Predicting Asset Returns in the BRICS:

The role of macroeconomic and fundamental predictors

Abstract

We are among the first to provide evidence for the BRICS countries on the predictability of stock returns using macroeconomic, macro-financial and US/global variables, and find that there is predictability for all the countries. We consider both in-sample and out-of-sample tests. The gains in predictability are primarily available one quarter ahead, but in some cases two and four quarters ahead.

Keywords: Return forecasting, BRICS countries, Macro variables, Macro-financial variables, US/Global variables, Emerging markets.

1. INTRODUCTION

A review of the large body of work examining stock return predictability indicates that most return forecasting evidence resides in major developed countries and is especially focused on the US. This literature generally suggests that it is difficult to consistently reject the null of no predictability both in-sample (INS) and out-of-sample (OOS). For example, in their US study, Goyal and Welch (2008, p. 1504) comment that: "*Despite extensive search, we were unsuccessful in identifying any models on annual or shorter frequency that systematically had both good INS and OOS performance, at least in the period from 1975 to 2005.*".

The international (non-US) literature considers several macro variables, as well as fundamental variables based on dividends and earnings (Bossaerts and Hillion, 1999; Rapach et al., 2005; Giot and Petitjean, 2011), as predictors of stock returns. This international literature has, in general, provided mixed evidence on the extent of out-of-sample (OOS) predictability. Perhaps, more importantly, it focuses primarily on developed markets especially the G-7. This raises an important issue. Major developed countries stock returns are highly correlated with each other; for example, over the sample period employed in these papers, the quarterly return correlations amongst the US-UK, US-Germany and UK-Germany country pairs are all above 0.85.

Thus far, there is relatively little international evidence from developing countries in terms of stock return predictability and, in particular, the role of macro-financial variables has not been considered in great detail for emerging markets.[1] Some notable exceptions include Fifield et al. (2002), Rapach et al. (2011), Jordan et al. (2012, 2014), Gebka and Wohar (2013) and Narayan et al. (2014). For instance, Fifield et al. (2002) focus on macroeconomic indicators and financial variables to investigate stock return predictability in emerging market economies, while Rapach et al. (2011) employ similar indicators to study China. Jordan et al. (2014) investigate the role played by information emanating from trading partner countries upon the Chinese stock market return. Jordan et al. (2012) apply the bagging method to forecast stock returns for a broad set of Asian countries including

[1] From a macroeconomic perspective, Peltonen et al. (2012) investigate the importance of wealth effects on consumption using a panel of 14 emerging market economies. The authors show that these are reasonably large in magnitude, but typically smaller in Latin America.

China and India, thereby, taking explicitly into account model uncertainty and parameter uncertainty. The authors show that bagging generally improves forecast accuracy and generates economic gains relative to the benchmark model. Gebka and Wohar (2013) argue that, despite the absence of causality between past trading volume and market returns in the Pacific Basin countries as indicated by the OLS framework, a quantile regression method is able to uncover important nonlinear causality. Mensi et al. (2014) also use a quantile regression approach and find that the BRICS stock markets are influenced by the dynamics of the global stock and commodity markets and the variation in the U.S. stock market uncertainty.[2] Narayan et al. (2014) use a panel of 18 emerging markets to test for the predictive power of a wide range of institutional and macroeconomic factors for excess stock returns. The authors rely on a principal component analysis and uncover some evidence of in-sample predictability.

The main contribution of this paper is to analyze in a rigorous and detailed manner the macro-financial variables that predict BRICS country stock returns. There is, to our knowledge, little empirical evidence on the effectiveness of macro-finance variables for a dataset of emerging stock market returns. For instance, while Jordan et al. (2014) provide out-of-sample evidence of predictability for a major emerging stock market (i.e. China), their work is based on relations between trade partners. As a result, the set of predictors included in their study only covers financial indicators, namely, the stock market returns of countries from which China net imports. Similarly, Narayan et al. (2014) evaluate the role of institutions (such as, corruption, domestic conflicts, ethnic tensions and law and order) and macroeconomic indicators (budget balance, current account, debt service, exchange rate stability, foreign debt, GDP growth, inflation, net international liquidity and per capita GDP) in explaining risk premium in emerging market economies. Instead, our work focuses

[2] Quantile regressions have been extensively used in the empirical finance literature. For instance, Taylor (1999), Engle and Manganelli (2004) and Rubia and Sanchis-Marco (2013) make use of this technique to address value-at-risk. Conley and Galenson (1998) and Gosling et al. (2000) use quantile regressions to explore the dynamics of the distribution of asset wealth. Bassett and Chen (2001) provide a description of mutual fund strategies, Machado and Sousa (2006) investigate the role played by macroeconomic fundamentals on the distribution of stock prices, and Adrian and Brunnermeier (2011) look at the issue of systemic risk through the lens of quantile regressions. Other works making use of the same econometric framework to investigate the dependence among global stock markets and the relationship between analysts' forecast dispersion and asset returns include Leon Li and Yen (2011) and Leon Li and Wu (2014). Leon Li and Miu (2010) develop a bankruptcy prediction model with dynamic accounting-ratio-based and market-based information.

on several macroeconomic and macro-financial variables that are directly linked with various asset pricing models developed by the empirical finance literature. In fact, we follow closely the research that has typically looked at the predictive ability of macro-financial empirical proxies that capture time-variation in expectations about future returns (Lettau and Ludvigson, 2001; Goyal and Welch, 2003, 2008; Della Corte et al., 2010; Sousa, 2010; Rocha Armada et al., 2015).[3] Thus, we consider not only macroeconomic predictors (such as, commodity price inflation, money growth, nominal central bank rate, output gap, overall inflation, real bilateral exchange rate vis-a-vis the US Dollar and the risk-free rate), but also at macro-financial predictors (namely, the equity price scaled by GDP, the consumption-wealth ratio and the wealth-to-income ratio).

Furthermore we provide analysis of whether domestic economic variables or US/Global economic variables or both can predict aggregate stock returns in emerging markets. A recent paper by Nitschka (2014) investigates the predictive ability of the output gap for stock market returns in emerging markets, and distinguishes between the impact of national and global macroeconomic conditions. This assessment is motivated by the international macroeconomics literature on the dynamics of international business cycles and the question of knowing whether emerging markets' business cycles are aligned with developed markets' business cycles or not. Consequently, we contribute to this literature by comparing the results based on purely domestic predictors with those relying on U.S. data of all of the variables and also a selected number of global factors (including the options exchange volatility index (VIX) and the growth in international bank claims).

Summing up, our paper tries to answer the following questions:

(i) Can macro-finance variables predict stock returns in a set of emerging markets? We test if the macro-finance variables have significant predictive ability. Bootstrapped test statistics are implemented to address the persistence and possible non-normal distribution of data.

(ii) Does predictability of macro-finance variables exist out-of-sample? Prior empirical investigation of the consumption-wealth-income variable (CAY), a key macro-

[3] For this reason, we focus on stock return predictability instead of considering the issue of asset return volatility. For a review of this topic, see, for instance, Arouri et al. (2012) who investigate the persistence of volatility in some asset classes (such as metal commodities).

finance variable, suggests that while it is effective in-sample, it is unable to improve forecast accuracy relative to the benchmark (Della Corte et al., 2010). Della Corte et al. (2010) examine four large developed markets (France, Japan, UK and US). We examine, in the context of five major emerging markets (i.e. the BRICS - Brazil, Russia, India, China and South Africa), if out-of-sample (OOS) evidence is consistent with in-sample (INS) evidence.

(iii) Do global macroeconomic conditions provide a better assessment of the risk premium dynamics in emerging market economies than domestic conditions? In this context, we repeat our in-sample and out-of-sample forecast analysis looking at the same set of macroeconomic and macro-financial indicators for the emerging markets under consideration (i.e. the domestic conditions) and the U.S. (which proxies for the international environment), as well as a group of global factors.

Our analysis focuses on the BRICS countries for various reasons. First, this economic block covers the largest emerging market economies, with very fast growth over the past decades. Second, the five emerging markets under consideration represent close to 40% of the world's population and near 20% of the world's GDP, and display an increasingly important role for equity markets in terms of financing investment opportunities and stock market capitalization. Third, their major institutional framework for monetary policy is the inflation targeting, which helps making economic decisions more predictable, with beneficial effects for domestic risk premium. Fourth, the general trend of improvement in the fiscal stance and increased discipline of public finances has contributed to the independence of the monetary authority by means of avoiding debt monetization and broadening the resident-base of domestic debt holders, as well as reducing sovereign risk spreads. Fifth, sounder macroeconomic policies and a low and stable inflation boosted the effectiveness of monetary policy and helped to anchor agents' expectations. This has, in turn, led to a strengthening of lending conditions, easier access to credit markets and a renewed confidence on domestic-currency assets, thus, reshuffling asset portfolio composition away from foreign assets.

In our study, we report both in-sample and out-of-sample predictive regression results (as do Goyal and Welch (2008) amongst many others). Traditionally, OOS tests reject the null of no predictability less frequently than INS tests. This leads to the view that

assessments of predictability, *"... must rely primarily on the out-of-sample forecasting performance..."* (Ashley et al., 1980 p 1149). The reasoning for this is that INS tests might give spurious inferences when OOS tests are not used for corroboration. In contrast, Inoue and Kilian (2005) question this interpretation; they provide evidence that INS tests have greater power than OOS tests in the setting they consider. Nevertheless, it seems plausible that instances of spurious inference are reduced when both INS and OOS tests confirm each other.

With respect to our INS results, we find that the output gap to GDP is the best predictor of stock returns for Brazil, Russia, China and South Africa. There is no evidence of predictability from CAY in any of the countries. There is almost no evidence in favor of the price-GDP ratio or the wealth-to-income ratio. Two major macro variables, inflation and money supply growth (M2), have very little predictive power. There thus appears to be less in-sample predictability in BRICS countries than is found for the US and G7 countries. With respect to out-of-sample predictability, we find, for all four countries, that the output gap to GDP variable, FX change and Central Bank (CB) rate show signs of OOS predictability for equity returns. We also show that US/global predictors generally perform very weakly and none of the variables is consistently significant across the BRICS countries.

The remainder of the paper is as follows. Section 2 briefly presents the data. Section 3 describes the different econometric methodologies. Section 4 discusses the empirical results. Section 5 concludes.

2. DATA DESCRIPTION

Our sample covers the five BRICS countries, i.e. Brazil (BR), Russia (RS), India (IN), China (CH) and South Africa (SA), over the period 1995Q1-2013Q2 employing quarterly data.[4] Notably, there is little prior predictability evidence of market returns, especially OOS, for our sample countries. We use the first 40 quarterly observations as the

[4] Please note that for some variables data was not available for the full sample. For example, for some countries, wealth data was not available after 2011Q4. We use all available data in the tests and start and end dates for each series are displayed in Table 1. We use 40 observations before beginning OOS forecasts regardless of the start date.

training period before beginning the OOS forecasting period from 2005Q2, which allows for a reasonably sized OOS test period.

Asset returns are computed using the Morgan Stanley Capital International (MSCI) Total Return Indices, which measure the market performance, including price performance and income from dividend payments. We use the indices that include gross dividends, i.e. approximating the maximum possible dividend reinvestment. The amount reinvested is the dividend distributed to individuals resident in the country of the company, but does not include tax credits.

We also obtain data for the following regressors:

- *Macroeconomic predictors*:
    - Inflation (Goyal and Welch, 2008);
    - Nominal central bank rate (Sousa and Sousa, 2013);
    - Output gap (in percentage of GDP) (Cooper and Priestley, 2009);
    - Growth rate of the monetary aggregate (M_2) (Sousa and Sousa, 2013);
    - Growth rate of the commodity price index (Sousa and Sousa, 2013);
    - Change in real bilateral exchange rate vis-a-vis the US Dollar (Sousa and Sousa, 2013); and
    - Risk-free rate / Money market rate, i.e. the interest rate on a low risk short-term security (Goyal and Welch, 2008).[5]
- *Macro-financial predictors*:
    - Consumption-wealth ratio (CAY) (Lettau and Ludvigson, 2001);
    - Wealth-to-income ratio (Sousa, forthcoming); and
    - Equity price scaled by GDP (Rangvid, 2006).
- *Global predictors*:
    - US variables for the same set of determinants considered above;
    - Output gap (in percentage of GDP) for the G7 countries (Cooper and Priestley, 2013; Nitschka, 2014);
    - Chicago Board Options Exchange Volatility Index (VIX index); and

[5] For a cointegration analysis of the term structure of interest rates, see, for instance, Siklos and Wohar (1996).

- Growth rate of international bank claims (i.e. growth rate of credit to non-banks and growth rate of credit to banks).

The macroeconomic predictors are obtained from Haver Analytics. As for the macro-financial predictors, the consumption-wealth ratio is computed using data for: (i) the household final consumption expenditure (in percentage of GDP) from the World Development Indicators (WDI) of the World Bank; (ii) the stock market capitalization (in percentage of GDP) from the Federal Reserve Bank of St Louis; (iii) the real GDP from Haver Analytics; and (iv) the equity price index obtained from Haver Analytics (in the case of Brazil, China, India) and the Global Financial Database (for Russia and South Africa).

