566)	(0.0562)
L3. Money Supply	0.102*	0.103*	0.106*
	(0.0554)	(0.0564)	(0.0560)
L4. Money Supply	-0.0769	-0.0833	-0.0794
	(0.0554)	(0.0564)	(0.0559)
L5. Money Supply	0.0669	0.0693	0.0674
	(0.0553)	(0.0565)	(0.0557)
L6. Money Supply	0.0583	0.0514	0.0623
	(0.0553)	(0.0566)	(0.0559)
Composite Leading			0.241
			(0.262)
L1. Composite Leading			-0.149
			(0.279)
L2. Composite Leading			0.337
			(0.309)
L3. Composite Leading			-0.329
			(0.312)
L4. Composite Leading			0.0857
			(0.310)
L5. Composite Leading			-0.0957
			(0.279)
L6. Composite Leading			0.312
			(0.262)
Constant	0.401**	0.539**	0.357**
	(0.167)	(0.235)	(0.180)
Observations	332	332	332
R-squared	0.046	0.056	0.058

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.394***	0.395***	0.318***
	(0.0556)	(0.0568)	(0.0578)
L2. Unemployment Rate	-0.0423	-0.0392	0.212***
	(0.0600)	(0.0619)	(0.0588)
L3. Unemployment Rate	-0.0714	-0.0685	-0.155**
	(0.0597)	(0.0615)	(0.0601)
L4. Unemployment Rate	-0.110*	-0.104*	-0.0590
	(0.0598)	(0.0626)	(0.0560)
L5. Unemployment Rate	0.0732	0.0648	0.105*
	(0.0601)	(0.0634)	(0.0559)
L6. Unemployment Rate	0.129**	0.142**	0.117**
	(0.0559)	(0.0587)	(0.0466)
L1. Yield Curve	0.108***	0.109***	0.0678**
	(0.0384)	(0.0404)	(0.0287)
L2. Yield Curve	0.0085	0.0126	0.0033
	(0.0421)	(0.0444)	(0.0312)
L3. Yield Curve	0.0087	0.0049	-0.0013
	(0.0410)	(0.0430)	(0.0305)
L4. Yield Curve	0.0176	0.0173	0.0054
	(0.0389)	(0.0406)	(0.0289)
L5. Yield Curve	-0.0087	-0.0036	-0.0258
	(0.0388)	(0.0405)	(0.0288)
L6. Yield Curve	-0.0292	-0.0414	-0.0150
	(0.0387)	(0.0406)	(0.0288)
Yield Curve	0.0120	0.0149	0.0202
	(0.0360)	(0.0377)	(0.0267)
Consumer Price		0.00004	
		(0.0226)	
L1. Consumer Price		0.0147	
		(0.0225)	
L2. Consumer Price		-0.0187	
		(0.0223)	
L3. Consumer Price		0.0063	
		(0.0223)	
L4. Consumer Price		0.0007	
		(0.0225)	
L5. Consumer Price		0.0021	
		(0.0225)	
L6. Consumer Price		0.0085	
		(0.0227)	
Money Supply		0.0023	
		(0.00250)	
L1. Money Supply		-0.0004	
		(0.00250)	
L2. Money Supply		0.0018	
		(0.00247)	
L3. Money Supply		-0.0001	
		(0.00247)	
L4. Money Supply		0.0006	
		(0.00247)	
L5. Money Supply		-0.0025	
		(0.00246)	
L6. Money Supply		0.0009	
		(0.00247)	
Composite Leading			-0.0301***
			(0.00853)
L1. Composite Leading			0.0513***
			(0.00937)
L2. Composite Leading			0.0091
			(0.0109)
L3. Composite Leading			-0.0945***
			(0.0110)
L4. Composite Leading			-0.0220*
			(0.0121)
L5. Composite Leading			-0.0270**
			(0.0112)
L6. Composite Leading			0.0121
			(0.0109)
Constant	-0.0084	-0.0112	0.0043
	(0.00679)	(0.0103)	(0.00549)
Observations	332	332	332
R-squared	0.237	0.245	0.593

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-0.945	-0.941	-0.994**
	(0.686)	(0.716)	(0.437)
L2. Yield Curve	-0.471	-0.420	-0.328
	(0.742)	(0.776)	(0.474)
L3. Yield Curve	-0.0944	-0.0395	-0.539
	(0.722)	(0.753)	(0.462)
L4. Yield Curve	0.403	0.304	0.229
	(0.683)	(0.710)	(0.439)
L5. Yield Curve	-0.118	-0.231	0.222
	(0.683)	(0.710)	(0.439)
L6. Yield Curve	-0.631	-0.490	-0.394
	(0.682)	(0.712)	(0.436)
Yield Curve	-0.136	-0.291	-0.349
	(0.636)	(0.661)	(0.406)
Consumer Price		0.0898	
		(0.396)	
L1. Consumer Price		0.258	
		(0.392)	
L2. Consumer Price		0.561	
		(0.391)	
L3. Consumer Price		0.0892	
		(0.392)	
L4. Consumer Price		-0.373	
		(0.396)	
L5. Consumer Price		-0.111	
		(0.399)	
L6. Consumer Price		0.246	
		(0.404)	
Money Supply		0.0096	
		(0.0438)	
L1. Money Supply		0.0655	
		(0.0439)	
L2. Money Supply		0.0265	
		(0.0438)	
L3. Money Supply		0.0401	
		(0.0438)	
L4. Money Supply		0.0304	
		(0.0437)	
L5. Money Supply		0.0348	
		(0.0437)	
L6. Money Supply		-0.0391	
		(0.0437)	
Composite Leading			2.587***
			(0.132)
L1. Composite Leading			0.962***
			(0.202)
L2. Composite Leading			0.437**
			(0.208)
L3. Composite Leading			-0.507**
			(0.212)
L4. Composite Leading			-0.265
			(0.211)
L5. Composite Leading			-0.137
			(0.180)
L6. Composite Leading			-0.292**
			(0.128)
L1. Industrial Production	0.903***	0.890***	0.528***
	(0.0561)	(0.0573)	(0.0562)
L2. Industrial Production	-0.165**	-0.156**	0.391***
	(0.0755)	(0.0765)	(0.0652)
L3. Industrial Production	0.144*	0.137*	0.194***
	(0.0762)	(0.0773)	(0.0689)
L4. Industrial Production	0.0318	0.0357	-0.0327
	(0.0763)	(0.0774)	(0.0689)
L5. Industrial Production	-0.0075	0.0024	-0.0833
	(0.0758)	(0.0775)	(0.0655)
L6. Industrial Production	0.0350	0.0219	-0.0084
	(0.0559)	(0.0572)	(0.0578)
Constant	6.083***	6.953***	0.930
	(2.172)	(2.268)	(1.399)
Observations	332	332	332
R-squared	0.877	0.881	0.952

VARIABLES	Retail Sales (1)	Retail Sales (2)	Retail Sales (3)
L1. Yield Curve	0.500	0.338	0.309
	(0.863)	(0.903)	(0.486)
L2. Yield Curve	-0.488	-0.541	-0.225
	(0.936)	(0.980)	(0.521)
L3. Yield Curve	0.942	1.209	-0.350
	(0.909)	(0.950)	(0.507)
L4. Yield Curve	-0.381	-0.503	-0.628
	(0.865)	(0.902)	(0.482)
L5. Yield Curve	-0.0273	-0.260	-0.146
	(0.865)	(0.904)	(0.483)
L6. Yield Curve	-0.754	-0.417	-0.733
	(0.864)	(0.908)	(0.481)
Yield Curve	-0.365	-0.465	-0.652
	(0.803)	(0.836)	(0.449)
Consumer Price		-0.308	
		(0.509)	
L1. Consumer Price		-0.289	
		(0.506)	
L2. Consumer Price		0.883*	
		(0.497)	
L3. Consumer Price		-0.0636	
		(0.500)	
L4. Consumer Price		-0.836*	
		(0.505)	
L5. Consumer Price		-0.152	
		(0.510)	
L6. Consumer Price		0.276	
		(0.515)	
Money Supply		-0.0007	
		(0.0556)	
L1. Money Supply		0.0382	
		(0.0557)	
L2. Money Supply		0.0177	
		(0.0555)	
L3. Money Supply		0.0347	
		(0.0555)	
L4. Money Supply		0.0016	
		(0.0552)	
L5. Money Supply		0.0029	
		(0.0553)	
L6. Money Supply		-0.0117	
		(0.0552)	
Composite Leading			3.273***
			(0.144)
L1. Composite Leading			1.048***
			(0.239)
L2. Composite Leading			0.359
			(0.229)
L3. Composite Leading			0.0912
			(0.236)
L4. Composite Leading			-0.383*
			(0.230)
L5. Composite Leading			-1.239***
			(0.188)
L6. Composite Leading			-0.671***
			(0.174)
L1. Retail Sales Index	0.534***	0.530***	0.155***
	(0.0556)	(0.0568)	(0.0550)
L2. Retail Sales Index	0.0545	0.0666	0.400***
	(0.0627)	(0.0642)	(0.0516)
L3. Retail Sales Index	0.0846	0.0747	0.121**
	(0.0627)	(0.0642)	(0.0565)
L4. Retail Sales Index	0.0656	0.0606	0.0995*
	(0.0627)	(0.0645)	(0.0562)
L5. Retail Sales Index	0.123*	0.126*	0.265***
	(0.0625)	(0.0649)	(0.0512)
L6. Retail Sales Index	0.138**	0.142**	-0.0315
	(0.0554)	(0.0573)	(0.0514)
Constant	0.572	0.512	-0.524
	(0.721)	(0.731)	(0.419)
Observations	332	332	332
R-squared	0.980	0.981	0.994

Germany

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	0.150	0.159	0.153
	(0.120)	(0.122)	(0.123)
L2. Yield Curve	0.162	0.155	0.193
	(0.131)	(0.133)	(0.133)
L3. Yield Curve	-0.350***	-0.355***	-0.345**
	(0.132)	(0.133)	(0.133)
L4. Yield Curve	0.234*	0.231*	0.230*
	(0.133)	(0.134)	(0.133)
L5. Yield Curve	-0.395***	-0.404***	-0.390***
	(0.132)	(0.134)	(0.133)
L6. Yield Curve	0.433***	0.441***	0.421***
	(0.132)	(0.134)	(0.133)
Yield Curve	-0.223*	-0.212*	-0.213*
	(0.120)	(0.122)	(0.121)
L1. Consumer Price	0.0024	-0.0012	-0.0006
	(0.0559)	(0.0568)	(0.0566)
L2. Consumer Price	0.172***	0.179***	0.174***
	(0.0547)	(0.0557)	(0.0554)
L3. Consumer Price	-0.0108	-0.0067	-0.0125
	(0.0555)	(0.0565)	(0.0562)
L4. Consumer Price	-0.0316	-0.0278	-0.0273
	(0.0562)	(0.0572)	(0.0569)
L5. Consumer Price	0.165***	0.158***	0.176***
	(0.0552)	(0.0561)	(0.0563)
L6. Consumer Price	-0.0301	-0.0357	-0.0457
	(0.0562)	(0.0571)	(0.0575)
Money Supply		-0.0048	
		(0.00753)	
L1. Money Supply		-0.0005	
		(0.00751)	
L2. Money Supply		0.0037	
		(0.00747)	
L3. Money Supply		0.0078	
		(0.00749)	
L4. Money Supply		-0.0056	
		(0.00753)	
L5. Money Supply		-0.0048	
		(0.00750)	
L6. Money Supply		0.0012	
		(0.00746)	
Composite Leading			-0.0700
			(0.0515)
L1. Composite Leading			0.0561
			(0.0649)
L2. Composite Leading			-0.123*
			(0.0737)
L3. Composite Leading			0.132*
			(0.0759)
L4. Composite Leading			-0.0292
			(0.0737)
L5. Composite Leading			0.0131
			(0.0648)
L6. Composite Leading			0.0058
			(0.0518)
Constant	0.111***	0.112***	0.113***
	(0.0266)	(0.0281)	(0.0292)
Observations	332	332	332
R-squared	0.118	0.125	0.136