Finally, the global predictors are gathered from various sources. In the case of the US variables, we obtain data for private consumption, GDP and inflation from the International Financial Statistics (IFS) of the International Monetary Fund (IMF). Asset wealth, nominal central bank rate, risk-free rate/money market rate and growth rate of the monetary aggregate (M_2) are gathered from the Board of Governors of the Federal Reserve Bank System. The commodity price index corresponds to the producer price index - all commodities, which comes from the U.S. Bureau of Labor Statistics (BLS). The nominal effective exchange rate (narrow index) is provided by the Bank for International Settlements (BIS). In what concerns the output gap (in percentage of GDP) for the G7 countries, we follow Cooper and Priestley (2013) and Nitschka (2014) and regress the natural logarithm of each of the G7 countries' industrial production indexes from the IFS of the IMF on a linear and quadratic time trend. Finally, the growth rate of international bank claims (i.e. the growth rate of credit to non-banks and the growth rate of credit to banks) is obtained from the BIS, while the Chicago Board Options Exchange Volatility Index (VIX index) is gathered from Bloomberg.

Table 1 provides a summary of descriptive statistics for our sample of BRICS countries. It reports the start date, the end date, the mean and the standard deviation for each independent variable used and for the aggregate market return. For the large majority of variables, there is data availability for the 1995Q1 to 2013Q2 sample period. However, there are some exceptions. Money supply growth is not available in Russia or China until 1998Q1. Further, we could not obtain data for any country after 2011Q4 leading to the CAY and wealth-income ratio series end dates.

There are some notable points in relation to the mean and standard deviations of the variables. First, the average nominal returns (RET) vary substantially across countries from 0.0378 (3.78% per quarter) in Brazil to 0.003 (0.3% per quarter) in China. The standard deviation of returns displays wide variation across countries from 0.3275 for Russia to 0.1393 for India. The mean annualized inflation rate also varies substantially across countries with a low of 0.0309 for China to a high of 0.1471 for Brazil. Consequently the real return in all of these countries is close to zero or even negative over our sample period. For Brazil, there is high variability in a couple of macro-finance indicators (CAY and price-GDP) compared to the other countries, whereas in Russia there is relatively high variability of the risk-free proxy and central bank rate (CBRate). It could be that this high variability is connected to either fluctuating expected equity returns, which improve predictive power, or other exogenous factors, which would weaken predictive power.

[INSERT TABLE 1 AROUND HERE]

Table 2 contains the correlation matrix for returns across our sample of countries. There are considerable differences in the correlation between the different country pairs. Return correlations are highest when Brazil is one of the countries examined. For example, correlations for Brazil-Russia and Brazil-India are about 0.7. The lowest correlations are when China is one of the countries examined. The China-Russia return correlation is 0.4195 and is little more than 0.5 for China-India and China-Brazil. These relatively lower correlations for China plausibly reflect the fact that the Chinese market is more segmented than the other markets and has greater restrictions of foreign investor holdings than the other countries. Overall, while our sample country returns are positively correlated, they are substantially less correlated than quarterly market returns amongst US, UK and Germany country pairs, which are in excess of 0.85 over 1995Q1-2013Q2.

[INSERT TABLE 2 AROUND HERE]

3. METHODOLOGY

3.1. In-Sample Forecast Regressions

Individual predictive regression models are used to estimate the linkage between the dependent variable and a potential predictor variable (including its lags). Define $\Delta RI_t = RI_t - RI_{t-1}$, where RI_t is the log-level of stock return index (stock price index that includes

reinvested dividends at time *t*). In addition, define $y_{t+h}^{h} = (1/h)\sum_{j=1}^{h} \Delta RI_{t+j}$ so that y_{t+h}^{h} is the (approximate) growth rate of stock returns from time *t* to *t* + *h*, where *h* is the forecast horizon. The predictive regression model takes the form of:

$$y_{t+h}^{h} = \alpha + \lambda_j x_{i,t-j} + \varepsilon_{t+h}^{h} \quad (1)$$

This model can be employed to estimate *h*-step ahead forecasts of stock returns using a recursive expanding window, y_{t+h}^{h}, which is linear in the potential predictor variables (i.e., X_t). The parameter α is a constant, the parameters λ_j capture the effect of the potential predictor variable and ε_{t+h}^{h} is an error term. This is the most common model from the literature on return predictability (Goyal and Welch, 2008; Rapach Strauss and Zhou, 2010). The above equation can be estimated with ordinary least squares and this provides mean estimates of the relation between the predictive content of the explanatory variables and the dependent variable.

3.2. Out-of-Sample Forecast Regressions

For our out-of-sample tests, the benchmark that we use is the random walk with drift (i.e. the historical average), which is consistent with Goyal and Welch (2008) amongst many others. Clark and McCracken (2001) and McCracken (2007) develop a set of asymptotics that allow for an out-of-sample test of equal population-level predictive ability between two nested models. They show that, in the context of linear, OLS-estimated models, a number of different statistics can be employed to test for equal forecast accuracy and forecast encompassing, despite the fact that the models are nested. Based on Monte Carlo simulations, Clark and McCracken (2001, 2004) indicate that *ENC–NEW* is the most powerful statistic, followed by their *ENC – T*, *MSE – F* and the *MSE – T* statistics. These rankings suggest that the forecast encompassing statistics, especially, *ENC – NEW* (which is an *F* type test and is related to the Harvey et al. (1998) statistic designed to test for forecast encompassing), can have important power advantages over test statistics based on relative MSFE.

The *ENC – NEW* statistic is computed as

$$ENC - NEW = (T - R - h + 1) \cdot \bar{c} / MSE_1, \quad (2)$$

where R is the number of observations in the in-sample period $\bar{c} = (T-R-h+1)^{-1}\sum_{t=R}^{T-h}\hat{c}_{t+h}$, $\hat{c}_{t+h} = \hat{u}_{1,t+h}(\hat{u}_{1,t+h} - \hat{u}_{2,t+h})$, $\hat{u}_{i,t+h} = y_{t+h} - \hat{y}_{i,t+h}, i = 1,2$, $MSE_i = (T-R-h+1)^{-1}\sum_{t=R}^{T-h}\hat{u}_{i,t+h}^2 (i = 1,2)$. $\hat{y}_i$ is the forecast from model i, i = 1 is the benchmark and i = 2 is the predictive model. Extensive Monte Carlo simulations in Clark and McCracken (2001, 2004) show that the *ENC - NEW* statistic has power advantages over the original Diebold and Mariano (1995) statistic as well as the Harvey et al. (1998) *ENC - T* statistic.

Under the null hypothesis, the restricted model forecasts encompass the unrestricted model forecasts, while under the one-sided (upper-tail) alternative hypothesis, is that the restricted model forecasts do not encompass the unrestricted model forecasts. Clark and McCracken (2001) note that the limiting distribution of the *ENC - NEW* statistic is non-standard and pivotal for one step ahead forecasts (*h = 1*) considered in this paper.

Clark and McCracken (2004) recommend basing inferences the *ENC – NEW* statistics on a bootstrap procedure, given that the statistics are not in general asymptotically pivotal (when *h > 1*). The bootstrap procedure we employ is similar to the one in Clark and McCracken (2004), which is a version of the Kilian (1999) bootstrap procedure, and is discussed in detail in Rapach and Weber (2004) and Rapach and Wohar (2006).

The *ENC - t* test of Harvey et al. (1998) is defined below:

$$ENC - t = \frac{(T-R-h+1)^{-1/2}\sum_{t=R}^{T-h}\hat{c}_{t+h}}{\hat{S}_{cc}^{1/2}}, \tag{3}$$

where $\hat{S}_{cc}$ denotes the long-run variance estimates for $\hat{c}_{t+h}$ constructed with a HAC estimator such as Newey and West's (1987).

As described above, the *ENC - t* test applies to nested forecasting models. Clark and West (2006, 2007) demonstrate that the test can be viewed as an adjusted test for equal MSE. In this framework, the null hypothesis is a random walk and the alternative hypothesis is of a predictive regression. If the null hypothesis of a random walk is true then it will have a lower mean-squared error relative to the alternative (despite the fact the alternative include an additional variable) due to the fact that there is sampling error

associated with estimating the alternative model. Therefore, the authors adjust the forecast error of the alternative model to account for this sampling error. The adjustment subtracts the square of the difference in forecasts from the competing models; this term captures (under the null hypothesis of equal accuracy in population) the extra sampling error in the larger model. Clark and West (2006, 2007) present the loss differential of the test statistic as:

$$c\hat{w}_{t+h} = \hat{u}_{1,t+h}^2 - \left(\hat{u}_{2,t+h}^2 - \left(\hat{y}_{1,t+h} - \hat{y}_{2,t+h}\right)^2\right), \tag{4}$$

and then regressing the series $\left\{c\hat{w}_{i,t+h}\right\}_{t=R}^{T-h}$. on a constant generates the adjusted MSE (*CW* - *t*), which is the *t*-statistic corresponding to a zero constant and is based on a normal distribution. The second term within the brackets of equation (4) adjusts for the upward bias in MSE predicted by estimation of parameters that are zero under the null. This *t*-test statistic proposed by Clark and West (2006, 2007) is equivalent to the Harvey et al. (1998) ENC-*t* test for forecast encompassing as considered in such studies as Clark and McCracken (2001, 2005).

For tests of equal predictive ability at the population level, Monte Carlo results in Clark and McCracken (2001, 2005), Clark and West (2006, 2007), and McCracken (2007) show that critical values obtained from Monte Carlo simulations of the asymptotic distributions generally yield good size and power properties for 1-step ahead forecasts, but can yield rejection rates greater than nominal size for multi-step forecasts. Similarly, results in Clark and West (2006, 2007) indicate that comparing Clark-West (equivalent to *ENC* - *t*) test against standard normal critical values can work reasonably well but exhibit size distortions as the forecast horizon increases.

To statistically assess the performance of the models, we report results from McCracken's (2007) *MSE* - *F* test. The MSE-F statistic is a one-sided test for equal forecast accuracy. More specifically it is formulated under the null that the forecast error from the regression model is equal to or larger than (inferior to) that from the historical average regression. A rejection of the null hypothesis indicates that the regression model has superior forecast performance than the benchmark.

$$MSE - F = (T - h + 1) \times \left(1 + \frac{1}{1 - [OOS\ R^2]} \right)$$
$$= (T - h + 1) \times \left(1 - \frac{CSE_{HA,T}}{CSE_{z,T}} \right) \quad (5)$$

h measures the degree of overlap, where *h* is equal to 1 for no overlap. CSE_i for i=HA, z is the cumulative squared error from the historical average (HA) and from the predictive model (z) respectively. Clark and McCracken (2005) show *MSE - F* have non-standard statistical distributions. Hence, critical values for *MSE - F* are produced via a bootstrap procedure following Mark (1995) and implemented in a similar manner to Rapach and Wohar (2006) and Goyal and Welch (2008). We estimate the following:

$$r_{t+1} = \alpha_{t+1} + \varepsilon_{1,t+1}$$
$$z_{t+1} = \delta_{t+1} + \theta_1 z_t + \varepsilon_{2,t+1} \quad (6)$$

Parameters are estimated using the full sample and error terms are saved to generate pseudo series for *r* and *z*. The pseudo series for *r* and *z* have identical length to our sample and are formed by drawing from the time-series of residuals with replacement.

4. EMPIRICAL ANALYSIS

4.1. In-sample Return Predictability

In this section, we consider INS predictability at the 1-quarter, 2-quarter and 4-quarter horizon. We explore the robustness of the US INS predictability results to data covering the BRICS countries, which have very different characteristics to the US. Statistical evidence of INS predictability is found more frequently than evidence of OOS forecast accuracy in the aggregate stock return literature and in the empirical finance literature more generally. Given these empirical results, many researchers have placed greater emphasis on OOS tests than INS tests. It has also been suggested that INS tests are more susceptible to data mining or dynamic mis-specification. In an important and influential article Inoue and Kilian (2005) provide theoretical analysis that questions these conjectures about the superiority of OOS tests. Results from Inoue and Kilian (2005) indicate that in almost all the settings that they consider, INS tests of predictability are not

less powerful than OOS tests of forecast accuracy.[6] The implications for our study are as follows: first, in general, the INS two-sided *t*-tests should be at least as reliable as the OOS forecast accuracy tests. Consequently, both tests should provide similar results. Secondly, it is possible for either the INS test or the OOS test to falsely reject the null hypothesis (or falsely not reject the null hypothesis). Thus, it is useful to implement both tests to corroborate if the general results are robust. Consequently, we emphasize results that are generally found whichever test is considered.

Panel A of Table 3 presents evidence for Brazil on whether INS predictability exists suing domestic predictors and the explanatory power of each domestic country predictor variable, while Table 3, Panel B presents evidence on whether INS predictability exists and the explanatory power of each US/Global predictor variable. Tables 4-7 present corresponding evidence for Russia, India, China and South Africa. The INS predictability tests consist of regressions of one, two and four quarter ahead stock returns on current predictor variables. There are several important themes to the evidence in Table 3. Considering first, Table 3, Panel A, using inference based on Newey-West *t*-statistics, there is evidence of predictability for at least half the variables, 5 out of 10 at the one-quarter horizon and 7 at both the two-quarter and the four-quarter horizons. Second, evidence of predictability from inference based upon bootstrapped *t*-statistics is weaker; here, it is apparent at best for half of the variables: 3 out of 10 at the one-quarter horizon, 4 at the two-quarter horizon, and 5 at the four-quarter horizon. Third, only the output gap to GDP ratio exhibits consistent predictability at all horizons for both conventional and bootstrapped inference. However, if we just consider conventional inference, there is evidence for all horizons from the foreign exchange rate, money market rate (MMR) and price-GDP. Fourth, there is virtually no evidence of predictability from CAY or the wealth-to-income ratio in Brazil. Finally, there is reasonable predictive power from the output gap to GDP ratio, foreign exchange rate and price to GDP ratio; the R-squared is above 5% for all these variables at the one-quarter horizon. Overall, output gap to GDP is the strongest predictor in-sample.

[6] The conclusion of Inoue and Kilian (2005) is stronger, i.e., INS is typically more powerful than OOS, because they emphasize their INS one-sided t-test results. However, we implement their two-sided tests, for which INS and OOS are more comparable. Their results are robust to the data mining adjustment that they consider and the forms of dynamic mis-specification which they consider.

Turning next to Table 3, Panel B, we look at US/Global predictors for Brazil stock returns and find that, using inference based on Newey-West *t*-statistics, there is evidence of predictability for at least three variables: the US output Gap variable and the price-GDP variable at the one, two, and four quarterly horizons, and the commodity price growth variable at the two-quarter horizon. Evidence of predictability from inference based upon bootstrapped *t*-statistics is weaker; here, it is apparent for only the price-GDP variable, which shows predictability at the one, two, and four-quarter horizons.

Table 4, Panel A, presents results from INS predictive regressions for Russia using domestic predictors. First, there is less evidence in favor of predictability for Russia than for Brazil. Using inference based on Newey-West t-statistics, only very few variables seem to forecast stock returns at the one quarter-ahead and two quarter-ahead horizons. Only the output gap to GDP ratio and the foreign exchange rate are significant. Second, evidence of predictability from inference based upon bootstrapped *t*-statistics is very consistent with that from conventional critical values. Third, both the output gap to GDP ratio and foreign exchange rate exhibit consistent predictability at all horizons for both conventional and bootstrapped inference. Fourth, there is no evidence of predictability from CAY, price-GDP ratio, MMR or M2 growth in Russia. Finally, there is reasonable predictive power from the output gap to GDP ratio and the foreign exchange rate; the R-squared is above 5% for these variables at the one-quarter horizon; and the R-squared for output gap to GDP is above 20% at two quarters-ahead and above 30% at four quarters-ahead. Overall, for Russia as for Brazil, we can conclude that the output gap to GDP is the strongest predictor in-sample.

Turning now to Table 4, Panel B, we look at US/Global predictors and find that the inference based on Newey-West *t*-statistics suggests that there is evidence of predictability for at least two variables: the foreign exchange (FX) rate at the one-quarter horizon and the US output gap variable at the two and four-quarter horizons. Evidence of predictability from inference based upon bootstrapped *t*-statistics is weaker, as only the FX change variable shows predictability at the one-quarter horizon.

Table 5, Panel A, presents results from INS predictive regressions for India using domestic predictors. First, there is little evidence in favour of predictability for India: 8 out of 10 variables have no evidence of predictability at any of the horizons we consider. Second, using inference based on bootstrapped *t*-statistics, this evidence is confined to one-

quarter ahead for commodity index growth and no more than two quarters ahead for CB rate. Third, for one-quarter ahead both commodity index growth and CB rate have reasonable predictive power: the R-squared is above 5% for both these variables. Overall, while CB rate demonstrates more statistical evidence for predictability in India, however, commodity index growth provides higher goodness of fit (R-squared).

Turning next to Table 5, Panel B, we look at US/Global predictors and find that, using inference based on Newey-West *t*-statistics, there is evidence of predictability for at least two variables: the US output gap at the one and four-quarter horizons, and commodity index growth at the two and four-quarter horizons. Evidence of predictability from inference based upon bootstrapped *t*-statistics is weaker: only the commodity index growth is significant at the two and four-quarter horizons.

Table 6, Panel A, summarizes results from INS predictive regressions for China using domestic predictors. First, similar to India, there is little evidence in favor of predictability for 4 out of 10 variables at any of the horizons under consideration. Second, of the 4 variables that display some predictability, only the output gap to GDP and the wealth-income ratio exhibit predictability using bootstrapped inference. Third, only the output gap to GDP ratio has consistent predictive power across all horizons. Fourth, the output gap to GDP has the best fit (highest r-squared) at all horizons. In short, the output gap to GDP is by far the best predictor of Chinese stock returns out of the ten variables examined.

Turning now to Table 6, Panel B, we look at US/Global predictors for China and find that, using inference based on Newey-West *t*-statistics, there is evidence of predictability for at least one variable: the US output gap variable and the price-GDP ratio at the one, two, and four-quarter horizons. Evidence of predictability from inference based upon bootstrapped *t*-statistics is weaker, as only the price-GDP variable has predictability at the one, two, and four-quarter horizons.

In Table 7, Panel A we report the empirical findings associated with the INS predictive regressions for South Africa using domestic predictors. Three variables show predictability using the Newey-West *t*-statistics: the inflation rate and the output gap at the one, two and four-quarter horizons, the risk-free rate and CBrate at the one-quarter horizon, and the growth rate of M2 at the two and four-quarter horizons. Of these variables that have

some evidence of predictability, only inflation, output gap, real interest rate, and CB rate display predictability using bootstrapped inference. Similarly, only the output gap has consistent predictive power across all horizons. Fourth, the output gap to GDP has the best fit (i.e. highest R-squared) at all horizons. In short, the output gap to GDP is also by far the best predictor of South African stock returns.

Turning next to Table 7, Panel B, we look at US/Global predictors and find that regardless of whether we use inference based on Newey-West *t*-statistics or bootstrapped *t*-statistics, no US predictor variable is able to forecast South African stock returns.

[INSERT TABLES 3-7 AROUND HERE]

In summary, our in-sample results suggest that the output gap to GDP is the best predictor of stock returns for Brazil, Russia and China. In contrast, some of the macro-finance variables perform dismally in the large emerging markets that we consider. For example, there is no evidence of predictability from CAY (Lettau and Ludvigson, 2001) in any of the countries. Further, there is sparse evidence in favour of the price-GDP ratio (Rangvid, 2006) and wealth-to-income ratio (Sousa, forthcoming) for BRICS countries. Macro variables also generally only have limited predictive power. Interestingly, two major macro variables (i.e. inflation and money supply growth) have very little predictive power. Overall, our empirical evidence suggests there is less return predictability in BRICS countries than in the US or amongst the G7 countries. With respect to the use of US/Global predictors, the two variables that have shown signs of predictability are the output gap to GDP ratio and the price-GDP ratio. Thus, US/Global variables are found to be much poorer predictors relative to domestic predictive variables.

4.2. Out-of-Sample Return Predictability

Could investors' actually use fundamental-price based models in order to benefit from more accurate predictions of future stock returns? This issue is of importance to both practitioners and academics alike. Asset managers, economic policymakers, as well as pension providers and contributors all need accurate estimates of future market returns. In this section, we examine a range of fundamental-price ratios, as well as macro-finance and macro variables, for a sample of BRICS countries. We consider if individual predictors can improve forecast accuracy over the historical average benchmark model. We note that some

of the macro-finance variables (CAY, output gap to GDP and wealth-income ratio) potentially have a look-ahead bias given they are initially estimated using full-sample values. To examine the effect of this, we also report results for versions of these variables which are calculated using information available in real-time; these variables are denoted with an "RT" suffix, for example CAY_RT. Tables 8-12 report 1, 2, and 4-quarter ahead forecast results from individual predictive regression models for Brazil, Russia, India, China and South Africa, respectively.

Table 8, Panel A, provides results for Brazil using domestic predictors. Overall, the individual predictive models have mixed results. For Brazil, in terms of the metrics (MSE-F, ENC-NEW and CW-T statistics), the output gap to GDP and the output gap to GDP_RT show OOS predictive ability at 1, 2 and 4-quarter horizons; while the magnitude of the forecast gains are smaller using the real-time version of the output gap to GDP, they are still of substantial magnitude. The risk-free rate shows clear OOS predictive ability at the 1 and 4-quarter horizons. Commodity index growth has OOS predictability only at the 1-quarter horizon, while the FX change has OOS predictability at the 1 and 2-quarter horizons.

Table 8, Panels B-C, provides results for Brazil using US/Global predictors. Overall, the individual predictive models have limited predictability. For Brazil, the price-GDP variable shows OOS predictive ability at 1, 2 and 4-quarter horizons, while inflation displays some OOS predictive ability at the 1 and 2-quarter horizons.

With respect to Russia (Table 9, Panel A), overall, the statistical evidence in favor of OOS predictive ability using domestic predictors is very weak. For example, only the output-gap to GDP ratio shows OOS predictability at all horizons. The output gap GDP-RT displays some OOS predictability at the 1 and 2-quarter horizons according to the ENC-NEW metric, which tests for encompassing; however, the Theil's U is greater than 1, which indicates that the forecast accuracy is weaker than the benchmark. Interestingly, in terms of forecast accuracy the CB rate beats the benchmark at all horizons, but none of the statistical tests are significant for the CB rate. Overall, the evidence of OOS return predictability in Russia is not widespread.

Table 9, Panels B-C, provides results for Russia using domestic predictors, which show that only the US output gap has strong OOS predictive ability at all horizons.

Table 10, Panel A, summarizes the findings for India using domestic predictors. Overall, the individual predictive models have mixed results. For Brazil, in terms of the metrics (MSE-F, ENC-NEW and CW-T statistics), the output gap to GDP and output gap to GDP_RT show OOS predictive ability at all horizons. The risk-free rate also shows clear OOS predictive ability at the 1 and 4-quarter horizons. Commodity index growth has OOS predictability only at the 1-quarter horizon and FX change has OOS predictability at the 1 and 2-quarter horizons.

Table 10, Panels B-C, provides evidence of predictability for a couple of US/Global variables regarding future Indian stock returns. The US commodity price growth has OOS predictability at the 2 and 4-quarter horizons, the US output gap displays OOS predictability at all horizons, and the price-GDP variable has a significant Theil's-U statistic for the 1, 2, and 4-quarter forecasting horizons.

In the case of China (Table 11, Panel A), the output gap to GDP variable has strong OOS predictability at all horizons. However, this forecasting ability largely evaporates when this predictor is formed using only data available in real-time; indeed, the output gap to GDP_RT underperforms the historical average benchmark at all horizons, although its forecast is not encompassed according to the ENC-NEW test. The wealth-income ratio has some OOS predictability at the 1 and 4-quarter horizons (according to the ENC-NEW metric), although this also disappears for the real-time version of the variable (i.e. wealth-income_RT). The CB rate shows OOS predictability in both the upper and lower panels at the 1, 2 and 4 quarterly horizons (according to the MSE-F and CW-*t* metrics). In the case of China (Table 11, Panels B-C), using US predictors, the price-GDP variable has strong OOS predictability at all horizons.

For South Africa (Table 12, Panel A), using domestic predictors, both the inflation rate and the output gap have strong OOS predictability at the 1, 2 and 4-quarter horizons. The risk-free rate and the CB rate have predictive ability OOS at the 1 and 2-quarter horizons. With respect to the use of US predictors (Table 12, Panels B-C), we find very little evidence of OOS predictability. The price-GDP variable has a significant Theil's-U statistic at the 1 and 4-quarter horizons, while CAY has a significant ENC-NEW statistic at the 2-quarter horizon.

[INSERT TABLE 8-12 AROUND HERE]

We also provide some robustness analysis by including a lagged dependent variable as one of the predictors. Our results (in Appendix A) show that results are qualitatively the same as to those without a lagged dependent variable as a predictor. This should not be surprising as aggregate stock returns tend not to be highly serially correlated at a quarterly frequency.

In summary, we conduct an extensive analysis of OOS return predictability for the five BRICS countries. Overall, we find very little evidence of predictability in the emerging markets using the macro-finance variables (CAY, wealth-income and price-GDP) that have been advocated in studies of developed markets. However, the output gap to GDP variable, the CB rate and the change in FX show signs of OOS predictability for equity returns. Thus, there is some evidence of OOS return predictability from macro variables for the large emerging countries under investigation. The two US predictors that show OOS predictive ability are the output gap to GDP ratio and the price-GDP ratio.

5. CONCLUSION

A huge amount of research investigates the link between the macroeconomy and financial markets. Despite this, there are several issues that have not yet been adequately addressed, especially given that empirical evidence focuses on developed markets. One of these issues is whether expected future stock returns can be accurately predicted by macroeconomic or macro-financial indicators. This study provides novel evidence on this issue by examining large emerging market economies for which there is relatively little evidence in this context.[7]

We examine several predictors, most of which have been found to have INS predictive power in the US . In contrast, there is very little evidence for the variables from emerging markets. We provide a first step in this direction by studying a sample of five large emerging markets, i.e. the BRICS nations. This lack of literature is surprising given that they are the world's most populous countries and are growing in importance economically. In our tests, we consider macroeconomic, macro-financial and US/global variables. To our knowledge, we are the first to undertake such a broad analysis of the

[7] Notable exceptions are Narayanan et al. (2014) and Jordan et al. (2014), for China.