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.0248	0.0345
	(0.131)	(0.136)
L2. Yield Curve	0.108	0.115
	(0.143)	(0.147)
L3. Yield Curve	0.0991	0.0111
	(0.144)	(0.149)
L4. Yield Curve	-0.0111	0.0189
	(0.143)	(0.148)
L5. Yield Curve	0.0735	0.0035
	(0.143)	(0.150)
L6. Yield Curve	-0.0255	0.0368
	(0.142)	(0.150)
Yield Curve	0.120	0.122
	(0.130)	(0.135)
Consumer Price		-0.0867
		(0.0626)
L1. Consumer Price		-0.0476
		(0.0629)
L2. Consumer Price		0.0088
		(0.0627)
L3. Consumer Price		0.0065
		(0.0626)
L4. Consumer Price		-0.0561
		(0.0633)
L5. Consumer Price		0.0577
		(0.0633)
L6. Consumer Price		-0.142**
		(0.0635)
Money Supply		0.0057
		(0.00829)
L1. Money Supply		-0.0034
		(0.00827)
L2. Money Supply		0.0121
		(0.00823)
L3. Money Supply		-0.0009
		(0.00829)
L4. Money Supply		-0.0019
		(0.00828)
L5. Money Supply		-0.0029
		(0.00825)
L6. Money Supply		-0.0085
		(0.00821)
L1. Composite Leading	0.765***	0.775***
	(0.0560)	(0.0568)
L2. Composite Leading	-0.680***	-0.713***
	(0.0703)	(0.0714)
L3. Composite Leading	0.457***	0.482***
	(0.0787)	(0.0803)
L4. Composite Leading	-0.256***	-0.271***
	(0.0790)	(0.0805)
L5. Composite Leading	0.169**	0.173**
	(0.0703)	(0.0713)
L6. Composite Leading	-0.0287	-0.0337
	(0.0564)	(0.0575)
Constant	0.0556**	0.0947***
	(0.0233)	(0.0336)
Observations	332	332
R-squared	0.396	0.424

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-0.0355	0.283	0.0028
	(0.887)	(0.919)	(0.902)
L2. Yield Curve	0.558	0.392	0.432
	(0.974)	(1.000)	(0.986)
L3. Yield Curve	0.0252	-0.0957	-0.0119
	(0.976)	(1.012)	(0.989)
L4. Yield Curve	0.653	0.372	0.707
	(0.975)	(1.012)	(0.984)
L5. Yield Curve	-1.261	-1.278	-1.314
	(0.975)	(1.019)	(0.985)
L6. Yield Curve	1.746*	1.772*	1.780*
	(0.975)	(1.024)	(0.983)
Yield Curve	0.0772	0.383	-0.0018
	(0.894)	(0.922)	(0.904)
Consumer Price		-0.272	
		(0.426)	
L1. Consumer Price		-0.625	
		(0.426)	
L2. Consumer Price		0.350	
		(0.426)	
L3. Consumer Price		0.124	
		(0.425)	
L4. Consumer Price		0.185	
		(0.430)	
L5. Consumer Price		-0.0790	
		(0.427)	
L6. Consumer Price		-0.564	
		(0.429)	
L1. Money Supply	0.0294	0.0295	0.0284
	(0.0560)	(0.0565)	(0.0566)
L2. Money Supply	0.0262	0.0278	0.0260
	(0.0557)	(0.0562)	(0.0564)
L3. Money Supply	0.0780	0.0863	0.0800
	(0.0556)	(0.0563)	(0.0563)
L4. Money Supply	-0.0858	-0.0809	-0.0892
	(0.0557)	(0.0565)	(0.0562)
L5. Money Supply	-0.0066	-0.0245	-0.0084
	(0.0556)	(0.0564)	(0.0561)
L6. Money Supply	0.0604	0.0567	0.0678
	(0.0555)	(0.0560)	(0.0561)
Composite Leading			0.364
			(0.388)
L1. Composite Leading			-0.148
			(0.488)
L2. Composite Leading			0.562
			(0.553)
L3. Composite Leading			-0.565
			(0.573)
L4. Composite Leading			0.0392
			(0.555)
L5. Composite Leading			0.134
			(0.491)
L6. Composite Leading			0.0532
			(0.391)
Constant	0.350**	0.482**	0.308*
	(0.157)	(0.215)	(0.167)
Observations	332	332	332
R-squared	0.034	0.052	0.047

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.516***	0.571***	0.520***
	(0.0546)	(0.0564)	(0.0559)
L2. Unemployment Rate	-0.243***	-0.240***	-0.234***
	(0.0604)	(0.0661)	(0.0616)
L3. Unemployment Rate	-0.0487	-0.115*	-0.0568
	(0.0604)	(0.0682)	(0.0614)
L4. Unemployment Rate	-0.237***	-0.130*	-0.242***
	(0.0601)	(0.0679)	(0.0612)
L5. Unemployment Rate	0.163***	0.132**	0.184***
	(0.0605)	(0.0661)	(0.0617)
L6. Unemployment Rate	0.0824	0.0664	0.0812
	(0.0542)	(0.0559)	(0.0553)
L1. Yield Curve	0.251***	0.209***	0.238***
	(0.0800)	(0.0781)	(0.0805)
L2. Yield Curve	-0.131	-0.0874	-0.126
	(0.0887)	(0.0857)	(0.0888)
L3. Yield Curve	0.0864	0.0498	0.0811
	(0.0892)	(0.0876)	(0.0895)
L4. Yield Curve	-0.188**	-0.0847	-0.175*
	(0.0894)	(0.0878)	(0.0894)
L5. Yield Curve	0.138	0.0224	0.150*
	(0.0897)	(0.0886)	(0.0897)
L6. Yield Curve	-0.305***	-0.225**	-0.304***
	(0.0891)	(0.0889)	(0.0891)
Yield Curve	0.246***	0.164**	0.269***
	(0.0815)	(0.0801)	(0.0817)
Consumer Price		-0.0481	
		(0.0377)	
L1. Consumer Price		0.116***	
		(0.0378)	
L2. Consumer Price		-0.170***	
		(0.0384)	
L3. Consumer Price		-0.0835**	
		(0.0395)	
L4. Consumer Price		0.0515	
		(0.0400)	
L5. Consumer Price		0.0287	
		(0.0397)	
L6. Consumer Price		-0.0191	
		(0.0397)	
Money Supply		-0.0010	
		(0.00487)	
L1. Money Supply		0.00946*	
		(0.00484)	
L2. Money Supply		-0.0079	
		(0.00485)	
L3. Money Supply		0.0062	
		(0.00486)	
L4. Money Supply		0.0071	
		(0.00489)	
L5. Money Supply		-0.0032	
		(0.00488)	
L6. Money Supply		-0.0029	
		(0.00484)	
Composite Leading			-0.0652*
			(0.0349)
L1. Composite Leading			0.0012
			(0.0443)
L2. Composite Leading			-0.0169
			(0.0499)
L3. Composite Leading			0.0071
			(0.0515)
L4. Composite Leading			-0.0690
			(0.0499)
L5. Composite Leading			0.0221
			(0.0442)
L6. Composite Leading			-0.0118
			(0.0350)
Constant	-0.0092	0.0065	0.0033
	(0.0135)	(0.0185)	(0.0144)
Observations	332	332	332
R-squared	0.426	0.508	0.444

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-1.291*	-1.355**	-1.227***
	(0.658)	(0.682)	(0.464)
L2. Yield Curve	0.311	0.577	0.143
	(0.716)	(0.738)	(0.505)
L3. Yield Curve	-0.879	-1.338*	-0.959*
	(0.718)	(0.745)	(0.506)
L4. Yield Curve	0.745	1.188	0.556
	(0.716)	(0.746)	(0.505)
L5. Yield Curve	0.298	-0.300	0.388
	(0.715)	(0.754)	(0.505)
L6. Yield Curve	-0.714	-0.221	-0.720
	(0.713)	(0.758)	(0.503)
Yield Curve	0.205	-0.159	-0.568
	(0.651)	(0.677)	(0.460)
Consumer Price		-0.111	
		(0.316)	
L1. Consumer Price		0.443	
		(0.316)	
L2. Consumer Price		-0.285	
		(0.313)	
L3. Consumer Price		0.489	
		(0.311)	
L4. Consumer Price		-0.186	
		(0.317)	
L5. Consumer Price		0.336	
		(0.316)	
L6. Consumer Price		-0.274	
		(0.319)	
Money Supply		0.0207	
		(0.0414)	
L1. Money Supply		0.0026	
		(0.0413)	
L2. Money Supply		0.0500	
		(0.0411)	
L3. Money Supply		0.0388	
		(0.0413)	
L4. Money Supply		-0.0068	
		(0.0415)	
L5. Money Supply		0.0407	
		(0.0414)	
L6. Money Supply		-0.0007	
		(0.0412)	
Composite Leading			3.145***
			(0.213)
L1. Composite Leading			0.170
			(0.333)
L2. Composite Leading			-0.0674
			(0.341)
L3. Composite Leading			-0.597*
			(0.345)
L4. Composite Leading			0.250
			(0.343)
L5. Composite Leading			0.359
			(0.309)
L6. Composite Leading			-0.318
			(0.203)
L1. Industrial Production	1.007***	1.027***	0.814***
	(0.0563)	(0.0574)	(0.0586)
L2. Industrial Production	-0.228***	-0.276***	0.250***
	(0.0796)	(0.0819)	(0.0745)
L3. Industrial Production	0.161**	0.206**	0.117
	(0.0802)	(0.0832)	(0.0746)
L4. Industrial Production	0.0911	0.0526	-0.136*
	(0.0801)	(0.0824)	(0.0752)
L5. Industrial Production	-0.0801	-0.0584	-0.123*
	(0.0791)	(0.0804)	(0.0734)
L6. Industrial Production	0.0265	0.0243	0.0759
	(0.0563)	(0.0573)	(0.0601)
Constant	2.088**	2.181**	-0.0412
	(0.933)	(0.938)	(0.661)
Observations	332	332	332
R-squared	0.967	0.968	0.984

VARIABLES	Retail Sales (1)	Retail Sales (2)	Retail Sales (3)
L1. Yield Curve	-0.432	-0.219	-0.553
	(0.557)	(0.574)	(0.524)
L2. Yield Curve	-0.872	-0.750	-0.974*
	(0.612)	(0.624)	(0.572)
L3. Yield Curve	0.177	0.178	-0.160
	(0.614)	(0.633)	(0.575)
L4. Yield Curve	-0.158	-0.346	-0.0895
	(0.615)	(0.634)	(0.573)
L5. Yield Curve	-0.157	-0.242	-0.415
	(0.614)	(0.641)	(0.573)
L6. Yield Curve	-0.0958	-0.224	-0.115
	(0.612)	(0.646)	(0.569)
Yield Curve	-0.113	0.0164	-0.192
	(0.558)	(0.577)	(0.520)
Consumer Price		-0.418	
		(0.275)	
L1. Consumer Price		-0.849***	
		(0.276)	
L2. Consumer Price		-0.0700	
		(0.277)	
L3. Consumer Price		-0.252	
		(0.274)	
L4. Consumer Price		-0.0132	
		(0.275)	
L5. Consumer Price		0.166	
		(0.271)	
L6. Consumer Price		-0.115	
		(0.273)	
Money Supply		-0.0058	
		(0.0356)	
L1. Money Supply		0.0123	
		(0.0353)	
L2. Money Supply		-0.0283	
		(0.0351)	
L3. Money Supply		0.0087	
		(0.0353)	
L4. Money Supply		0.0561	
		(0.0353)	
L5. Money Supply		0.0106	
		(0.0353)	
L6. Money Supply		-0.0366	
		(0.0351)	
Composite Leading			1.437***
			(0.225)
L1. Composite Leading			-0.749**
			(0.301)
L2. Composite Leading			0.504
			(0.345)
L3. Composite Leading			0.0690
			(0.359)
L4. Composite Leading			-0.460
			(0.347)
L5. Composite Leading			0.731**
			(0.302)
L6. Composite Leading			-0.915***
			(0.233)
L1. Retail Sales Index	0.492***	0.468***	0.509***
	(0.0561)	(0.0577)	(0.0557)
L2. Retail Sales Index	0.126**	0.109*	0.131**
	(0.0624)	(0.0633)	(0.0628)
L3. Retail Sales Index	0.190***	0.183***	0.170***
	(0.0627)	(0.0634)	(0.0628)
L4. Retail Sales Index	0.0967	0.120*	0.128**
	(0.0627)	(0.0638)	(0.0628)
L5. Retail Sales Index	0.0610	0.0785	-0.0129
	(0.0625)	(0.0636)	(0.0619)
L6. Retail Sales Index	0.0317	0.0553	0.0759
	(0.0564)	(0.0587)	(0.0553)
Constant	0.412	-1.029	-0.0968
	(1.280)	(1.408)	(1.197)
Observations	332	332	332
R-squared	0.952	0.954	0.959

Italy

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	0.0472	0.0342	0.0345
	(0.0646)	(0.0660)	(0.0669)
L2. Yield Curve	0.157**	0.160**	0.164**
	(0.0676)	(0.0690)	(0.0695)
L3. Yield Curve	-0.0221	-0.0211	-0.0159
	(0.0680)	(0.0692)	(0.0699)
L4. Yield Curve	-0.0949	-0.0931	-0.0995
	(0.0679)	(0.0688)	(0.0694)
L5. Yield Curve	0.104	0.104	0.109
	(0.0681)	(0.0688)	(0.0694)
L6. Yield Curve	0.0577	0.0669	0.0733
	(0.0683)	(0.0697)	(0.0694)
Yield Curve	-0.0220	-0.0185	0.0078
	(0.0652)	(0.0666)	(0.0671)
L1. Consumer Price	0.112**	0.108*	0.101*
	(0.0562)	(0.0570)	(0.0568)
L2. Consumer Price	0.261***	0.263***	0.263***
	(0.0564)	(0.0569)	(0.0567)
L3. Consumer Price	0.0459	0.0556	0.0508
	(0.0581)	(0.0587)	(0.0585)
L4. Consumer Price	0.112*	0.116**	0.110*
	(0.0581)	(0.0588)	(0.0583)
L5. Consumer Price	0.0264	0.0174	0.0279
	(0.0566)	(0.0571)	(0.0571)
L6. Consumer Price	-0.0201	-0.0234	-0.0107
	(0.0562)	(0.0567)	(0.0567)
Money Supply		0.0024	
		(0.00571)	
L1. Money Supply		-0.0021	
		(0.00567)	
L2. Money Supply		-0.0078	
		(0.00562)	
L3. Money Supply		-0.0024	
		(0.00568)	
L4. Money Supply		-0.00004	
		(0.00565)	
L5. Money Supply		0.0088	
		(0.00566)	
L6. Money Supply		0.0024	
		(0.00570)	
Composite Leading			-0.0367
			(0.0435)
L1. Composite Leading			0.0260
			(0.0634)
L2. Composite Leading			-0.0159
			(0.0771)
L3. Composite Leading			-0.0100
			(0.0818)
L4. Composite Leading			-0.00298
			(0.0767)
L5. Composite Leading			0.0099
			(0.0626)
L6. Composite Leading			0.0583
			(0.0429)
Constant	0.0794***	0.0791***	0.0775***
	(0.0214)	(0.0225)	(0.0224)
Observations	332	332	332
R-squared	0.175	0.188	0.191

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	-0.317***	-0.319***
	(0.0837)	(0.0871)
L2. Yield Curve	0.168*	0.153
	(0.0886)	(0.0929)
L3. Yield Curve	-0.0376	-0.0134
	(0.0889)	(0.0927)
L4. Yield Curve	-0.0422	-0.0496
	(0.0884)	(0.0918)
L5. Yield Curve	-0.0194	-0.0203
	(0.0887)	(0.0920)
L6. Yield Curve	-0.0521	-0.0494
	(0.0884)	(0.0926)
Yield Curve	0.206**	0.218**
	(0.0847)	(0.0887)
Consumer Price		-0.0568
		(0.0747)
L1. Consumer Price		-0.0388
		(0.0753)
L2. Consumer Price		-0.0572
		(0.0772)
L3. Consumer Price		-0.0362
		(0.0774)
L4. Consumer Price		0.0237
		(0.0776)
L5. Consumer Price		-0.0701
		(0.0751)
L6. Consumer Price		0.0537
		(0.0747)
Money Supply		0.0041
		(0.00755)
L1. Money Supply		0.0044
		(0.00748)
L2. Money Supply		0.0067
		(0.00742)
L3. Money Supply		0.0008
		(0.00747)
L4. Money Supply		-0.0057
		(0.00743)
L5. Money Supply		-0.0028
		(0.00748)
L6. Money Supply		0.0045
		(0.00750)
L1. Composite Leading	1.080***	1.067***
	(0.0553)	(0.0567)
L2. Composite Leading	-1.064***	-1.064***
	(0.0796)	(0.0808)
L3. Composite Leading	0.866***	0.855***
	(0.0939)	(0.0955)
L4. Composite Leading	-0.584***	-0.582***
	(0.0936)	(0.0953)
L5. Composite Leading	0.324***	0.319***
	(0.0790)	(0.0806)
L6. Composite Leading	-0.0897	-0.0843
	(0.0550)	(0.0566)
Constant	0.0207	0.0488
	(0.0200)	(0.0306)
Observations	332	332
R-squared	0.582	0.592

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-1.292**	-1.300**	-1.093*
	(0.640)	(0.652)	(0.659)
L2. Yield Curve	0.631	0.666	0.787
	(0.672)	(0.690)	(0.688)
L3. Yield Curve	-0.0281	0.0255	-0.0824
	(0.670)	(0.687)	(0.686)
L4. Yield Curve	0.538	0.451	0.573
	(0.666)	(0.684)	(0.680)
L5. Yield Curve	-0.198	-0.138	-0.349
	(0.669)	(0.686)	(0.682)
L6. Yield Curve	1.426**	1.590**	1.529**
	(0.669)	(0.687)	(0.680)
Yield Curve	0.366	0.329	0.415
	(0.644)	(0.661)	(0.662)
Consumer Price		0.239	
		(0.563)	
L1. Consumer Price		-0.575	
		(0.568)	
L2. Consumer Price		0.224	
		(0.583)	
L3. Consumer Price		-0.466	
		(0.583)	
L4. Consumer Price		-0.445	
		(0.586)	
L5. Consumer Price		-0.112	
		(0.567)	
L6. Consumer Price		0.528	
		(0.563)	
L1. Money Supply	0.0422	0.0438	0.0350
	(0.0557)	(0.0562)	(0.0563)
L2. Money Supply	0.00387	0.0017	-0.0007
	(0.0552)	(0.0559)	(0.0558)
L3. Money Supply	0.104*	0.104*	0.0977*
	(0.0553)	(0.0561)	(0.0558)
L4. Money Supply	-0.0489	-0.0500	-0.0497
	(0.0555)	(0.0560)	(0.0558)
L5. Money Supply	0.0312	0.0274	0.0331
	(0.0555)	(0.0564)	(0.0560)
L6. Money Supply	0.107*	0.103*	0.109*
	(0.0554)	(0.0563)	(0.0558)
Composite Leading			0.276
			(0.430)
L1. Composite Leading			0.353
			(0.627)
L2. Composite Leading			-0.0896
			(0.761)
L3. Composite Leading			0.448
			(0.807)
L4. Composite Leading			-0.979
			(0.758)
L5. Composite Leading			0.797
			(0.621)
L6. Composite Leading			-0.318
			(0.425)
Constant	0.266*	0.374*	0.250
	(0.157)	(0.227)	(0.158)
Observations	332	332	332
R-squared	0.062	0.073	0.082