BRICS countries, which are vitally important emerging markets and growing economic powerhouses.

We provide evidence on the questions: (i) Can domestic macro-finance variables predict stock returns in a set of emerging markets? (ii) Do US/global macro-finance variables predict emerging market stock returns? (iii) Does predictability of macro-finance variables exist out-of-sample?

Firstly, we test if the macro-finance variables have significant predictive ability. We find that the output gap to GDP ratio is the best predictor for Brazil, Russia and China. However, other macro variables (such as, inflation and interest rates) and macro-finance variables (such as CAY) have little predictive power for the BRICS countries over the sample period of 1995Q1-2013Q2.

Secondly, we examine if US/global macro-finance variables have predictive ability for emerging market economies. We find that they are generally even weaker predictors of BRICS stock returns than their domestic counterparts.

Thirdly, prior empirical investigation suggests that in-sample predictability does not guarantee an ability to forecast out-of-sample relative to the benchmark model (Della Corte et al., 2010). Thus, we investigate for five major emerging markets if out-of-sample evidence is consistent with in-sample evidence. Our results show that there is more evidence of predictability from OOS tests than from INS tests. We find that the evidence from standard forecast accuracy metrics (e.g., mean-squared forecast error) is actually more favorable to predictability than results from simple regressions.

In summary, the empirical evidence of return predictability for BRICS countries is somewhat limited over the 2005-2013 OOS period. Prior empirical investigations of return predictability in the US and G7 countries tends to uncover more significant findings. The results from this paper suggest that it is important to examine if variables proposed based on US data actually have consistent forecast power globally; our evidence from emerging markets suggest that they may not.

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Table 1: Sample period, mean and standard deviation of asset returns and predictors.

	Brazil				Russia				India				China				South Africa			
	Start	End	Mean	SD	Start	End	Mean	SD	Start	End	Mean	SD	Start	End	Mean	SD	Start	End	Mean	SD
Returns	1995Q1	2013Q2	0.0378	0.1493	1995Q1	2013Q2	0.0307	0.3275	1995Q1	2013Q2	0.0262	0.1393	1995Q1	2013Q2	0.0030	0.1776	1995Q1	2013Q2	0.0306	0.0939
Inflation-Inf	1995Q1	2013Q2	0.1471	0.5249	1995Q1	2013Q2	0.3009	0.4832	1995Q1	2013Q2	0.0735	0.0344	1995Q1	2013Q2	0.0309	0.0445	1995Q1	2013Q2	0.0627	0.0278
OutputGaptoGDP	1996Q2	2013Q2	0.0008	0.0155	1995Q1	2013Q2	0.0015	0.0289	1996Q2	2013Q2	0.0005	0.0245	1995Q1	2011Q4	0.0015	0.0108	1995Q1	2013Q2	0.0007	0.0122
M2Growth	1995Q1	2013Q2	0.2157	0.4631	1998Q1	2013Q2	0.3379	0.1873	1995Q1	2013Q2	0.1685	0.0271	1998Q1	2013Q2	0.1697	0.0350	1995Q1	2013Q2	0.1296	0.0597
CommodityIndex Growth	1995Q1	2013Q2	0.0885	0.2063	1995Q1	2013Q2	0.0885	0.2063	1995Q1	2013Q2	0.0885	0.2063	1995Q1	2013Q2	0.0885	0.2063	1995Q1	2013Q2	0.0885	0.2063
FXchange	1995Q1	2013Q2	0.0411	0.1782	1995Q1	2013Q2	0.0625	0.1793	1995Q1	2013Q2	0.0058	0.0804	1995Q1	2013Q2	0.0188	0.0524	1995Q1	2013Q2	-0.0430	0.1326
CAY	1996Q2	2009Q4	0.0184	0.6794	1995Q1	2011Q4	0.0130	0.0618	1996Q2	2011Q4	0.4054	0.0961	1995Q1	2011Q4	0.0308	0.1095	1995Q1	2011Q4	0.0389	0.0187
Wealth-Income	1996Q2	2011Q4	0.2604	0.2700	1995Q1	2011Q4	0.5243	0.6691	1996Q2	2011Q4	0.1820	0.2791	1995Q1	2011Q4	2.5167	0.4932	1995Q1	2011Q4	0.0718	0.1185
RiskFree-MMR/TBL	1996Q3	2013Q2	0.0484	0.0275	1995Q1	2013Q2	0.0535	0.1379	1996Q3	2013Q2	0.0213	0.0114	1995Q1	2013Q2	0.0073	0.0061	1995Q1	2013Q2	0.0992	0.0360
Price-GDP	1995Q1	2013Q2	5.1726	0.7343	1995Q4	2013Q2	4.3389	0.2509	1995Q1	2013Q2	5.8837	0.4403	1995Q1	2012Q1	4.3752	0.4304	1995Q1	2013Q2	-5.2085	0.4972
CBRate	1995Q1	2013Q2	0.1460	0.0716	1995Q1	2013Q2	0.3277	0.4262	1995Q1	2013Q2	0.0732	0.0225	1995Q1	2013Q2	0.0674	0.0190	1995Q1	2013Q2	0.1070	0.0419

Table 2: Return correlation matrix.

Return Correlations	Brazil	Russia	India	China	South Africa
Brazil	1.0000				
Russia	0.7217	1.0000			
India	0.6865	0.4739	1.0000		
China	0.5472	0.4195	0.5062	1.0000	
South Africa	0.7299	0.6313	0.5349	0.4896	1.0000

Table 3: In-sample forecast regressions – Brazil.

Panel A: Domestic Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.1299	1.1551	0.1310	0.0184	2	0.2239	**5.4656**	**0.0000**	0.0245	4	0.2374	**3.0823**	**0.0110**	0.0152
OutputGaptoGDP	1	-0.2752	**-2.5299**	**0.9970**	0.0827	2	-0.5061	**-2.3001**	**0.9680**	0.1240	4	-0.7869	**-2.7330**	**0.9810**	0.1626
M2Growth	1	0.0706	0.6229	0.2980	0.0054	2	0.1572	**2.3006**	**0.0360**	0.0121	4	0.1717	**2.2528**	**0.0420**	0.0079
CommodityIndexGrowth	1	-0.1892	**-1.6958**	0.9420	0.0389	2	-0.3132	-1.2147	0.8240	0.0474	4	-0.3885	-1.2039	0.7740	0.0399
FXchange	1	-0.2600	**-2.3798**	**0.9940**	0.0739	2	-0.4504	**-3.1409**	**0.9930**	0.0990	4	-0.5738	**-2.3147**	0.9340	0.0881
CAY	1	0.1353	1.0086	0.1520	0.0175	2	0.1629	0.9089	0.1970	0.0111	4	-0.2248	-0.6833	0.6700	0.0118
Wealth-Income	1	0.1629	1.2900	0.0840	0.0250	2	0.3346	**1.7897**	0.0830	0.0418	4	0.1443	0.3840	0.3570	0.0033
RiskFree-MMR/TBL	1	0.2036	**1.8199**	**0.0300**	0.0446	2	0.3120	1.6754	0.1040	0.0460	4	0.6763	**2.7646**	**0.0350**	0.1151
Price-GDP	1	-0.2321	**-2.1008**	0.9160	0.0585	2	-0.4570	**-2.6319**	0.9190	0.1002	4	-0.8161	**-3.6472**	0.9280	0.1713
CBRate	1	0.0721	0.5948	0.2590	0.0054	2	0.1879	0.8626	0.1980	0.0160	4	0.9307	**3.6775**	**0.0170**	0.2187

Panel B: US and Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.1459	1.2257	0.1260	0.0207	2	0.2792	1.1313	0.1930	0.0384	4	0.4089	1.1872	0.2130	0.0378
OutputGaptoGDP	1	-0.2036	**-1.7255**	0.9390	0.0408	2	-0.3580	**-1.6815**	0.8760	0.0635	4	-0.6448	**-1.9431**	0.8860	0.0931
M2Growth	1	-0.0029	-0.0241	0.4920	0.0000	2	0.0716	0.3979	0.3820	0.0026	4	0.0033	0.0126	0.5230	0.0000
CommodityIndexGrowth	1	-0.1037	-0.8791	0.8100	0.0108	2	-0.3314	**-2.1622**	0.9370	0.0559	4	-0.2348	-0.9148	0.7420	0.0129
FXchange	1	-0.0058	-0.0487	0.5580	0.0000	2	-0.0543	-0.3218	0.6210	0.0015	4	-0.0431	-0.1267	0.5940	0.0004
CAY	1	0.1247	1.0372	0.2660	0.0151	2	0.2478	1.0867	0.3020	0.0299	4	0.6122	1.4793	0.2540	0.0786
Wealth-Income	1	0.0585	0.4846	0.1970	0.0033	2	0.1447	0.6262	0.2190	0.0104	4	0.2067	0.4384	0.2620	0.0097
RiskFree-MMR/TBL	1	-0.1013	-0.8489	0.7290	0.0100	2	-0.2325	-1.1166	0.7550	0.0263	4	-0.5746	-1.5621	0.8160	0.0705
Price-GDP	1	-0.2428	**-2.1087**	**0.9760**	0.0589	2	-0.4621	**-2.8976**	**0.9800**	0.1086	4	-0.8398	**-3.8147**	**0.9820**	0.1652
CBRate	1	-0.1104	-0.9257	0.7830	0.0119	2	-0.2796	-1.3772	0.8170	0.0380	4	-0.6255	**-1.7567**	0.8600	0.0835
VIX	1	0.0711	0.6266	0.3170	0.0055	2	0.1321	0.8189	0.3020	0.0083	4	0.0000	0.0000	0.5910	0.0000
Intl Net Bank Claims	1	0.0135	0.1188	0.8820	0.0002	2	-0.0177	-0.1111	0.4290	0.0002	4	-0.1636	-0.4897	0.5290	0.0070
Intl Bank Claims	1	-0.0071	-0.0613	0.4850	0.0000	2	-0.0626	-0.3335	0.5630	0.0018	4	-0.2789	-0.7469	0.6830	0.0176
G7 Output Gap	1	-0.0952	-0.8344	0.8060	0.0097	2	-0.1497	-0.7091	0.7170	0.010	4	-0.1242	-0.3387	0.6130	0.0039

Notes: Table 3 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Slope is the slope coefficient on the predictor variable, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table 4: In-sample forecast regressions – Russia.

Panel A: Domestic Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.1292	1.1086	0.1550	0.0170	2	0.2397	1.1802	0.1830	0.0270	4	0.5945	**2.5449**	**0.0480**	0.0903
OutputGaptoGDP	1	-0.3458	**-3.1460**	**1.0000**	0.1223	2	-0.6522	**-4.4872**	**1.0000**	0.2012	4	-1.0807	**-3.8602**	**0.9920**	0.3018
M2Growth	1	0.1058	0.8418	0.1450	0.0119	2	0.0627	0.3280	0.2910	0.0019	4	-0.2328	**-1.8103**	0.8350	0.0232
CommodityIndexGrowth	1	-0.1201	-1.0293	0.8320	0.0147	2	-0.2298	-0.8313	0.7210	0.0247	4	-0.3190	-0.8955	0.7280	0.0258
FXchange	1	-0.2487	**-2.1888**	**0.9830**	0.0632	2	-0.4286	**-2.5055**	**0.9740**	0.0866	4	-0.6976	**-3.1025**	**0.9750**	0.1252
CAY	1	0.0097	0.0760	0.4590	0.0001	2	0.0584	0.1953	0.4600	0.0015	4	0.2690	0.8514	0.2700	0.0172
Wealth-Income	1	-0.0334	-0.2614	0.5910	0.0010	2	-0.1299	-0.7538	0.7530	0.0073	4	-0.5107	**-2.1801**	0.9170	0.0620
RiskFree-MMR/TBL	1	0.1078	0.9241	0.1750	0.0119	2	0.0740	0.8414	0.3260	0.0026	4	0.2262	1.2194	0.2500	0.0132
Price-GDP	1	0.1041	0.8527	0.1650	0.0106	2	0.1866	0.6836	0.2370	0.0151	4	0.2298	0.5495	0.3040	0.0119
CBRate	1	0.0633	0.5393	0.3370	0.0041	2	0.1974	1.2625	0.1870	0.0183	4	0.6110	**2.7161**	**0.0360**	0.0949