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	-0.0233	-0.0220	-0.158***
	(0.0555)	(0.0560)	(0.0567)
L2. Unemployment Rate	0.0153	0.0039	0.0953
	(0.0557)	(0.0562)	(0.0578)
L3. Unemployment Rate	-0.113**	-0.113**	0.0461
	(0.0559)	(0.0564)	(0.0575)
L4. Unemployment Rate	0.0480	0.0442	0.161***
	(0.0560)	(0.0565)	(0.0563)
L5. Unemployment Rate	-0.0256	-0.0277	-0.0176
	(0.0561)	(0.0565)	(0.0555)
L6. Unemployment Rate	0.0779	0.0875	0.0790
	(0.0561)	(0.0565)	(0.0550)
L1. Yield Curve	-0.0060	-0.0044	0.0720
	(0.0559)	(0.0572)	(0.0478)
L2. Yield Curve	-0.0165	-0.0011	-0.0669
	(0.0586)	(0.0604)	(0.0499)
L3. Yield Curve	0.0406	0.0522	-0.0406
	(0.0586)	(0.0600)	(0.0499)
L4. Yield Curve	0.0007	-0.0092	-0.0260
	(0.0585)	(0.0598)	(0.0497)
L5. Yield Curve	0.0122	0.0197	0.0007
	(0.0583)	(0.0596)	(0.0495)
L6. Yield Curve	-0.0199	-0.0046	-0.0071
	(0.0581)	(0.0600)	(0.0490)
Yield Curve	0.143**	0.144**	0.0624
	(0.0555)	(0.0572)	(0.0473)
Consumer Price		-0.0806*	
		(0.0487)	
L1. Consumer Price		-0.0025	
		(0.0495)	
L2. Consumer Price		-0.0582	
		(0.0507)	
L3. Consumer Price		0.0356	
		(0.0507)	
L4. Consumer Price		-0.0526	
		(0.0510)	
L5. Consumer Price		-0.0068	
		(0.0494)	
L6. Consumer Price		0.126**	
		(0.0490)	
Money Supply		0.0004	
		(0.00493)	
L1. Money Supply		0.0040	
		(0.00489)	
L2. Money Supply		0.0022	
		(0.00486)	
L3. Money Supply		0.0020	
		(0.00489)	
L4. Money Supply		-0.0033	
		(0.00486)	
L5. Money Supply		-0.0052	
		(0.00488)	
L6. Money Supply		0.0050	
		(0.00491)	
Composite Leading			0.302***
			(0.0317)
L1. Composite Leading			-0.204***
			(0.0501)
L2. Composite Leading			0.0827
			(0.0605)
L3. Composite Leading			-0.198***
			(0.0634)
L4. Composite Leading			0.00833
			(0.0600)
L5. Composite Leading			-0.0350
			(0.0488)
L6. Composite Leading			-0.0148
			(0.0328)
Constant	-0.0111	-0.0065	-0.0069
	(0.0132)	(0.0197)	(0.0111)
Observations	332	332	332
R-squared	0.052	0.104	0.365

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-1.983***	-2.059***	-0.249
	(0.651)	(0.684)	(0.407)
L2. Yield Curve	-0.380	-0.279	-0.168
	(0.686)	(0.726)	(0.423)
L3. Yield Curve	0.630	0.567	0.00549
	(0.685)	(0.720)	(0.419)
L4. Yield Curve	-0.482	-0.486	0.250
	(0.684)	(0.717)	(0.417)
L5. Yield Curve	-0.285	-0.303	0.0138
	(0.687)	(0.718)	(0.418)
L6. Yield Curve	-0.395	-0.335	-0.102
	(0.688)	(0.725)	(0.417)
Yield Curve	0.558	0.468	-0.430
	(0.652)	(0.689)	(0.403)
Consumer Price		-0.222	
		(0.586)	
L1. Consumer Price		0.425	
		(0.591)	
L2. Consumer Price		0.189	
		(0.606)	
L3. Consumer Price		0.0263	
		(0.606)	
L4. Consumer Price		0.0680	
		(0.609)	
L5. Consumer Price		-0.0517	
		(0.589)	
L6. Consumer Price		-0.345	
		(0.585)	
Money Supply		-0.0249	
		(0.0593)	
L1. Money Supply		0.0576	
		(0.0588)	
L2. Money Supply		0.0048	
		(0.0582)	
L3. Money Supply		-0.0068	
		(0.0587)	
L4. Money Supply		-0.0178	
		(0.0584)	
L5. Money Supply		0.0407	
		(0.0585)	
L6. Money Supply		0.0287	
		(0.0587)	
Composite Leading			4.766***
			(0.278)
L1. Composite Leading			-0.0431
			(0.494)
L2. Composite Leading			-1.948***
			(0.542)
L3. Composite Leading			1.430**
			(0.598)
L4. Composite Leading			-2.400***
			(0.550)
L5. Composite Leading			0.941**
			(0.454)
L6. Composite Leading			-0.163
			(0.285)
L1. Industrial Production	1.027***	1.029***	0.768***
	(0.0560)	(0.0575)	(0.0567)
L2. Industrial Production	-0.311***	-0.317***	0.299***
	(0.0798)	(0.0818)	(0.0707)
L3. Industrial Production	0.262***	0.264***	0.0688
	(0.0812)	(0.0833)	(0.0709)
L4. Industrial Production	-0.164**	-0.167**	-0.0897
	(0.0812)	(0.0834)	(0.0706)
L5. Industrial Production	0.157**	0.168**	0.0350
	(0.0796)	(0.0820)	(0.0685)
L6. Industrial Production	0.0098	0.0028	-0.0865
	(0.0561)	(0.0579)	(0.0567)
Constant	2.147	2.255	0.361
	(1.588)	(1.642)	(0.968)
Observations	332	332	332
R-squared	0.942	0.943	0.979

VARIABLES	Retail Sales (1)	Retail Sales (2)	Retail Sales (3)
L1. Yield Curve	-1.207***	-1.174**	0.0422
	(0.450)	(0.469)	(0.285)
L2. Yield Curve	0.242	0.190	-0.243
	(0.474)	(0.498)	(0.297)
L3. Yield Curve	0.737	0.899*	0.364
	(0.474)	(0.496)	(0.296)
L4. Yield Curve	-0.396	-0.455	-0.152
	(0.475)	(0.494)	(0.295)
L5. Yield Curve	-0.0667	-0.0635	-0.283
	(0.475)	(0.493)	(0.295)
L6. Yield Curve	-0.140	-0.0814	-0.0663
	(0.475)	(0.497)	(0.293)
Yield Curve	0.358	0.380	-0.544*
	(0.451)	(0.473)	(0.283)
Consumer Price		-0.122	
		(0.407)	
L1. Consumer Price		-0.342	
		(0.410)	
L2. Consumer Price		0.154	
		(0.414)	
L3. Consumer Price		-0.300	
		(0.415)	
L4. Consumer Price		0.276	
		(0.417)	
L5. Consumer Price		-0.237	
		(0.404)	
L6. Consumer Price		0.520	
		(0.401)	
Money Supply		-0.0153	
		(0.0405)	
L1. Money Supply		0.0041	
		(0.0401)	
L2. Money Supply		0.0345	
		(0.0398)	
L3. Money Supply		0.0146	
		(0.0402)	
L4. Money Supply		-0.0247	
		(0.0400)	
L5. Money Supply		-0.0259	
		(0.0402)	
L6. Money Supply		0.0319	
		(0.0403)	
Composite Leading			3.725***
			(0.202)
L1. Composite Leading			-1.359***
			(0.381)
L2. Composite Leading			-0.418
			(0.401)
L3. Composite Leading			0.253
			(0.430)
L4. Composite Leading			-0.0901
			(0.407)
L5. Composite Leading			-1.261***
			(0.349)
L6. Composite Leading			0.281
			(0.228)
L1. Retail Sales Index	0.967***	0.970***	0.839***
	(0.0540)	(0.0550)	(0.0590)
L2. Retail Sales Index	-0.301***	-0.307***	0.270***
	(0.0754)	(0.0768)	(0.0721)
L3. Retail Sales Index	0.122	0.128	-0.215***
	(0.0769)	(0.0787)	(0.0733)
L4. Retail Sales Index	0.124	0.117	0.115
	(0.0769)	(0.0793)	(0.0726)
L5. Retail Sales Index	-0.190**	-0.193**	0.0636
	(0.0751)	(0.0782)	(0.0711)
L6. Retail Sales Index	0.247***	0.254***	-0.0662
	(0.0540)	(0.0560)	(0.0565)
Constant	3.222	3.190	-0.679
	(2.235)	(2.339)	(1.398)
Observations	332	332	332
R-squared	0.879	0.881	0.955

Japan

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	-0.0233	0.0438	-0.0002
	(0.146)	(0.148)	(0.148)
L2. Yield Curve	-0.156	-0.159	-0.133
	(0.143)	(0.145)	(0.147)
L3. Yield Curve	-0.0571	-0.0763	-0.0514
	(0.143)	(0.146)	(0.147)
L4. Yield Curve	0.0397	0.0996	0.0499
	(0.142)	(0.143)	(0.146)
L5. Yield Curve	0.359**	0.393***	0.356**
	(0.143)	(0.145)	(0.147)
L6. Yield Curve	-0.0007	-0.0405	-0.0121
	(0.142)	(0.142)	(0.146)
Yield Curve	-0.191	-0.211	-0.209
	(0.137)	(0.137)	(0.141)
L1. Consumer Price	0.228***	0.201***	0.219***
	(0.0564)	(0.0568)	(0.0572)
L2. Consumer Price	-0.0867	-0.0884	-0.0965
	(0.0577)	(0.0577)	(0.0587)
L3. Consumer Price	-0.123**	-0.132**	-0.131**
	(0.0573)	(0.0572)	(0.0584)
L4. Consumer Price	0.0403	0.0221	0.0286
	(0.0571)	(0.0571)	(0.0583)
L5. Consumer Price	0.0605	0.0548	0.0513
	(0.0570)	(0.0568)	(0.0582)
L6. Consumer Price	0.0126	0.0283	0.0088
	(0.0563)	(0.0561)	(0.0576)
Money Supply		0.0042	
		(0.00585)	
L1. Money Supply		-0.0092	
		(0.00586)	
L2. Money Supply		-0.0107*	
		(0.00597)	
L3. Money Supply		-0.0039	
		(0.00602)	
L4. Money Supply		-0.0022	
		(0.00601)	
L5. Money Supply		-0.0082	
		(0.00592)	
L6. Money Supply		-0.0126**	
		(0.00596)	
Composite Leading			-0.389
			(0.385)
L1. Composite Leading			0.433
			(0.680)
L2. Composite Leading			-0.108
			(0.690)
L3. Composite Leading			0.0120
			(0.690)
L4. Composite Leading			-0.161
			(0.690)
L5. Composite Leading			0.194
			(0.677)
L6. Composite Leading			0.0428
			(0.376)
Constant	0.0244	0.0336*	0.0241
	(0.0176)	(0.0177)	(0.0193)
Observations	332	332	332
R-squared	0.123	0.159	0.131