Panel B: US and Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.0450	0.3784	0.3620	0.0020	2	0.1094	0.5086	0.3320	0.0055	4	0.1565	0.6549	0.3080	0.0061
OutputGaptoGDP	1	-0.1634	-1.3887	0.8800	0.0268	2	-0.3372	**-2.1479**	0.9380	0.0522	4	-0.5911	**-2.2997**	0.9090	0.0862
M2Growth	1	-0.0323	-0.2754	0.6240	0.0011	2	-0.0435	-0.2798	0.6000	0.0009	4	0.0166	0.0869	0.5190	0.0001
CommodityIndexGrowth	1	-0.1009	-0.8641	0.8070	0.0104	2	-0.2228	-1.1753	0.8460	0.0235	4	-0.3006	-1.4026	0.8610	0.0234
FXchange	1	-0.2142	**-1.8703**	**0.9610**	0.0470	2	-0.2243	-1.3872	0.8950	0.0232	4	-0.1224	-0.3807	0.6330	0.0037
CAY	1	0.0428	0.3569	0.4900	0.0018	2	0.1331	0.5923	0.4700	0.0080	4	0.2987	0.9054	0.3830	0.0206
Wealth-Income	1	-0.1227	-1.0322	0.7450	0.0150	2	-0.2110	-1.3166	0.7580	0.0205	4	-0.3811	-1.1407	0.6620	0.0365
RiskFree-MMR/TBL	1	0.0078	0.0658	0.2800	0.0001	2	0.0011	0.0053	0.3500	0.0000	4	-0.0119	-0.0375	0.3520	0.0000
Price-GDP	1	-0.1295	-1.1126	0.8420	0.0171	2	-0.1940	-1.0111	0.7310	0.0178	4	-0.3606	-1.2277	0.7400	0.0336
CBRate	1	0.0450	0.3784	0.3620	0.0020	2	0.1094	0.5086	0.3320	0.0055	4	0.1565	0.6549	0.3080	0.0061
VIX	1	0.1011	0.8643	0.2510	0.0104	2	0.1503	1.0860	0.2450	0.0104	4	0.0546	0.2119	0.5290	0.0007
Intl Net Bank Claims	1	-0.0264	-0.2242	0.4770	0.0007	2	-0.0854	-0.9068	0.6770	0.0034	4	-0.3651	-1.4578	0.7610	0.0334
Intl Bank Claims	1	-0.0870	-0.7318	0.7720	0.0075	2	-0.2274	-1.4813	0.8520	0.0226	4	-0.5310	-1.5814	0.8530	0.0612
G7 Output Gap	1	-0.1502	-1.2827	0.9040	0.0226	2	-0.2685	-1.5545	0.8880	0.0327	4	-0.3800	-1.3074	0.8050	0.0350

Notes: Table 4 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Slope is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table 5: In-sample forecast regressions – India.

Panel A: Domestic Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.0302	0.2561	0.4490	0.0009	2	0.1364	0.7629	0.3070	0.0079	4	0.3343	0.7316	0.3570	0.0246
OutputGaptoGDP	1	0.0094	0.0669	0.4440	0.0001	2	-0.1389	-0.6130	0.6510	0.0060	4	-0.4071	-0.7913	0.7080	0.0236
M2Growth	1	-0.0655	-0.4888	0.6810	0.0040	2	-0.0702	-0.2328	0.5940	0.0019	4	-0.2282	-0.4482	0.6400	0.0094
CommodityIndexGrowth	1	-0.3044	**-2.7219**	**0.9950**	0.0945	2	-0.5222	-1.9009	0.9220	0.1189	4	-0.5693	-1.5377	0.8530	0.0737
FXchange	1	-0.0952	-0.8153	0.7600	0.0093	2	-0.2327	-0.9298	0.7560	0.0236	4	-0.3980	-0.9462	0.7190	0.0357
CAY	1	-0.0835	-0.6170	0.7780	0.0063	2	-0.1288	-0.4842	0.6790	0.0063	4	0.2661	0.6304	0.3430	0.0140
Wealth-Income	1	-0.0301	-0.2220	0.5880	0.0008	2	-0.0254	-0.0927	0.5250	0.0002	4	-0.4173	-1.1436	0.7550	0.0350
RiskFree-MMR/TBL	1	-0.0961	-0.8232	0.8140	0.0095	2	-0.0357	-0.1946	0.5880	0.0006	4	-0.2410	-1.0706	0.7990	0.0135
Price-GDP	1	-0.1459	-1.1874	0.6200	0.0212	2	-0.3586	-1.5335	0.6300	0.0540	4	-0.7016	-1.9262	0.6710	0.1038
CBRate	1	-0.2347	**-2.0600**	**0.9820**	0.0564	2	-0.3977	**-2.2288**	**0.9590**	0.0695	4	-0.5535	**-2.1081**	0.9180	0.0707

Panel B: US and Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	-0.0913	-0.7712	0.7680	0.0083	2	0.0095	0.0384	0.5190	0.0000	4	0.0751	0.2132	0.4490	0.0013
OutputGaptoGDP	1	-0.2633	**-2.2888**	**0.9860**	0.0696	2	-0.5382	**-2.1757**	0.9310	0.1239	4	-0.8273	**-2.3995**	0.9310	0.1511
M2Growth	1	0.1011	0.8660	0.2060	0.0105	2	0.2403	1.0100	0.2090	0.0254	4	0.3259	1.0679	0.2300	0.0239
CommodityIndexGrowth	1	-0.1563	-1.3500	0.9160	0.0250	2	-0.5298	**-3.0399**	**0.9800**	0.1236	4	-0.6252	**-2.8758**	**0.9730**	0.0905
FXchange	1	-0.0380	-0.3244	0.6400	0.0015	2	-0.0459	-0.2546	0.6010	0.0009	4	0.1222	0.3256	0.4230	0.0033
CAY	1	0.0279	0.2327	0.5330	0.0008	2	0.0966	0.4342	0.4940	0.0039	4	0.3220	0.7740	0.3720	0.0215
Wealth-Income	1	-0.0020	-0.0164	0.3470	0.0000	2	-0.0601	-0.2653	0.4050	0.0015	4	-0.1784	-0.3839	0.4360	0.0072
RiskFree-MMR/TBL	1	-0.0665	-0.5619	0.5770	0.0044	2	-0.1788	-0.8350	0.6360	0.0135	4	-0.4566	-1.2539	0.7140	0.0439
Price-GDP	1	-0.1603	-1.3851	0.8960	0.0263	2	-0.3223	-1.1860	0.7580	0.0457	4	-0.5637	-1.4048	0.7830	0.0734
CBRate	1	-0.0997	-0.8449	0.6920	0.0100	2	-0.2280	-1.0851	0.6680	0.0219	4	-0.5377	-1.4206	0.7260	0.0609
VIX	1	0.0592	0.5045	0.3620	0.0036	2	0.2094	0.8582	0.3000	0.0189	4	0.3227	0.7907	0.3570	0.0233
Intl Net Bank Claims	1	-0.0664	-0.5652	0.6460	0.0045	2	-0.1806	-0.7412	0.6140	0.0142	4	-0.3944	-0.8732	0.6680	0.0349
Intl Bank Claims	1	-0.1349	-1.1416	0.8370	0.0180	2	-0.2376	-0.9735	0.7370	0.0230	4	-0.4680	-1.0364	0.7240	0.0425
G7 Output Gap	1	-0.1679	-1.4387	0.9300	0.0283	2	-0.2477	-1.0933	0.8450	0.0259	4	-0.2345	-0.6656	0.7220	0.0119

Notes: Table 5 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Slope is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table 6: In-sample forecast regressions – China.

Panel A: Domestic Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	-0.0701	-0.5921	0.6940	0.0049	2	-0.1464	-0.9676	0.7740	0.0109	4	-0.1711	-0.6588	0.6510	0.0069
OutputGaptoGDP	1	-0.2143	**-1.6993**	**0.9680**	0.0425	2	-0.5156	**-3.0203**	**0.9980**	0.1248	4	-1.1061	**-4.2143**	**0.9950**	0.2634
M2Growth	1	0.1761	1.3442	0.0570	0.0297	2	0.2357	1.7918	0.0530	0.0281	4	0.2660	1.2005	0.1600	0.0186
CommodityIndexGrowth	1	-0.1223	-1.0364	0.8350	0.0149	2	-0.1686	-0.6939	0.6980	0.0143	4	0.0274	0.0776	0.4900	0.0002
FXchange	1	-0.0978	-0.8263	0.8370	0.0095	2	-0.1471	-0.5524	0.7320	0.0110	4	-0.2102	-0.5234	0.7000	0.0102
CAY	1	0.0407	0.2948	0.3830	0.0013	2	0.1371	0.4347	0.3710	0.0066	4	0.9974	**2.1687**	0.0760	0.1094
Wealth-Income	1	-0.1335	-0.9938	0.8320	0.0150	2	-0.3279	-1.2553	0.8450	0.0410	4	-1.1786	**-2.8452**	**0.9590**	0.1900
RiskFree-MMR/TBL	1	-0.0922	-0.7727	0.7840	0.0083	2	-0.2119	-1.1691	0.8420	0.0220	4	-0.5890	-1.9360	0.9100	0.0751
Price-GDP	1	-0.1051	-0.8324	0.7150	0.0104	2	-0.1587	-0.6585	0.5830	0.0120	4	-0.2506	-0.5764	0.5490	0.0135
CBRate	1	-0.1418	-1.2061	0.8790	0.0201	2	-0.2996	-1.3701	0.8410	0.0455	4	-0.5335	-1.2088	0.7680	0.0663

Panel B: US and Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.1459	1.2257	0.1260	0.0207	2	0.2792	1.1313	0.1930	0.0384	4	0.4089	1.1872	0.2130	0.0378
OutputGaptoGDP	1	-0.2036	**-1.7255**	0.9390	0.0408	2	-0.3580	**-1.6815**	0.8760	0.0635	4	-0.6448	**-1.9431**	0.8860	0.0931
M2Growth	1	-0.0029	-0.0241	0.4920	0.0000	2	0.0716	0.3979	0.3820	0.0026	4	0.0033	0.0126	0.5230	0.0000
CommodityIndexGrowth	1	-0.1037	-0.8791	0.8100	0.0108	2	-0.3314	**-2.1622**	0.9370	0.0559	4	-0.2348	-0.9148	0.7420	0.0129
FXchange	1	-0.0058	-0.0487	0.5580	0.0000	2	-0.0543	-0.3218	0.6210	0.0015	4	-0.0431	-0.1267	0.5940	0.0004
CAY	1	0.1247	1.0372	0.2660	0.0151	2	0.2478	1.0867	0.3020	0.0299	4	0.6122	1.4793	0.2540	0.0786
Wealth-Income	1	0.0585	0.4846	0.1970	0.0033	2	0.1447	0.6262	0.2190	0.0104	4	0.2067	0.4384	0.2620	0.0097
RiskFree-MMR/TBL	1	-0.1013	-0.8489	0.7290	0.0100	2	-0.2325	-1.1166	0.7550	0.0263	4	-0.5746	-1.5621	0.8160	0.0705
Price-GDP	1	-0.2428	**-2.1087**	**0.9760**	0.0589	2	-0.4621	**-2.8976**	**0.9800**	0.1086	4	-0.8398	**-3.8147**	**0.9820**	0.1652
CBRate	1	-0.1104	-0.9257	0.7830	0.0119	2	-0.2796	-1.3772	0.8170	0.0380	4	-0.6255	**-1.7567**	0.8600	0.0835
VIX	1	0.0198	0.1672	0.4920	0.0004	2	-0.0196	-0.0907	0.5500	0.0002	4	-0.0506	-0.1167	0.6260	0.0006
Intl Net Bank Claims	1	-0.0150	-0.1260	0.4800	0.0002	2	-0.0842	-0.3788	0.5510	0.0036	4	-0.2060	-0.4991	0.5730	0.0097
Intl Bank Claims	1	-0.0175	-0.1449	0.5540	0.0003	2	-0.1215	-0.5083	0.6530	0.0069	4	-0.2214	-0.5061	0.6710	0.0097
G7 Output Gap	1	-0.0964	-0.8086	0.8220	0.0091	2	-0.1439	-0.7455	0.7680	0.0100	4	-0.1041	-0.3619	0.6140	0.0024

Notes: Table 6 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Slope is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table 7: In-sample forecast regressions – South Africa.