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.0192	0.0179
	(0.0215)	(0.0226)
L2. Yield Curve	0.0248	0.0246
	(0.0214)	(0.0222)
L3. Yield Curve	-0.0011	0.0009
	(0.0215)	(0.0224)
L4. Yield Curve	0.0137	0.0188
	(0.0213)	(0.0220)
L5. Yield Curve	-0.0038	-0.0004
	(0.0215)	(0.0225)
L6. Yield Curve	-0.0123	-0.0125
	(0.0212)	(0.0218)
Yield Curve	0.0085	0.0104
	(0.0206)	(0.0211)
Consumer Price		-0.0072
		(0.00857)
L1. Consumer Price		-0.0071
		(0.00878)
L2. Consumer Price		-0.0120
		(0.00878)
L3. Consumer Price		-0.0085
		(0.00879)
L4. Consumer Price		-0.0147*
		(0.00868)
L5. Consumer Price		-0.0123
		(0.00867)
L6. Consumer Price		-0.0007
		(0.00860)
Money Supply		0.0002
		(0.000883)
L1. Money Supply		0.0003
		(0.000888)
L2. Money Supply		0.0003
		(0.000905)
L3. Money Supply		0.0006
		(0.000909)
L4. Money Supply		0.0006
		(0.000907)
L5. Money Supply		-0.0001
		(0.000896)
L6. Money Supply		0.0003
		(0.000905)
L1. Composite Leading	1.482***	1.448***
	(0.0562)	(0.0575)
L2. Composite Leading	-0.372***	-0.351***
	(0.0999)	(0.100)
L3. Composite Leading	-0.589***	-0.580***
	(0.0963)	(0.0967)
L4. Composite Leading	0.597***	0.581***
	(0.0963)	(0.0968)
L5. Composite Leading	-0.170*	-0.162
	(0.0997)	(0.100)
L6. Composite Leading	-0.0563	-0.0517
	(0.0555)	(0.0558)
Constant	0.00496*	0.00648**
	(0.00276)	(0.00290)
Observations	332	332
R-squared	0.936	0.938

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-0.508	-0.668	-0.467
	(1.385)	(1.437)	(1.418)
L2. Yield Curve	0.0960	0.149	0.129
	(1.369)	(1.406)	(1.409)
L3. Yield Curve	1.149	1.104	1.227
	(1.379)	(1.410)	(1.417)
L4. Yield Curve	-1.160	-1.336	-1.128
	(1.356)	(1.388)	(1.393)
L5. Yield Curve	0.271	0.0519	0.319
	(1.368)	(1.418)	(1.407)
L6. Yield Curve	1.137	1.294	1.178
	(1.335)	(1.370)	(1.378)
Yield Curve	-0.332	-0.172	-0.323
	(1.298)	(1.329)	(1.339)
Consumer Price		0.397	
		(0.549)	
L1. Consumer Price		-0.0470	
		(0.561)	
L2. Consumer Price		-0.263	
		(0.561)	
L3. Consumer Price		0.0996	
		(0.559)	
L4. Consumer Price		0.0296	
		(0.553)	
L5. Consumer Price		0.112	
		(0.551)	
L6. Consumer Price		-0.461	
		(0.543)	
L1. Money Supply	0.0020	0.0057	0.0009
	(0.0562)	(0.0570)	(0.0568)
L2. Money Supply	0.105*	0.113*	0.105*
	(0.0565)	(0.0578)	(0.0572)
L3. Money Supply	-0.0124	-0.0114	-0.0119
	(0.0570)	(0.0584)	(0.0577)
L4. Money Supply	0.0077	0.0047	0.0085
	(0.0571)	(0.0582)	(0.0578)
L5. Money Supply	-0.124**	-0.119**	-0.122**
	(0.0558)	(0.0571)	(0.0565)
L6. Money Supply	-0.0136	-0.0042	-0.0130
	(0.0563)	(0.0581)	(0.0571)
Composite Leading			0.799
			(3.630)
L1. Composite Leading			-1.846
			(6.479)
L2. Composite Leading			0.945
			(6.582)
L3. Composite Leading			-0.886
			(6.566)
L4. Composite Leading			0.0290
			(6.578)
L5. Composite Leading			2.974
			(6.460)
L6. Composite Leading			-2.513
			(3.588)
Constant	0.197	0.192	0.222
	(0.167)	(0.172)	(0.181)
Observations	332	332	332
R-squared	0.036	0.041	0.038

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	-0.156***	-0.165***	-0.277***
	(0.0563)	(0.0574)	(0.0572)
L2. Unemployment Rate	-0.0703	-0.0695	-0.200***
	(0.0569)	(0.0580)	(0.0589)
L3. Unemployment Rate	0.147**	0.145**	0.0309
	(0.0570)	(0.0582)	(0.0596)
L4. Unemployment Rate	0.104*	0.0986*	0.0391
	(0.0568)	(0.0578)	(0.0580)
L5. Unemployment Rate	0.0703	0.0607	0.0495
	(0.0573)	(0.0590)	(0.0570)
L6. Unemployment Rate	-0.0076	-0.0134	0.0030
	(0.0570)	(0.0591)	(0.0555)
L1. Yield Curve	-0.0016	0.0001	0.0051
	(0.0536)	(0.0566)	(0.0515)
L2. Yield Curve	0.0057	-0.0187	0.0292
	(0.0530)	(0.0554)	(0.0511)
L3. Yield Curve	0.0003	-0.0045	0.0355
	(0.0532)	(0.0555)	(0.0513)
L4. Yield Curve	0.0574	0.0853	0.0996*
	(0.0526)	(0.0546)	(0.0508)
L5. Yield Curve	0.0074	0.0166	0.0655
	(0.0529)	(0.0557)	(0.0514)
L6. Yield Curve	-0.0139	-0.0279	0.0627
	(0.0522)	(0.0539)	(0.0511)
Yield Curve	-0.0606	-0.0696	0.0191
	(0.0504)	(0.0520)	(0.0495)
Consumer Price		-0.0370*	
		(0.0215)	
L1. Consumer Price		-0.0019	
		(0.0220)	
L2. Consumer Price		0.0002	
		(0.0220)	
L3. Consumer Price		-0.0237	
		(0.0219)	
L4. Consumer Price		-0.0167	
		(0.0217)	
L5. Consumer Price		0.0040	
		(0.0216)	
L6. Consumer Price		-0.0007	
		(0.0213)	
Money Supply		-0.0001	
		(0.00226)	
L1. Money Supply		-0.0010	
		(0.00225)	
L2. Money Supply		0.00004	
		(0.00228)	
L3. Money Supply		0.0029	
		(0.00229)	
L4. Money Supply		0.0032	
		(0.00228)	
L5. Money Supply		-0.0035	
		(0.00225)	
L6. Money Supply		-0.0021	
		(0.00228)	
Composite Leading			0.0306
			(0.134)
L1. Composite Leading			0.0784
			(0.240)
L2. Composite Leading			-0.208
			(0.244)
L3. Composite Leading			-0.0140
			(0.243)
L4. Composite Leading			0.0983
			(0.242)
L5. Composite Leading			-0.266
			(0.238)
L6. Composite Leading			0.0170
			(0.137)
Constant	-0.0020	-0.0001	0.0116*
	(0.00645)	(0.00673)	(0.00662)
Observations	332	332	332
R-squared	0.062	0.093	0.174

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-0.478	-1.135	-1.761*
	(0.959)	(1.002)	(0.901)
L2. Yield Curve	-0.288	-0.909	-1.850**
	(0.950)	(0.980)	(0.903)
L3. Yield Curve	0.705	0.716	-0.738
	(0.954)	(0.983)	(0.908)
L4. Yield Curve	1.143	1.263	-0.0035
	(0.945)	(0.969)	(0.895)
L5. Yield Curve	-1.399	-1.368	-2.317**
	(0.954)	(0.993)	(0.902)
L6. Yield Curve	0.232	-0.0493	-0.783
	(0.943)	(0.962)	(0.895)
Yield Curve	0.534	0.410	-0.0790
	(0.913)	(0.929)	(0.864)
Consumer Price		-0.411	
		(0.381)	
L1. Consumer Price		0.977**	
		(0.390)	
L2. Consumer Price		-0.0339	
		(0.394)	
L3. Consumer Price		0.0157	
		(0.392)	
L4. Consumer Price		-0.0687	
		(0.389)	
L5. Consumer Price		-0.161	
		(0.387)	
L6. Consumer Price		-0.987***	
		(0.380)	
Money Supply		0.0239	
		(0.0397)	
L1. Money Supply		-0.0299	
		(0.0399)	
L2. Money Supply		-0.0534	
		(0.0405)	
L3. Money Supply		0.0327	
		(0.0407)	
L4. Money Supply		0.0014	
		(0.0405)	
L5. Money Supply		0.0111	
		(0.0398)	
L6. Money Supply		0.0322	
		(0.0402)	
Composite Leading			1.011
			(2.481)
L1. Composite Leading			4.419
			(4.294)
L2. Composite Leading			3.618
			(4.318)
L3. Composite Leading			-3.182
			(4.296)
L4. Composite Leading			-0.505
			(4.300)
L5. Composite Leading			1.492
			(4.145)
L6. Composite Leading			-0.147
			(2.319)
L1. Industrial Production	1.029***	1.024***	0.856***
	(0.0562)	(0.0570)	(0.0577)
L2. Industrial Production	0.0299	0.0312	0.0643
	(0.0804)	(0.0821)	(0.0760)
L3. Industrial Production	-0.160**	-0.146*	-0.0778
	(0.0801)	(0.0826)	(0.0767)
L4. Industrial Production	0.145*	0.130	0.176**
	(0.0802)	(0.0834)	(0.0770)
L5. Industrial Production	-0.111	-0.0880	-0.0962
	(0.0806)	(0.0839)	(0.0774)
L6. Industrial Production	0.0061	-0.0121	0.0701
	(0.0562)	(0.0574)	(0.0605)
Constant	6.232***	6.206***	0.385
	(1.988)	(1.991)	(2.075)
Observations	332	332	332
R-squared	0.908	0.913	0.924

VARIABLES	Retail Sales (1)	Retail Sales (2)	Retail Sales (3)
L1. Yield Curve	-1.084	-0.543	-1.683*
	(0.912)	(0.931)	(0.894)
L2. Yield Curve	-1.797**	-1.935**	-2.545***
	(0.904)	(0.908)	(0.893)
L3. Yield Curve	0.404	0.184	-0.351
	(0.915)	(0.920)	(0.912)
L4. Yield Curve	1.661*	1.977**	1.046
	(0.902)	(0.901)	(0.899)
L5. Yield Curve	-1.272	-0.542	-1.587*
	(0.914)	(0.927)	(0.903)
L6. Yield Curve	-0.824	-0.619	-1.319
	(0.900)	(0.894)	(0.891)
Yield Curve	1.003	0.785	0.702
	(0.869)	(0.859)	(0.860)
Consumer Price		-1.872***	
		(0.365)	
L1. Consumer Price		-0.0888	
		(0.392)	
L2. Consumer Price		-0.539	
		(0.391)	
L3. Consumer Price		0.143	
		(0.390)	
L4. Consumer Price		-0.335	
		(0.387)	
L5. Consumer Price		0.702*	
		(0.384)	
L6. Consumer Price		-0.0293	
		(0.354)	
Money Supply		-0.0311	
		(0.0370)	
L1. Money Supply		-0.0048	
		(0.0372)	
L2. Money Supply		-0.0549	
		(0.0377)	
L3. Money Supply		-0.0184	
		(0.0378)	
L4. Money Supply		0.0080	
		(0.0377)	
L5. Money Supply		-0.0571	
		(0.0373)	
L6. Money Supply		-0.0058	
		(0.0377)	
Composite Leading			1.248
			(2.569)
L1. Composite Leading			3.080
			(4.490)
L2. Composite Leading			2.290
			(4.267)
L3. Composite Leading			-9.477**
			(4.357)
L4. Composite Leading			9.114**
			(4.292)
L5. Composite Leading			-5.585
			(4.215)
L6. Composite Leading			2.388
			(2.325)
L1. Retail Sales Index	0.439***	0.474***	0.403***
	(0.0558)	(0.0587)	(0.0566)
L2. Retail Sales Index	0.122**	0.115*	0.101*
	(0.0607)	(0.0641)	(0.0613)
L3. Retail Sales Index	0.0909	0.132**	0.140**
	(0.0608)	(0.0644)	(0.0609)
L4. Retail Sales Index	0.0689	0.0416	0.0947
	(0.0605)	(0.0645)	(0.0611)
L5. Retail Sales Index	0.0917	0.117*	0.103
	(0.0603)	(0.0642)	(0.0622)
L6. Retail Sales Index	0.0709	0.0359	0.0653
	(0.0549)	(0.0585)	(0.0607)
Constant	11.57***	8.492**	9.076**
	(3.775)	(4.208)	(3.785)
Observations	332	332	332
R-squared	0.658	0.695	0.687