Panel A: Domestic Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	-0.2384	**-2.0923**	**0.9860**	0.0581	2	-0.3282	**-1.8909**	**0.9560**	0.0578	4	-0.4801	**-1.6758**	0.9290	0.0685
OutputGaptoGDP	1	-0.2875	**-2.5605**	**0.9910**	0.0845	2	-0.5461	**-4.2336**	**0.9990**	0.1601	4	-0.9643	**-4.2670**	**0.9930**	0.2789
M2Growth	1	-0.1333	-1.1429	0.8560	0.0181	2	-0.2703	**-1.8658**	0.9080	0.0382	4	-0.5828	**-1.8752**	0.8880	0.0939
CommodityIndexGrowth	1	-0.0823	-0.7019	0.7660	0.0069	2	-0.0749	-0.3176	0.6010	0.0030	4	0.0820	0.1979	0.4240	0.0020
FXchange	1	0.0883	0.7533	0.2230	0.0079	2	0.1949	1.2162	0.1330	0.0202	4	0.3805	1.1818	0.1730	0.0429
CAY	1	-0.0117	-0.0909	0.5260	0.0001	2	0.0131	0.0731	0.4570	0.0001	4	0.2967	1.1049	0.2060	0.0212
Wealth-Income	1	0.0644	0.5058	0.3240	0.0039	2	0.1707	0.8281	0.2480	0.0144	4	-0.0893	-0.2542	0.5870	0.0022
RiskFree-MMR/TBL	1	-0.1705	-1.4569	**0.9640**	0.0290	2	-0.2554	-1.3513	0.9370	0.0333	4	-0.4529	-1.2737	0.9040	0.0551
Price-GDP	1	-0.0578	-0.4857	0.4440	0.0033	2	-0.0844	-0.4844	0.4370	0.0036	4	-0.1005	-0.3080	0.3480	0.0027
CBRate	1	-0.1905	-1.6318	**0.9780**	0.0362	2	-0.2711	-1.3833	0.9240	0.0374	4	-0.4433	-1.2168	0.8920	0.0527

Panel B: US and Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.0597	0.5030	0.2710	0.0036	2	0.2625	1.2252	0.1370	0.0358	4	0.5140	1.5275	0.1230	0.0763
OutputGaptoGDP	1	-0.0737	-0.6194	0.6410	0.0055	2	-0.1561	-0.9804	0.6890	0.0128	4	-0.2443	-0.7990	0.6340	0.0171
M2Growth	1	0.0596	0.5090	0.3140	0.0036	2	0.0036	0.0222	0.5380	0.0000	4	-0.0368	-0.1412	0.5620	0.0004
CommodityIndexGrowth	1	-0.0444	-0.3791	0.6390	0.0020	2	-0.1180	-0.7614	0.7670	0.0075	4	-0.1309	-0.5153	0.6630	0.0051
FXchange	1	-0.0485	-0.4140	0.6500	0.0024	2	-0.0438	-0.3183	0.6180	0.0010	4	-0.0837	-0.3301	0.6270	0.0020
CAY	1	0.0421	0.3516	0.5450	0.0018	2	0.0959	0.5487	0.5020	0.0047	4	0.2041	0.7778	0.4650	0.0112
Wealth-Income	1	0.0469	0.3919	0.1790	0.0022	2	0.1242	0.7594	0.1130	0.0081	4	0.2089	0.5542	0.1760	0.0127
RiskFree-MMR/TBL	1	-0.0164	-0.1381	0.4520	0.0003	2	-0.0392	-0.2540	0.4660	0.0008	4	-0.1837	-0.7214	0.5920	0.0092
Price-GDP	1	-0.0492	-0.4193	0.6110	0.0025	2	-0.0756	-0.5248	0.6370	0.0031	4	-0.1608	-0.7974	0.6720	0.0077
CBRate	1	-0.0158	-0.1330	0.5370	0.0002	2	-0.0566	-0.3760	0.6070	0.0016	4	-0.2281	-0.8569	0.7070	0.0142
VIX	1	-0.0196	-0.1665	0.6190	0.0004	2	-0.0714	-0.3662	0.6950	0.0027	4	-0.1147	-0.3799	0.7110	0.0038
Intl Net Bank Claims	1	0.0126	0.1072	0.4040	0.0002	2	-0.0168	-0.1146	0.4560	0.0002	4	-0.1763	-0.5329	0.5930	0.0090
Intl Bank Claims	1	0.0195	0.1636	0.4630	0.0004	2	0.0108	0.0636	0.4850	0.0000	4	-0.0809	-0.2034	0.5990	0.0016
G7 Output Gap	1	-0.0933	-0.7912	0.7630	0.0087	2	-0.1400	-0.8874	0.7570	0.0101	4	-0.1317	-0.4534	0.6170	0.0049

Notes: Table 7 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Slope is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table 8: Out-of-sample forecast regressions – Brazil.

Panel A: Domestic Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	**0.9952**	0.172	0.273	0.141	2	**0.9942**	0.192	0.315	0.202	4	**0.9927**	0.178	0.269	0.127
OutputGaptoGDP	1	**0.9138**	**0.002**	**0.004**	**0.012**	2	**0.8732**	**0.002**	**0.004**	**0.035**	4	**0.8693**	**0.012**	**0.014**	**0.039**
M2Growth	1	1.0008	0.246	0.39	0.453	2	**0.9979**	0.218	0.355	0.217	4	**0.9955**	0.211	0.335	**0.078**
CommodityIndexGrowth	1	**0.9873**	**0.095**	**0.087**	0.143	2	1.0290	0.662	0.349	0.351	4	1.0216	0.504	0.474	0.451
FXchange	1	**0.9897**	0.105	**0.048**	0.124	2	**0.9754**	**0.079**	**0.052**	0.128	4	**0.9701**	0.115	0.101	0.145
CAY	1	**0.9858**	0.110	0.153	**0.092**	2	**0.9950**	0.239	0.282	0.22	4	1.0453	0.692	0.658	0.917
Wealth-Income	1	1.0128	0.483	0.187	0.255	2	1.0741	0.815	0.843	0.549	4	1.2703	0.904	0.925	0.896
RiskFree-MMR/TBL	1	**0.9752**	**0.034**	**0.048**	**0.048**	2	**0.9735**	**0.095**	0.131	0.12	4	**0.9239**	**0.060**	**0.088**	**0.055**
Price-GDP	1	**0.9984**	0.246	**0.065**	0.160	2	1.0260	0.506	0.114	0.248	4	1.0162	0.388	0.129	0.251
CBRate	1	**0.9959**	0.173	0.297	0.124	2	**0.9874**	0.160	0.241	0.101	4	**0.8898**	**0.031**	**0.047**	**0.013**
CAY_RT	1	1.0377	0.776	0.821	0.687	2	1.1342	0.916	0.971	0.768	4	1.2848	0.893	0.893	0.591
Wealth-Income_RT	1	1.0160	0.518	0.189	0.258	2	1.0884	0.852	0.849	0.53	4	1.2896	0.924	0.930	0.811
OutputGap_to_GDP_RT	1	**0.9612**	**0.036**	**0.059**	**0.025**	2	**0.9444**	**0.031**	**0.059**	**0.092**	4	**0.9493**	**0.092**	**0.089**	0.134

Panel B: US Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	1.0192	0.759	**0.036**	0.125	2	1.0097	0.451	**0.061**	0.248	4	1.0355	0.720	0.140	0.298
OutputGaptoGDP	1	1.0525	0.931	0.463	0.411	2	1.0714	0.858	0.562	0.415	4	1.1715	0.915	0.725	0.465
M2Growth	1	1.0197	0.762	0.635	0.454	2	1.0411	0.852	0.922	0.701	4	1.0440	0.819	0.839	0.667
CommodityIndexGrowth	1	1.0293	0.826	0.824	0.466	2	**0.9906**	0.151	0.142	0.247	4	1.1627	0.960	0.962	0.678
FXchange	1	1.0101	0.556	0.703	0.945	2	1.0573	0.944	0.970	0.865	4	1.1229	0.987	0.994	0.919
CAY	1	1.0962	0.978	0.982	0.809	2	1.1137	0.906	0.871	0.620	4	1.2220	0.92	0.428	0.401
Wealth-Income	1	1.0277	0.753	0.770	0.554	2	1.0401	0.671	0.654	0.459	4	1.1671	0.889	0.976	0.956
RiskFree-MMR/TBL	1	1.0521	0.920	0.923	0.769	2	1.0889	0.882	0.849	0.621	4	1.1214	0.773	0.445	0.423
Price-GDP	1	**0.9653**	**0.024**	**0.032**	**0.048**	2	**0.9511**	**0.036**	**0.040**	**0.082**	4	**0.9480**	0.109	**0.089**	0.105
CBRate	1	1.0472	0.882	0.833	0.606	2	1.0786	0.838	0.607	0.453	4	1.0988	0.670	0.273	0.311
CAY_RT	1	1.0154	0.618	0.327	0.348	2	1.0337	0.704	0.347	0.384	4	1.0972	0.834	0.845	0.58
Wealth-Income_RT	1	1.0812	0.971	0.989	0.994	2	1.1236	0.938	0.991	0.98	4	1.2332	0.941	0.981	0.758
OutputGap_to_GDP_RT	1	1.0257	0.788	0.749	0.644	2	1.0459	0.739	0.812	0.856	4	1.0577	0.622	0.534	0.437

Panel C: Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
VIX	1	1.0044	0.355	0.417	0.431	2	1.0121	0.464	0.561	0.568	4	1.0227	0.530	0.544	0.514
Intl Net Bank Claims	1	1.0410	0.882	0.940	0.864	2	1.0975	0.924	0.952	0.942	4	1.3171	0.974	0.637	0.488
Intl Bank Claims	1	1.0644	0.970	0.957	0.801	2	1.1099	0.947	0.882	0.708	4	1.1943	0.915	0.462	0.419
G7 Output Gap	1	1.0782	0.968	0.092	0.195	2	1.1746	0.967	0.334	0.372	4	1.3756	0.965	0.748	0.516
G7 Output Gap RT	1	1.1141	0.991	0.027	0.082	2	1.3597	0.993	**0.084**	0.181	4	2.0149	0.995	0.628	0.515

Notes: Table 8 shows out-of-sample forecasting for returns at the one quarter, two quarter and four quarter horizons. Theil's U is the ratio of the forecast error of the regression model to that of the historical average benchmark. MSE-F and CW-t are tests for equal forecast accuracy. ENC NEW tests for encompassing. The one-sided p-values for these tests are based on a bootstrapping procedure described in Section 3.2. Bold type is used to denote significance at the 10% level for a one-sided test.

Table 9: Out-of-sample forecast regressions – Russia.

Panel A: Domestic Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	**0.9952**	0.163	0.230	0.223	2	**0.9962**	0.196	0.264	0.27	4	**0.9706**	0.14	0.179	0.215
OutputGaptoGDP	1	**0.8618**	**0.000**	**0.000**	**0.023**	2	**0.8025**	**0.000**	**0.000**	**0.075**	4	**0.8281**	**0.007**	**0.000**	0.135
M2Growth	1	1.0840	0.940	0.451	0.429	2	1.0674	0.813	0.814	0.603	4	1.0674	0.637	0.441	0.44
CommodityIndexGrowth	1	1.0157	0.661	0.257	0.339	2	1.0695	0.901	0.874	0.492	4	1.0662	0.754	0.790	0.637
FXchange	1	**0.9792**	**0.059**	**0.065**	**0.075**	2	**0.9871**	0.105	0.100	0.141	4	**0.9670**	0.149	0.176	0.197
CAY	1	1.0097	0.489	0.632	0.715	2	1.0045	0.315	0.445	0.541	4	**0.9921**	0.224	0.325	0.294
Wealth-Income	1	1.0059	0.407	0.542	0.836	2	1.0196	0.537	0.656	0.864	4	**0.9989**	0.265	0.285	0.309
RiskFree-MMR/TBL	1	**0.9941**	0.122	0.210	0.199	2	**0.9993**	0.245	0.381	0.356	4	**0.9904**	0.173	0.279	0.244
Price-GDP	1	1.0073	0.162	0.244	0.235	2	1.0572	0.468	0.557	0.633	4	1.2130	0.732	0.899	0.737
CBRate	1	**0.9970**	0.182	0.332	0.246	2	**0.9967**	0.209	0.295	0.314	4	**0.9729**	0.124	0.121	0.215
CAY_RT	1	1.0273	0.711	0.745	0.589	2	1.0810	0.839	0.908	0.670	4	1.1335	0.782	0.897	0.719
Wealth-Income_RT	1	**0.9995**	0.238	0.315	0.302	2	1.0116	0.385	0.385	0.386	4	1.0019	0.254	0.184	0.261
OutputGap_to_GDP_RT	1	1.0163	0.648	**0.064**	0.149	2	1.0131	0.426	**0.061**	0.140	4	1.1350	0.875	0.110	0.132

Panel B: US Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	1.0726	0.976	0.812	0.532	2	1.0456	0.838	0.248	0.339	4	1.0310	0.696	0.243	0.293
OutputGaptoGDP	1	**0.9683**	**0.037**	**0.022**	**0.029**	2	**0.9588**	**0.047**	**0.023**	**0.086**	4	**0.9599**	0.115	**0.056**	0.136
M2Growth	1	1.0303	0.864	0.802	0.562	2	1.0349	0.803	0.734	0.511	4	1.0181	0.600	0.725	0.874
CommodityIndexGrowth	1	1.0422	0.889	0.648	0.419	2	1.1344	0.981	0.984	0.567	4	1.1998	0.983	0.996	0.747
FXchange	1	1.0454	0.941	**0.052**	0.216	2	1.0767	0.952	0.836	0.572	4	1.1550	0.99	0.994	0.952
CAY	1	1.1264	0.989	0.996	0.867	2	1.1948	0.98	0.976	0.722	4	1.2395	0.924	0.488	0.466
Wealth-Income	1	1.0877	0.977	0.922	0.639	2	1.0921	0.88	0.802	0.538	4	1.0830	0.671	0.519	0.456
RiskFree-MMR/TBL	1	1.0357	0.791	0.924	0.859	2	1.0637	0.769	0.912	0.775	4	1.0589	0.561	0.713	0.674
Price-GDP	1	1.0062	0.363	0.205	0.246	2	1.0033	0.258	0.272	0.271	4	1.0143	0.34	0.271	0.234
CBRate	1	1.0262	0.715	0.875	0.824	2	1.0480	0.678	0.831	0.716	4	1.0346	0.419	0.511	0.547
CAY_RT	1	1.1163	0.995	0.986	0.832	2	1.0776	0.906	0.93	0.794	4	1.0231	0.523	0.625	0.734
Wealth-Income_RT	1	1.1851	0.997	0.996	0.912	2	1.2011	0.981	0.983	0.845	4	1.1216	0.786	0.621	0.556
OutputGap_to_GDP_RT	1	1.0537	0.934	0.973	0.969	2	1.0860	0.896	0.960	0.840	4	1.0783	0.738	0.544	0.487

Panel C: Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
VIX	1	1.0521	0.937	0.931	0.667	2	1.0333	0.765	0.795	0.615	4	1.0180	0.490	0.629	0.880
Intl Net Bank Claims	1	1.0596	0.942	0.967	0.893	2	1.0787	0.852	0.881	0.770	4	1.3175	0.956	0.219	0.306
Intl Bank Claims	1	1.1352	0.992	0.945	0.637	2	1.2045	0.982	0.506	0.405	4	1.1886	0.893	0.124	0.226
G7 Output Gap	1	1.0543	0.922	**0.012**	**0.051**	2	1.1253	0.934	**0.041**	0.120	4	1.2172	0.900	0.128	0.180
G7 Output Gap RT	1	1.1578	0.991	**0.005**	**0.023**	2	1.4656	0.996	**0.036**	**0.098**	4	1.8452	0.992	0.144	**0.083**

Notes: Table 9 shows out-of-sample forecasting for returns at the one quarter, two quarter and four quarter horizons. Theil's U is the ratio of the forecast error of the regression model to that of the historical average benchmark. MSE-F and CW-t are tests for equal forecast accuracy. ENC NEW tests for encompassing. The one-sided p-values for these tests are based on a bootstrapping procedure described in Section 3.2. Bold type is used to denote significance at the 10% level for a one-sided test.