United Kingdom

VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	-0.0065	0.0096	-0.0024
	(0.0801)	(0.0819)	(0.0811)
L2. Yield Curve	0.0766	0.0846	0.0699
	(0.0854)	(0.0865)	(0.0862)
L3. Yield Curve	0.136	0.149*	0.130
	(0.0859)	(0.0871)	(0.0870)
L4. Yield Curve	-0.0243	-0.0270	-0.0015
	(0.0858)	(0.0872)	(0.0869)
L5. Yield Curve	-0.0696	-0.0684	-0.0931
	(0.0853)	(0.0867)	(0.0863)
L6. Yield Curve	0.0772	0.0621	0.0973
	(0.0847)	(0.0861)	(0.0855)
Yield Curve	-0.0591	-0.0704	-0.0648
	(0.0793)	(0.0813)	(0.0804)
L1. Consumer Price	0.0666	0.0744	0.0723
	(0.0492)	(0.0499)	(0.0497)
L2. Consumer Price	0.0556	0.0581	0.0487
	(0.0496)	(0.0501)	(0.0500)
L3. Consumer Price	-0.0621	-0.0622	-0.0590
	(0.0497)	(0.0506)	(0.0502)
L4. Consumer Price	0.0649	0.0713	0.0612
	(0.0498)	(0.0509)	(0.0504)
L5. Consumer Price	0.0348	0.0378	0.0276
	(0.0504)	(0.0519)	(0.0510)
L6. Consumer Price	0.494***	0.498***	0.503***
	(0.0501)	(0.0515)	(0.0507)
Money Supply		0.0007	
		(0.00676)	
L1. Money Supply		0.0002	
		(0.00678)	
L2. Money Supply		0.0051	
		(0.00670)	
L3. Money Supply		0.0051	
		(0.00675)	
L4. Money Supply		0.0037	
		(0.00665)	
L5. Money Supply		0.0075	
		(0.00663)	
L6. Money Supply		-0.0060	
		(0.00664)	
Composite Leading			0.0017
			(0.0263)
L1. Composite Leading			-0.0098
			(0.0305)
L2. Composite Leading			0.0290
			(0.0325)
L3. Composite Leading			-0.0672**
			(0.0323)
L4. Composite Leading			0.0695**
			(0.0326)
L5. Composite Leading			-0.0447
			(0.0304)
L6. Composite Leading			0.0040
			(0.0264)
Constant	0.0714***	0.0595**	0.0738**
	(0.0258)	(0.0284)	(0.0289)
Observations	332	332	332
R-squared	0.275	0.284	0.290

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.339**	0.408**
	(0.170)	(0.173)
L2. Yield Curve	-0.127	-0.165
	(0.182)	(0.184)
L3. Yield Curve	0.274	0.321*
	(0.183)	(0.186)
L4. Yield Curve	-0.0559	-0.0969
	(0.185)	(0.186)
L5. Yield Curve	0.0519	-0.0184
	(0.184)	(0.185)
L6. Yield Curve	-0.0530	-0.102
	(0.182)	(0.183)
Yield Curve	0.0872	0.0297
	(0.172)	(0.172)
Consumer Price		-0.0309
		(0.121)
L1. Consumer Price		-0.0981
		(0.106)
L2. Consumer Price		-0.137
		(0.106)
L3. Consumer Price		0.0858
		(0.107)
L4. Consumer Price		-0.126
		(0.108)
L5. Consumer Price		-0.0279
		(0.110)
L6. Consumer Price		0.0780
		(0.125)
Money Supply		0.0213
		(0.0145)
L1. Money Supply		0.0446***
		(0.0146)
L2. Money Supply		0.0316**
		(0.0145)
L3. Money Supply		0.0122
		(0.0147)
L4. Money Supply		0.0007
		(0.0145)
L5. Money Supply		-0.0060
		(0.0145)
L6. Money Supply		-0.0292**
		(0.0143)
L1. Composite Leading	0.596***	0.545***
	(0.0559)	(0.0570)
L2. Composite Leading	-0.438***	-0.451***
	(0.0649)	(0.0651)
L3. Composite Leading	-0.0384	-0.0808
	(0.0690)	(0.0704)
L4. Composite Leading	0.130*	0.132*
	(0.0691)	(0.0703)
L5. Composite Leading	-0.0877	-0.0931
	(0.0649)	(0.0658)
L6. Composite Leading	0.0780	0.0544
	(0.0560)	(0.0578)
Constant	0.106***	0.138**
	(0.0373)	(0.0627)
Observations	332	332
R-squared	0.352	0.406

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-0.367	-0.497	-0.473
	(0.678)	(0.686)	(0.674)
L2. Yield Curve	0.745	0.564	0.731
	(0.717)	(0.727)	(0.712)
L3. Yield Curve	-0.0986	-0.345	-0.416
	(0.723)	(0.734)	(0.720)
L4. Yield Curve	1.136	1.142	1.146
	(0.725)	(0.729)	(0.722)
L5. Yield Curve	-0.635	-0.663	-0.642
	(0.723)	(0.727)	(0.718)
L6. Yield Curve	0.861	0.963	0.736
	(0.720)	(0.721)	(0.715)
Yield Curve	0.898	0.999	0.873
	(0.679)	(0.680)	(0.673)
Consumer Price		0.0461	
		(0.476)	
L1. Consumer Price		0.540	
		(0.419)	
L2. Consumer Price		-0.204	
		(0.422)	
L3. Consumer Price		-0.762*	
		(0.424)	
L4. Consumer Price		-0.369	
		(0.428)	
L5. Consumer Price		-0.939**	
		(0.433)	
L6. Consumer Price		-0.0283	
		(0.493)	
L1. Money Supply	0.00275	-0.0143	-0.0276
	(0.0561)	(0.0569)	(0.0576)
L2. Money Supply	0.0753	0.0676	0.0657
	(0.0557)	(0.0561)	(0.0572)
L3. Money Supply	0.104*	0.0967*	0.0700
	(0.0560)	(0.0564)	(0.0573)
L4. Money Supply	0.0447	0.0470	0.0101
	(0.0557)	(0.0558)	(0.0568)
L5. Money Supply	-0.0521	-0.0588	-0.0635
	(0.0556)	(0.0556)	(0.0565)
L6. Money Supply	0.0620	0.0412	0.0601
	(0.0556)	(0.0558)	(0.0562)
Composite Leading			0.335
			(0.224)
L1. Composite Leading			-0.00397
			(0.255)
L2. Composite Leading			0.574**
			(0.273)
L3. Composite Leading			-0.200
			(0.274)
L4. Composite Leading			-0.0409
			(0.274)
L5. Composite Leading			0.603**
			(0.257)
L6. Composite Leading			-0.0122
			(0.227)
Constant	0.371**	0.732***	0.258*
	(0.146)	(0.237)	(0.150)
Observations	332	332	332
R-squared	0.055	0.090	0.106

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.255***	0.229***	0.195***
	(0.0557)	(0.0569)	(0.0562)
L2. Unemployment Rate	0.136**	0.125**	0.124**
	(0.0564)	(0.0572)	(0.0554)
L3. Unemployment Rate	0.0717	0.0763	0.0725
	(0.0567)	(0.0570)	(0.0557)
L4. Unemployment Rate	0.0610	0.0657	0.0771
	(0.0569)	(0.0570)	(0.0557)
L5. Unemployment Rate	0.130**	0.124**	0.141**
	(0.0568)	(0.0572)	(0.0557)
L6. Unemployment Rate	-0.0376	-0.0323	-0.0379
	(0.0567)	(0.0575)	(0.0556)
L1. Yield Curve	0.0231	0.0241	0.0203
	(0.0257)	(0.0265)	(0.0250)
L2. Yield Curve	0.0208	0.0129	0.0160
	(0.0269)	(0.0276)	(0.0262)
L3. Yield Curve	0.0152	0.0168	0.0184
	(0.0270)	(0.0277)	(0.0264)
L4. Yield Curve	0.0406	0.0379	0.0472*
	(0.0271)	(0.0276)	(0.0265)
L5. Yield Curve	-0.0549**	-0.0609**	-0.0462*
	(0.0270)	(0.0275)	(0.0264)
L6. Yield Curve	0.0126	0.0178	0.0216
	(0.0270)	(0.0275)	(0.0264)
Yield Curve	-0.0181	-0.0144	-0.00817
	(0.0255)	(0.0259)	(0.0249)
Consumer Price		-0.0005	
		(0.0180)	
L1. Consumer Price		0.0044	
		(0.0158)	
L2. Consumer Price		-0.0108	
		(0.0158)	
L3. Consumer Price		0.0067	
		(0.0160)	
L4. Consumer Price		-0.0006	
		(0.0161)	
L5. Consumer Price		0.0023	
		(0.0164)	
L6. Consumer Price		0.0303	
		(0.0186)	
Money Supply		-0.0019	
		(0.00214)	
L1. Money Supply		0.0018	
		(0.00215)	
L2. Money Supply		0.0004	
		(0.00213)	
L3. Money Supply		0.0007	
		(0.00214)	
L4. Money Supply		-0.00523**	
		(0.00210)	
L5. Money Supply		-0.0035	
		(0.00212)	
L6. Money Supply		-0.0029	
		(0.00213)	
Composite Leading			-0.0063
			(0.00804)
L1. Composite Leading			0.0112
			(0.00930)
L2. Composite Leading			-0.0110
			(0.00991)
L3. Composite Leading			-0.0212**
			(0.00988)
L4. Composite Leading			-0.0062
			(0.01000)
L5. Composite Leading			-0.0219**
			(0.00935)
L6. Composite Leading			-0.0090
			(0.00835)
Constant	-0.0044	-0.0059	0.0038
	(0.00515)	(0.00911)	(0.00548)
Observations	332	332	332
R-squared	0.233	0.273	0.298