Table 10: Out-of-sample forecast regressions – India.

Panel A: Domestic Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	1.0062	0.374	0.525	0.902	2	1.0150	0.446	0.514	0.616	4	1.0444	0.643	0.636	0.566
OutputGaptoGDP	1	1.0279	0.764	0.822	0.81	2	1.0780	0.87	0.758	0.534	4	1.2849	0.961	0.59	0.464
M2Growth	1	1.0121	0.548	0.502	0.442	2	1.0363	0.719	0.797	0.872	4	1.1182	0.848	0.923	0.975
CommodityIndexGrowth	1	**0.9234**	**0.001**	**0.006**	**0.015**	2	**0.9389**	**0.026**	**0.026**	0.104	4	**0.9943**	0.229	0.223	0.284
FXchange	1	1.0382	0.898	0.9	0.542	2	1.0877	0.924	0.822	0.483	4	1.3103	0.993	0.926	0.565
CAY	1	1.0319	0.76	0.372	0.349	2	1.0758	0.823	0.671	0.474	4	1.1196	0.770	0.851	0.682
Wealth-Income	1	1.0242	0.722	0.679	0.489	2	1.0635	0.759	0.793	0.573	4	1.0695	0.676	0.806	0.807
RiskFree-MMR/TBL	1	1.0127	0.604	0.355	0.361	2	1.0517	0.863	0.839	0.606	4	1.0426	0.757	0.349	0.349
Price-GDP	1	1.0079	0.419	0.437	0.434	2	1.0036	0.338	0.365	0.345	4	1.0203	0.406	0.395	0.38
CBRate	1	**0.9549**	**0.011**	**0.029**	**0.009**	2	**0.9573**	**0.044**	**0.080**	**0.047**	4	**0.9780**	0.157	0.207	0.156
CAY_RT	1	1.0299	0.774	0.559	0.423	2	1.0719	0.808	0.741	0.512	4	1.0997	0.736	0.841	0.719
Wealth-Income_RT	1	1.0264	0.702	0.622	0.563	2	1.0366	0.600	0.684	0.735	4	1.0286	0.450	0.292	0.343
OutputGap_to_GDP_RT	1	1.0472	0.912	0.219	0.285	2	1.0572	0.822	0.661	0.545	4	1.0722	0.705	0.769	0.638

Panel B: US Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	1.0089	0.486	0.547	0.570	2	1.0322	0.793	0.807	0.535	4	1.0610	0.845	0.859	0.777
OutputGaptoGDP	1	**0.9789**	**0.058**	**0.035**	**0.084**	2	**0.9782**	0.127	**0.055**	0.174	4	1.0116	0.35	**0.094**	0.233
M2Growth	1	1.0316	0.885	0.833	0.664	2	1.0439	0.849	0.842	0.826	4	1.0399	0.785	0.781	0.617
CommodityIndexGrowth	1	**0.9970**	0.159	0.196	0.205	2	**0.9470**	**0.018**	**0.026**	0.151	4	**0.9795**	**0.099**	0.121	0.202
FXchange	1	1.0223	0.826	0.886	0.804	2	1.0680	0.979	0.985	0.923	4	1.1118	0.987	0.999	0.896
CAY	1	1.0400	0.874	0.930	0.974	2	1.0625	0.783	0.861	0.997	4	1.0798	0.684	0.377	0.38
Wealth-Income	1	1.0175	0.639	0.726	0.643	2	1.0338	0.61	0.737	0.767	4	1.0985	0.765	0.882	0.903
RiskFree-MMR/TBL	1	1.0449	0.868	0.916	0.849	2	1.0798	0.85	0.859	0.682	4	1.1247	0.763	0.588	0.487
Price-GDP	1	**0.9904**	0.101	0.167	0.130	2	**0.9853**	0.135	0.219	0.199	4	**0.9739**	0.156	0.193	0.234
CBRate	1	1.0395	0.834	0.779	0.600	2	1.0649	0.764	0.644	0.528	4	1.1051	0.698	0.340	0.372
CAY_RT	1	1.0332	0.864	0.938	0.888	2	1.0641	0.888	0.946	0.926	4	1.1410	0.911	0.945	0.808
Wealth-Income_RT	1	1.0590	0.922	0.973	0.959	2	1.1006	0.928	0.971	0.999	4	1.1370	0.843	0.768	0.565
OutputGap_to_GDP_RT	1	1.0517	0.945	0.898	0.514	2	1.0919	0.912	0.950	0.672	4	1.0276	0.471	0.544	0.528

Panel C: Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
VIX	1	1.0230	0.820	0.883	0.774	2	1.0439	0.820	0.899	0.759	4	1.0604	0.811	0.894	0.868
Intl Net Bank Claims	1	1.0485	0.908	0.868	0.512	2	1.0865	0.910	0.953	0.851	4	1.1269	0.817	0.849	0.689
Intl Bank Claims	1	1.0454	0.918	0.785	0.572	2	1.0602	0.831	0.752	0.608	4	1.0529	0.618	0.459	0.419
G7 Output Gap	1	1.0253	0.731	0.061	0.119	2	1.0701	0.812	0.225	0.262	4	1.1224	0.799	0.629	0.608
G7 Output Gap RT	1	1.0980	0.983	0.002	0.057	2	1.3065	0.996	0.030	0.114	4	1.5876	0.993	0.137	0.181

Notes: Table 10 shows out-of-sample forecasting for returns at the one quarter, two quarter and four quarter horizons. Theil's U is the ratio of the forecast error of the regression model to that of the historical average benchmark. MSE-F and CW-t are tests for equal forecast accuracy. ENC NEW tests for encompassing. The one-sided p-values for these tests are based on a bootstrapping procedure described in Section 3.2. Bold type is used to denote significance at the 10% level for a one-sided test.

Table 11: Out-of-sample forecast regressions – China.

Panel A: Domestic Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	**0.9981**	0.172	0.315	0.197	2	**0.9950**	0.204	0.325	0.183	4	1.0036	0.311	0.453	0.558
OutputGaptoGDP	1	**0.9456**	**0.014**	**0.025**	**0.022**	2	**0.8730**	**0.004**	**0.011**	**0.033**	4	**0.7456**	**0.002**	**0.004**	**0.043**
M2Growth	1	1.1141	0.987	**0.015**	**0.080**	2	1.2167	0.971	0.175	0.303	4	1.4381	0.962	0.294	0.342
CommodityIndexGrowth	1	1.0097	0.533	0.338	0.361	2	1.0516	0.827	0.853	0.524	4	1.0860	0.821	0.817	0.567
FXchange	1	1.1015	0.991	0.995	0.803	2	1.1436	0.979	0.985	0.781	4	1.1264	0.892	0.916	0.789
CAY	1	1.0850	0.955	0.916	0.573	2	1.2111	0.973	0.911	0.546	4	1.1431	0.793	0.159	0.237
Wealth-Income	1	1.0323	0.753	**0.092**	0.175	2	1.0820	0.794	0.119	0.21	4	**0.9639**	0.125	**0.041**	**0.065**
RiskFree-MMR/TBL	1	1.0326	0.809	0.821	0.647	2	1.0475	0.724	0.662	0.479	4	1.0624	0.613	0.283	0.317
Price-GDP	1	1.0333	0.805	0.891	0.882	2	1.0603	0.792	0.908	0.956	4	1.0797	0.745	0.87	0.955
CBRate	1	**0.9741**	**0.045**	0.107	**0.002**	2	**0.9547**	**0.041**	0.120	**0.007**	4	**0.9491**	**0.098**	0.21	**0.067**
CAY_RT	1	1.0335	0.794	0.889	0.897	2	1.0876	0.86	0.961	0.950	4	1.0699	0.691	0.761	0.696
Wealth-Income_RT	1	1.0235	0.71	0.838	0.948	2	1.0536	0.758	0.877	0.771	4	1.0077	0.326	0.362	0.355
OutputGap_to_GDP_RT	1	1.0160	0.635	**0.008**	0.107	2	1.0301	0.645	**0.035**	0.240	4	1.1493	0.852	0.134	0.297

Panel B: US Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	1.0192	0.759	**0.036**	0.125	2	1.0097	0.451	**0.061**	0.248	4	1.0355	0.720	0.140	0.298
OutputGaptoGDP	1	1.0525	0.931	0.463	0.411	2	1.0714	0.858	0.562	0.415	4	1.1715	0.915	0.725	0.465
M2Growth	1	1.0197	0.762	0.635	0.454	2	1.0411	0.852	0.922	0.701	4	1.0440	0.819	0.839	0.667
CommodityIndexGrowth	1	1.0293	0.826	0.824	0.466	2	**0.9906**	0.151	0.142	0.247	4	1.1627	0.960	0.962	0.678
FXchange	1	1.0101	0.556	0.703	0.945	2	1.0573	0.944	0.970	0.865	4	1.1229	0.987	0.994	0.919
CAY	1	1.0962	0.978	0.982	0.809	2	1.1137	0.906	0.871	0.620	4	1.2220	0.920	0.428	0.401
Wealth-Income	1	1.0277	0.753	0.770	0.554	2	1.0401	0.671	0.654	0.459	4	1.1671	0.889	0.976	0.956
RiskFree-MMR/TBL	1	1.0521	0.920	0.923	0.769	2	1.0889	0.882	0.849	0.621	4	1.1214	0.773	0.445	0.423
Price-GDP	1	**0.9653**	**0.024**	**0.032**	**0.048**	2	**0.9511**	**0.036**	**0.040**	**0.082**	4	**0.9480**	0.109	**0.089**	0.105
CBRate	1	1.0472	0.882	0.833	0.606	2	1.0786	0.838	0.607	0.453	4	1.0988	0.670	0.273	0.311
CAY_RT	1	1.0154	0.618	0.327	0.348	2	1.0337	0.704	0.347	0.384	4	1.0972	0.834	0.845	0.580
Wealth-Income_RT	1	1.0812	0.971	0.989	0.994	2	1.1236	0.938	0.991	0.980	4	1.2332	0.941	0.981	0.758
OutputGap_to_GDP_RT	1	1.0257	0.788	0.749	0.644	2	1.0459	0.739	0.812	0.856	4	1.0577	0.622	0.534	0.437

Panel C: Global Predictors

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
VIX	1	1.0209	0.747	0.730	0.557	2	1.0638	0.887	0.869	0.528	4	1.0995	0.887	0.924	0.778
Intl Net Bank Claims	1	1.0512	0.932	0.388	0.398	2	1.1135	0.945	0.933	0.634	4	1.2183	0.933	0.986	0.957
Intl Bank Claims	1	1.0361	0.836	0.884	0.616	2	1.0838	0.896	0.959	0.988	4	1.1015	0.765	0.888	0.948
G7 Output Gap	1	1.0508	0.885	0.829	0.642	2	1.0943	0.874	0.939	0.891	4	1.1271	0.809	0.927	0.918
G7 Output Gap RT	1	1.1249	0.989	**0.016**	**0.067**	2	1.2710	0.993	**0.059**	0.158	4	1.4515	0.985	0.166	0.201

Notes: Table 11 shows out-of-sample forecasting for returns at the one quarter, two quarter and four quarter horizons. Theil's U is the ratio of the forecast error of the regression model to that of the historical average benchmark. MSE-F and CW-t are tests for equal forecast accuracy. ENC NEW tests for encompassing. The one-sided p-values for these tests are based on a bootstrapping procedure described in Section 3.2. Bold type is used to denote significance at the 10% level for a one-sided test.