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-0.0354	0.108	-0.700**
	(0.453)	(0.465)	(0.320)
L2. Yield Curve	0.144	0.0885	0.144
	(0.482)	(0.492)	(0.340)
L3. Yield Curve	-0.282	-0.252	-0.362
	(0.485)	(0.497)	(0.343)
L4. Yield Curve	0.0703	-0.0487	0.0244
	(0.487)	(0.495)	(0.344)
L5. Yield Curve	-0.138	-0.315	0.0215
	(0.485)	(0.492)	(0.343)
L6. Yield Curve	-0.275	-0.405	-0.128
	(0.482)	(0.488)	(0.340)
Yield Curve	-0.0392	-0.200	-0.0524
	(0.453)	(0.462)	(0.320)
Consumer Price		-0.0857	
		(0.322)	
L1. Consumer Price		-0.0796	
		(0.284)	
L2. Consumer Price		-0.197	
		(0.285)	
L3. Consumer Price		-0.0420	
		(0.288)	
L4. Consumer Price		-0.0814	
		(0.289)	
L5. Consumer Price		-0.120	
		(0.295)	
L6. Consumer Price		0.0411	
		(0.333)	
Money Supply		0.0172	
		(0.0387)	
L1. Money Supply		0.0902**	
		(0.0387)	
L2. Money Supply		0.0565	
		(0.0387)	
L3. Money Supply		0.0531	
		(0.0388)	
L4. Money Supply		0.0078	
		(0.0384)	
L5. Money Supply		-0.0093	
		(0.0382)	
L6. Money Supply		-0.0998***	
		(0.0382)	
Composite Leading			1.819***
			(0.109)
L1. Composite Leading			0.00732
			(0.162)
L2. Composite Leading			-0.490***
			(0.164)
L3. Composite Leading			-0.0125
			(0.161)
L4. Composite Leading			-0.291*
			(0.159)
L5. Composite Leading			-0.0028
			(0.147)
L6. Composite Leading			-0.225**
			(0.108)
L1. Industrial Production	0.972***	0.944***	0.784***
	(0.0561)	(0.0568)	(0.0566)
L2. Industrial Production	-0.148*	-0.146*	0.390***
	(0.0783)	(0.0782)	(0.0729)
L3. Industrial Production	-0.0032	0.0122	-0.0046
	(0.0788)	(0.0792)	(0.0763)
L4. Industrial Production	0.0758	0.0886	-0.155**
	(0.0791)	(0.0796)	(0.0759)
L5. Industrial Production	0.0388	0.0477	-0.0522
	(0.0787)	(0.0794)	(0.0728)
L6. Industrial Production	0.0339	0.0228	0.0261
	(0.0559)	(0.0569)	(0.0582)
Constant	3.103**	3.211**	1.062
	(1.367)	(1.383)	(0.966)
Observations	332	332	332
R-squared	0.942	0.945	0.972

VARIABLES	Retail Sales (1)	Retail Sales (2)	Retail Sales (3)
L1. Yield Curve	0.781*	0.727	0.0584
	(0.458)	(0.471)	(0.298)
L2. Yield Curve	-0.0319	-0.122	0.0632
	(0.491)	(0.501)	(0.317)
L3. Yield Curve	-0.0162	-0.0339	-0.333
	(0.494)	(0.505)	(0.320)
L4. Yield Curve	-0.0845	-0.0891	-0.347
	(0.496)	(0.505)	(0.321)
L5. Yield Curve	0.344	0.222	0.488
	(0.494)	(0.502)	(0.320)
L6. Yield Curve	-0.374	-0.489	-0.271
	(0.491)	(0.498)	(0.320)
Yield Curve	0.0162	0.0308	-0.0382
	(0.459)	(0.468)	(0.300)
Consumer Price		-0.0185	
		(0.334)	
L1. Consumer Price		-0.423	
		(0.292)	
L2. Consumer Price		-0.326	
		(0.293)	
L3. Consumer Price		-0.0703	
		(0.296)	
L4. Consumer Price		-0.357	
		(0.296)	
L5. Consumer Price		-0.421	
		(0.301)	
L6. Consumer Price		-0.225	
		(0.341)	
Money Supply		-0.0196	
		(0.0391)	
L1. Money Supply		0.0376	
		(0.0392)	
L2. Money Supply		0.0364	
		(0.0388)	
L3. Money Supply		0.0212	
		(0.0390)	
L4. Money Supply		0.0308	
		(0.0384)	
L5. Money Supply		0.0042	
		(0.0382)	
L6. Money Supply		-0.0833**	
		(0.0383)	
Composite Leading			1.704***
			(0.0991)
L1. Composite Leading			0.0234
			(0.152)
L2. Composite Leading			-0.586***
			(0.158)
L3. Composite Leading			0.696***
			(0.160)
L4. Composite Leading			-0.373**
			(0.163)
L5. Composite Leading			0.180
			(0.160)
L6. Composite Leading			-0.575***
			(0.112)
L1. Retail Sales Index	0.938***	0.918***	0.772***
	(0.0548)	(0.0557)	(0.0545)
L2. Retail Sales Index	-0.152**	-0.142*	0.203***
	(0.0752)	(0.0758)	(0.0698)
L3. Retail Sales Index	-0.0566	-0.0729	-0.178**
	(0.0744)	(0.0755)	(0.0703)
L4. Retail Sales Index	0.237***	0.245***	0.112
	(0.0743)	(0.0763)	(0.0679)
L5. Retail Sales Index	-0.193**	-0.180**	-0.125*
	(0.0751)	(0.0771)	(0.0674)
L6. Retail Sales Index	0.219***	0.229***	0.212***
	(0.0546)	(0.0563)	(0.0515)
Constant	1.011*	0.876	0.432
	(0.546)	(0.555)	(0.357)
Observations	332	332	332
R-squared	0.989	0.990	0.995

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VARIABLES	Consumer Price (1)	Consumer Price (2)	Consumer Price (3)
L1. Yield Curve	0.0529	0.0513	0.0640
	(0.0663)	(0.0669)	(0.0665)
L2. Yield Curve	0.136**	0.133*	0.115*
	(0.0672)	(0.0678)	(0.0684)
L3. Yield Curve	0.119*	0.100	0.109
	(0.0670)	(0.0678)	(0.0682)
L4. Yield Curve	-0.0481	-0.0211	-0.0538
	(0.0675)	(0.0681)	(0.0684)
L5. Yield Curve	0.0153	-0.0078	0.0139
	(0.0669)	(0.0677)	(0.0678)
L6. Yield Curve	-0.0061	0.0286	0.0017
	(0.0668)	(0.0674)	(0.0677)
Yield Curve	-0.170***	-0.173***	-0.177***
	(0.0657)	(0.0653)	(0.0667)
L1. Consumer Price	0.591***	0.596***	0.581***
	(0.0555)	(0.0562)	(0.0560)
L2. Consumer Price	-0.208***	-0.223***	-0.201***
	(0.0647)	(0.0647)	(0.0651)
L3. Consumer Price	0.0161	0.0361	0.0194
	(0.0660)	(0.0657)	(0.0664)
L4. Consumer Price	0.0709	0.0605	0.0632
	(0.0660)	(0.0656)	(0.0665)
L5. Consumer Price	-0.0360	-0.0445	-0.0384
	(0.0650)	(0.0646)	(0.0657)
L6. Consumer Price	-0.0338	-0.0300	-0.0278
	(0.0560)	(0.0559)	(0.0569)
Money Supply		-0.0825**	
		(0.0364)	
L1. Money Supply		0.0325	
		(0.0438)	
L2. Money Supply		0.0180	
		(0.0438)	
L3. Money Supply		0.0576	
		(0.0435)	
L4. Money Supply		-0.131***	
		(0.0437)	
L5. Money Supply		0.117***	
		(0.0445)	
L6. Money Supply		-0.0498	
		(0.0380)	
Composite Leading			0.0947**
			(0.0442)
L1. Composite Leading			0.0023
			(0.0469)
L2. Composite Leading			0.0094
			(0.0468)
L3. Composite Leading			0.0167
			(0.0468)
L4. Composite Leading			0.0027
			(0.0468)
L5. Composite Leading			0.0274
			(0.0467)
L6. Composite Leading			0.0348
			(0.0438)
Constant	0.127***	0.148***	0.0954***
	(0.0251)	(0.0374)	(0.0285)
Observations	332	332	332
R-squared	0.328	0.361	0.344

VARIABLES	Composite Leading (1)	Composite Leading (2)
L1. Yield Curve	0.0052	-0.110
	(0.0824)	(0.0712)
L2. Yield Curve	0.284***	0.168**
	(0.0841)	(0.0722)
L3. Yield Curve	0.0384	0.0490
	(0.0855)	(0.0724)
L4. Yield Curve	0.0199	-0.0533
	(0.0858)	(0.0725)
L5. Yield Curve	-0.0345	-0.0305
	(0.0853)	(0.0722)
L6. Yield Curve	-0.0641	-0.0911
	(0.0853)	(0.0718)
Yield Curve	-0.0308	-0.0252
	(0.0838)	(0.0713)
Consumer Price		0.0488
		(0.0601)
L1. Consumer Price		-0.0868
		(0.0692)
L2. Consumer Price		-0.0720
		(0.0700)
L3. Consumer Price		0.0100
		(0.0694)
L4. Consumer Price		0.0594
		(0.0694)
L5. Consumer Price		-0.0600
		(0.0687)
L6. Consumer Price		-0.0998*
		(0.0596)
Money Supply		-0.450***
		(0.0422)
L1. Money Supply		0.140***
		(0.0528)
L2. Money Supply		0.300***
		(0.0533)
L3. Money Supply		0.124**
		(0.0557)
L4. Money Supply		-0.0104
		(0.0567)
L5. Money Supply		-0.0178
		(0.0572)
L6. Money Supply		0.0099
		(0.0477)
L1. Composite Leading	0.337***	0.00399
	(0.0561)	(0.0613)
L2. Composite Leading	-0.0673	0.124**
	(0.0591)	(0.0612)
L3. Composite Leading	-0.0160	0.158**
	(0.0592)	(0.0613)
L4. Composite Leading	0.0316	0.128**
	(0.0593)	(0.0618)
L5. Composite Leading	0.0519	0.0389
	(0.0592)	(0.0584)
L6. Composite Leading	0.0212	0.0565
	(0.0552)	(0.0548)
Constant	0.112***	0.0741*
	(0.0278)	(0.0442)
Observations	332	332
R-squared	0.155	0.471

VARIABLES	Money Supply (1)	Money Supply (2)	Money Supply (3)
L1. Yield Curve	-0.115	-0.106	-0.0976
	(0.101)	(0.103)	(0.0819)
L2. Yield Curve	0.0800	0.109	0.147*
	(0.104)	(0.105)	(0.0835)
L3. Yield Curve	-0.107	-0.0719	0.0328
	(0.104)	(0.105)	(0.0837)
L4. Yield Curve	-0.0529	-0.0367	-0.0754
	(0.104)	(0.105)	(0.0839)
L5. Yield Curve	0.111	0.107	0.0285
	(0.104)	(0.104)	(0.0838)
L6. Yield Curve	-0.0046	-0.0004	-0.0654
	(0.104)	(0.104)	(0.0836)
Yield Curve	0.0653	0.0551	-0.0076
	(0.0993)	(0.102)	(0.0815)
Consumer Price		-0.197**	
		(0.0868)	
L1. Consumer Price		-0.0365	
		(0.101)	
L2. Consumer Price		-0.0671	
		(0.102)	
L3. Consumer Price		0.141	
		(0.101)	
L4. Consumer Price		-0.123	
		(0.101)	
L5. Consumer Price		-0.0185	
		(0.0998)	
L6. Consumer Price		0.0067	
		(0.0864)	
L1. Money Supply	0.647***	0.628***	0.425***
	(0.0571)	(0.0576)	(0.0576)
L2. Money Supply	-0.0978	-0.0867	0.166**
	(0.0674)	(0.0674)	(0.0645)
L3. Money Supply	0.0646	0.0759	0.212***
	(0.0671)	(0.0672)	(0.0639)
L4. Money Supply	-0.0989	-0.119*	-0.0830
	(0.0674)	(0.0681)	(0.0653)
L5. Money Supply	0.144**	0.146**	0.130**
	(0.0676)	(0.0689)	(0.0650)
L6. Money Supply	0.0270	0.0276	0.0497
	(0.0581)	(0.0587)	(0.0550)
Composite Leading			-0.602***
			(0.0567)
L1. Composite Leading			-0.379***
			(0.0679)
L2. Composite Leading			0.176**
			(0.0712)
L3. Composite Leading			0.0795
			(0.0721)
L4. Composite Leading			0.153**
			(0.0719)
L5. Composite Leading			-0.00688
			(0.0681)
L6. Composite Leading			0.183***
			(0.0628)
Constant	0.164***	0.233***	0.120***
	(0.0459)	(0.0577)	(0.0439)
Observations	332	332	332
R-squared	0.389	0.414	0.623

VARIABLES	Unemployment (1)	Unemployment (2)	Unemployment (3)
L1. Unemployment Rate	0.0052	-0.370***	0.425***
	(0.0562)	(0.0579)	(0.0738)
L2. Unemployment Rate	-0.124**	-0.123**	0.551***
	(0.0562)	(0.0614)	(0.0780)
L3. Unemployment Rate	-0.0232	0.118*	0.0291
	(0.0560)	(0.0607)	(0.0814)
L4. Unemployment Rate	-0.129**	0.0440	-0.0054
	(0.0560)	(0.0585)	(0.0739)
L5. Unemployment Rate	-0.0198	0.0408	0.0007
	(0.0561)	(0.0543)	(0.0705)
L6. Unemployment Rate	-0.0959*	-0.0022	-0.104
	(0.0559)	(0.0521)	(0.0672)
L1. Yield Curve	0.313**	0.305***	0.188***
	(0.130)	(0.105)	(0.0531)
L2. Yield Curve	-0.233*	-0.0446	0.0114
	(0.133)	(0.108)	(0.0547)
L3. Yield Curve	-0.00623	-0.0209	0.0213
	(0.134)	(0.107)	(0.0546)
L4. Yield Curve	0.0228	0.103	-0.0433
	(0.134)	(0.107)	(0.0545)
L5. Yield Curve	0.0633	0.0526	-0.0574
	(0.134)	(0.107)	(0.0544)
L6. Yield Curve	0.132	0.145	-0.0398
	(0.134)	(0.106)	(0.0544)
Yield Curve	0.0710	0.0870	-0.0456
	(0.130)	(0.104)	(0.0536)
Consumer Price		-0.0808	
		(0.0892)	
L1. Consumer Price		0.0386	
		(0.103)	
L2. Consumer Price		0.0737	
		(0.103)	
L3. Consumer Price		-0.0032	
		(0.103)	
L4. Consumer Price		-0.156	
		(0.103)	
L5. Consumer Price		-0.0585	
		(0.102)	
L6. Consumer Price		0.0116	
		(0.0884)	
Money Supply		0.712***	
		(0.0598)	
L1. Money Supply		0.188**	
		(0.0795)	
L2. Money Supply		-0.338***	
		(0.0794)	
L3. Money Supply		-0.225***	
		(0.0810)	
L4. Money Supply		-0.133	
		(0.0821)	
L5. Money Supply		-0.0678	
		(0.0843)	
L6. Money Supply		-0.122*	
		(0.0700)	
Composite Leading			-1.618***
			(0.0483)
L1. Composite Leading			0.393***
			(0.133)
L2. Composite Leading			0.929***
			(0.136)
L3. Composite Leading			-0.204
			(0.139)
L4. Composite Leading			0.160
			(0.128)
L5. Composite Leading			0.123
			(0.125)
L6. Composite Leading			-0.156
			(0.106)
Constant	-0.0062	0.0272	0.0648***
	(0.0337)	(0.0605)	(0.0204)
Observations	332	332	332
R-squared	0.063	0.478	0.854

VARIABLES	Industrial Production (1)	Industrial Production (2)	Industrial Production (3)
L1. Yield Curve	-0.535**	-0.521***	-0.341**
	(0.217)	(0.184)	(0.132)
L2. Yield Curve	0.304	0.0456	-0.215
	(0.223)	(0.189)	(0.137)
L3. Yield Curve	-0.0623	-0.101	-0.175
	(0.222)	(0.189)	(0.138)
L4. Yield Curve	0.216	0.0295	0.234*
	(0.222)	(0.189)	(0.138)
L5. Yield Curve	-0.336	-0.200	-0.0687
	(0.219)	(0.187)	(0.135)
L6. Yield Curve	-0.0173	-0.108	0.147
	(0.219)	(0.187)	(0.136)
Yield Curve	-0.202	-0.174	-0.0233
	(0.214)	(0.182)	(0.132)
Consumer Price		0.0722	
		(0.158)	
L1. Consumer Price		0.144	
		(0.181)	
L2. Consumer Price		-0.106	
		(0.183)	
L3. Consumer Price		0.128	
		(0.180)	
L4. Consumer Price		0.362**	
		(0.179)	
L5. Consumer Price		-0.0994	
		(0.178)	
L6. Consumer Price		-0.201	
		(0.155)	
Money Supply		-1.075***	
		(0.105)	
L1. Money Supply		0.0307	
		(0.133)	
L2. Money Supply		0.633***	
		(0.131)	
L3. Money Supply		0.387***	
		(0.136)	
L4. Money Supply		0.0451	
		(0.139)	
L5. Money Supply		-0.0605	
		(0.136)	
L6. Money Supply		0.0472	
		(0.117)	
Composite Leading			1.978***
			(0.0903)
L1. Composite Leading			0.524***
			(0.148)
L2. Composite Leading			-0.326**
			(0.152)
L3. Composite Leading			-0.379**
			(0.152)
L4. Composite Leading			-0.258*
			(0.154)
L5. Composite Leading			-0.0356
			(0.153)
L6. Composite Leading			0.0702
			(0.0877)
L1. Industrial Production	1.204***	0.896***	0.920***
	(0.0561)	(0.0588)	(0.0570)
L2. Industrial Production	-0.402***	0.0196	0.135*
	(0.0880)	(0.0813)	(0.0779)
L3. Industrial Production	0.202**	0.157*	0.116
	(0.0915)	(0.0814)	(0.0797)
L4. Industrial Production	-0.0190	0.0270	-0.0291
	(0.0918)	(0.0827)	(0.0794)
L5. Industrial Production	0.0308	-0.0288	-0.0737
	(0.0890)	(0.0806)	(0.0786)
L6. Industrial Production	-0.0397	-0.0958*	-0.0729
	(0.0563)	(0.0549)	(0.0585)
Constant	2.353***	2.298***	0.181
	(0.752)	(0.636)	(0.459)
Observations	332	332	332
R-squared	0.981	0.988	0.993

VARIABLES	Retail Sales (1)	Retail Sales (2)	Retail Sales (3)
L1. Yield Curve	0.356	-0.250	0.381*
	(0.337)	(0.300)	(0.226)
L2. Yield Curve	0.803**	0.446	-0.0158
	(0.345)	(0.306)	(0.234)
L3. Yield Curve	-0.0383	-0.288	-0.215
	(0.347)	(0.307)	(0.234)
L4. Yield Curve	0.0120	-0.330	-0.0011
	(0.349)	(0.307)	(0.234)
L5. Yield Curve	-0.304	-0.228	-0.111
	(0.347)	(0.306)	(0.233)
L6. Yield Curve	-0.0737	-0.299	0.0678
	(0.347)	(0.306)	(0.233)
Yield Curve	-0.103	0.0503	-0.0511
	(0.338)	(0.300)	(0.228)
Consumer Price		0.816***	
		(0.259)	
L1. Consumer Price		-0.430	
		(0.300)	
L2. Consumer Price		0.182	
		(0.303)	
L3. Consumer Price		0.123	
		(0.299)	
L4. Consumer Price		0.238	
		(0.299)	
L5. Consumer Price		-0.141	
		(0.294)	
L6. Consumer Price		-0.296	
		(0.256)	
Money Supply		-1.301***	
		(0.170)	
L1. Money Supply		1.182***	
		(0.210)	
L2. Money Supply		0.784***	
		(0.216)	
L3. Money Supply		-0.0454	
		(0.219)	
L4. Money Supply		-0.0101	
		(0.225)	
L5. Money Supply		-0.0957	
		(0.225)	
L6. Money Supply		0.319	
		(0.199)	
Composite Leading			3.041***
			(0.154)
L1. Composite Leading			-0.461**
			(0.231)
L2. Composite Leading			-0.517**
			(0.232)
L3. Composite Leading			0.109
			(0.234)
L4. Composite Leading			0.473**
			(0.233)
L5. Composite Leading			-0.156
			(0.224)
L6. Composite Leading			-0.0146
			(0.180)
L1. Retail Sales Index	0.826***	0.667***	0.658***
	(0.0560)	(0.0578)	(0.0567)
L2. Retail Sales Index	-0.0331	0.178**	0.205***
	(0.0727)	(0.0701)	(0.0678)
L3. Retail Sales Index	0.146**	0.107	0.0830
	(0.0727)	(0.0707)	(0.0684)
L4. Retail Sales Index	-0.0135	0.0280	-0.0920
	(0.0727)	(0.0715)	(0.0683)
L5. Retail Sales Index	0.0081	-0.120*	0.0279
	(0.0727)	(0.0712)	(0.0673)
L6. Retail Sales Index	0.0656	0.131**	0.120**
	(0.0561)	(0.0585)	(0.0566)
Constant	0.357	0.406	-0.364
	(0.730)	(0.637)	(0.492)
Observations	332	332	332
R-squared	0.983	0.988	0.992