Table 12: Out-of-sample forecast regressions – South Africa.

Panel A: Domestic Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	**0.9068**	**0.000**	**0.003**	**0.022**	2	**0.9345**	**0.021**	**0.047**	0.117	4	**0.9563**	**0.090**	0.118	0.153
OutputGaptoGDP	1	**0.9211**	**0.002**	**0.001**	**0.008**	2	**0.8961**	**0.014**	**0.004**	**0.050**	4	**0.8770**	**0.027**	**0.007**	**0.076**
M2Growth	1	1.0851	0.984	0.498	0.391	2	1.0925	0.931	0.204	0.273	4	1.1923	0.933	0.129	0.219
CommodityIndexGrowth	1	1.0146	0.615	0.481	0.418	2	1.1017	0.951	0.967	0.567	4	1.2321	0.962	0.964	0.566
FXchange	1	1.0051	0.353	0.291	0.311	2	**0.9998**	0.226	0.205	0.186	4	1.0013	0.262	0.213	0.158
CAY	1	1.0224	0.688	0.806	0.969	2	1.0156	0.463	0.608	0.830	4	1.0428	0.576	0.309	0.318
Wealth-Income	1	**0.9983**	0.219	0.293	0.261	2	**0.9911**	0.188	0.271	0.200	4	1.0133	0.405	0.542	0.838
RiskFree-MMR/TBL	1	**0.9798**	**0.060**	**0.027**	**0.063**	2	**0.9806**	0.120	0.101	**0.090**	4	1.0046	0.289	0.225	0.228
Price-GDP	1	1.1033	0.977	0.996	0.946	2	1.1400	0.935	0.982	0.911	4	1.2891	0.933	0.988	0.922
CBRate	1	**0.9856**	**0.093**	**0.020**	**0.065**	2	**0.9808**	0.114	**0.081**	**0.099**	4	1.0155	0.301	0.245	0.252
CAY_RT	1	1.0388	0.830	0.907	0.968	2	1.0421	0.667	0.812	0.958	4	1.1027	0.713	0.478	0.451
Wealth-Income_RT	1	1.0595	0.916	**0.054**	0.146	2	1.1305	0.925	**0.098**	0.224	4	1.3465	0.957	0.772	0.503
OutputGap_to_GDP_RT	1	1.0405	0.887	0.957	0.962	2	1.1018	0.939	0.964	0.761	4	1.1601	0.893	0.861	0.549

Panel B: US Predictors

1995Q1-2004Q4 INS		One quarter ahead					Two quarters ahead					Four quarters ahead			
2005Q2-2013Q2 OOS	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Theil's U	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
Inflation-Inf	1	1.0370	0.909	0.198	0.289	2	1.0796	0.951	**0.043**	0.210	4	1.1253	0.954	**0.033**	0.240
OutputGaptoGDP	1	1.0039	0.272	0.302	0.292	2	1.0204	0.511	0.484	0.444	4	1.1114	0.820	0.877	0.632
M2Growth	1	1.0387	0.889	0.939	0.829	2	1.0512	0.870	0.943	0.811	4	1.0625	0.889	0.934	0.895
CommodityIndexGrowth	1	1.0489	0.913	0.924	0.678	2	1.0752	0.916	0.939	0.561	4	1.3339	0.997	0.994	0.724
FXchange	1	1.0148	0.680	0.775	0.672	2	1.0298	0.825	0.886	0.827	4	1.1166	0.985	0.994	0.955
CAY	1	1.0359	0.830	0.914	0.958	2	1.0404	0.653	0.786	0.927	4	1.0130	0.331	0.398	0.390
Wealth-Income	1	1.0172	0.622	0.364	0.377	2	1.0308	0.622	0.258	0.329	4	1.1386	0.818	0.512	0.448
RiskFree-MMR/TBL	1	1.0186	0.573	0.770	0.934	2	1.0325	0.532	0.734	0.824	4	1.0322	0.435	0.531	0.559
Price-GDP	1	**0.9997**	0.201	0.345	0.313	2	1.0052	0.271	0.442	0.861	4	**0.9980**	0.228	0.362	0.280
CBRate	1	1.0145	0.518	0.731	0.881	2	1.0235	0.486	0.659	0.740	4	1.0126	0.307	0.370	0.336
CAY_RT	1	1.0126	0.538	0.192	0.240	2	1.0214	0.570	**0.084**	0.184	4	1.0836	0.805	0.204	0.316
Wealth-Income_RT	1	1.0416	0.864	0.924	0.844	2	1.0547	0.758	0.722	0.578	4	1.0556	0.555	0.646	0.857
OutputGap_to_GDP_RT	1	1.0254	0.783	0.194	0.257	2	1.1158	0.950	0.639	0.428	4	1.2831	0.962	0.546	0.449

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1995Q1-2013Q2		One quarter ahead					Two quarters ahead					Four quarters ahead			
	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)	Horizon	Theil's U	p(MSE-F)	p(ENC-NEW)	p(CW-t)
VIX	1	1.0206	0.773	0.758	0.639	2	1.0288	0.709	0.530	0.479	4	1.0688	0.859	0.840	0.789
Intl Net Bank Claims	1	1.0404	0.873	0.120	0.238	2	1.0956	0.903	0.570	0.451	4	1.1959	0.895	0.924	0.713
Intl Bank Claims	1	1.0210	0.651	0.463	0.435	2	1.0494	0.754	0.691	0.532	4	1.1444	0.865	0.872	0.608
G7 Output Gap	1	1.0097	0.445	0.155	0.198	2	1.0637	0.804	0.606	0.472	4	1.2898	0.953	0.970	0.607
G7 Output Gap RT	1	**0.9959**	0.152	**0.049**	**0.081**	2	1.0236	0.542	0.171	0.185	4	1.0837	0.708	0.803	0.703

Notes: Table 12 shows out-of-sample forecasting for returns at the one quarter, two quarter and four quarter horizons. Theil's U is the ratio of the forecast error of the regression model to that of the historical average benchmark. MSE-F and CW-t are tests for equal forecast accuracy. ENC NEW tests for encompassing. The one-sided p-values for these tests are based on a bootstrapping procedure described in Section 3.2. Bold type is used to denote significance at the 10% level for a one-sided test.

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APPENDIX A – RESULTS WITH LAGGED DEPENDENT VARIABLE.

Table A.1: In-sample forecast regressions including lag dependent variable for domestic predictors – Brazil.

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.5193	1.015	0.1600	0.032	2	3.0582	1.582	0.1010	0.044	4	8.6789	**2.406**	**0.0260**	0.1971
OutputGaptoGDP	1	-0.3409	**-2.854**	**1.0000**	0.121	2	-0.7230	**-3.696**	**0.9980**	0.219	4	-0.9599	**-3.790**	**0.9960**	0.2928
M2Growth	1	-0.5053	-1.012	0.8320	0.032	2	-1.3836	-1.081	0.8070	0.040	4	-2.1736	-0.841	0.7560	0.1167
CommodityIndexGrowth	1	-0.1906	**-1.708**	**0.9530**	0.057	2	-0.3149	-1.208	0.8130	0.054	4	-0.1678	-0.440	0.6170	0.0908
FXchange	1	-0.2618	**-2.046**	**0.9750**	0.074	2	-0.5081	**-2.525**	**0.9730**	0.094	4	-0.5085	-1.560	0.8710	0.1292
CAY	1	0.1091	0.797	0.2310	0.031	2	0.1644	0.907	0.2310	0.018	4	-0.1137	-0.417	0.6220	0.1321
Wealth-Income	1	0.1471	1.137	0.1180	0.038	2	0.3925	**1.876**	0.0590	0.061	4	0.4381	1.189	0.1910	0.1436
RiskFree-MMR/TBL	1	0.1726	1.402	0.0750	0.045	2	0.3956	1.312	0.1550	0.053	4	1.1692	**2.109**	0.0850	0.2249
Price-GDP	1	-0.2192	**-1.892**	0.8610	0.066	2	-0.4659	**-2.242**	0.8530	0.096	4	-0.8650	**-2.672**	0.8310	0.2307
CBRate	1	0.0698	0.554	0.2870	0.024	2	0.3440	**1.823**	0.0730	0.061	4	1.1767	**5.396**	**0.0030**	0.3898

Notes: Table A.1 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Beta is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table A.2: In-sample forecast regressions including lag dependent variable for domestic predictors – Russia.

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.0838	0.631	0.2820	0.014	2	0.5229	**2.096**	0.0610	0.080	4	1.3710	**2.732**	**0.0360**	0.2560
OutputGaptoGDP	1	-0.3311	**-2.909**	**0.9960**	0.116	2	-0.6881	**-4.435**	**1.0000**	0.217	4	-1.0023	**-3.700**	**0.9860**	0.3594
M2Growth	1	0.0500	0.395	0.2380	0.016	2	0.0346	0.221	0.3480	0.094	4	0.2422	1.461	0.1280	0.1205
CommodityIndexGrowth	1	-0.1289	-1.101	0.8520	0.025	2	-0.2159	-0.770	0.7250	0.028	4	0.0369	0.072	0.4480	0.1458
FXchange	1	-0.2256	**-1.897**	**0.9650**	0.057	2	-0.5346	**-3.444**	**0.9980**	0.124	4	-0.5227	**-3.177**	**0.9700**	0.1996
CAY	1	-0.0201	-0.151	0.5760	0.009	2	0.0741	0.204	0.4510	0.009	4	-0.1157	-0.221	0.5580	0.1517
Wealth-Income	1	0.0250	0.177	0.4360	0.009	2	-0.2760	-1.349	0.8590	0.028	4	-1.1034	-1.601	0.8530	0.2220
RiskFree-MMR/TBL	1	0.0331	0.133	0.4510	0.008	2	0.3509	0.917	0.2470	0.017	4	1.1436	0.705	0.3090	0.1683
Price-GDP	1	0.0985	0.788	0.1850	0.018	2	0.1269	0.425	0.3520	0.010	4	0.1264	0.305	0.3680	0.1914
CBRate	1	0.0058	0.044	0.4740	0.008	2	0.3794	**2.210**	0.0630	0.049	4	1.1233	**2.644**	0.0580	0.2452

Notes: Table A.2 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Beta is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table A.3: In-sample forecast regressions including lag dependent variable for domestic predictors – India.

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	0.0562	0.473	0.3490	0.030	2	0.1455	0.784	0.2840	0.011	4	0.2835	0.680	0.3770	0.0934
OutputGaptoGDP	1	0.0066	0.048	0.4520	0.038	2	-0.1031	-0.427	0.5890	0.004	4	-0.2504	-0.475	0.5970	0.0855
M2Growth	1	-0.0388	-0.294	0.6180	0.048	2	-0.0576	-0.189	0.5580	0.001	4	-0.3437	-0.742	0.6930	0.0803
CommodityIndexGrowth	1	-0.2830	**-2.479**	**0.9840**	0.107	2	-0.5277	**-1.871**	0.9320	0.123	4	-0.4087	-1.239	0.8120	0.1089
FXchange	1	-0.0933	-0.795	0.8030	0.036	2	-0.2635	-1.072	0.8040	0.032	4	-0.4119	-1.191	0.7980	0.1133
CAY	1	-0.0491	-0.368	0.6490	0.048	2	-0.1156	-0.410	0.6440	0.006	4	0.0652	0.147	0.4660	0.0834
Wealth-Income	1	-0.0196	-0.148	0.5540	0.046	2	-0.0142	-0.050	0.4780	0.001	4	-0.2799	-0.755	0.7060	0.0975
RiskFree-MMR/TBL	1	-0.0554	-0.458	0.7220	0.030	2	-0.0368	-0.186	0.5730	0.003	4	-0.3832	-1.203	0.8060	0.1030
Price-GDP	1	-0.1943	-1.569	0.7550	0.071	2	-0.3661	-1.447	0.6000	0.052	4	-0.5860	-1.534	0.5130	0.1413
CBRate	1	-0.2055	**-1.704**	**0.9570**	0.066	2	-0.4666	**-1.976**	0.9370	0.081	4	-0.9292	**-2.477**	0.9290	0.2073

Notes: Table A.3 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Beta is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table A.4: In-sample forecast regressions including lag dependent variable for domestic predictors – China.

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	-0.1142	-0.816	0.7800	0.010	2	-0.1223	-0.471	0.6380	0.013	4	-0.2031	-0.362	0.5700	0.0224
OutputGaptoGDP	1	-0.2492	**-1.854**	**0.9680**	0.052	2	-0.5247	**-2.936**	**0.9910**	0.123	4	-1.3450	**-5.332**	**0.9960**	0.3576
M2Growth	1	0.1922	1.442	**0.0450**	0.035	2	0.2751	1.519	0.0870	0.035	4	0.3900	1.548	0.1420	0.0384
CommodityIndexGrowth	1	-0.1267	-1.052	0.8590	0.016	2	-0.1665	-0.715	0.7180	0.023	4	0.1650	0.406	0.4400	0.0245
FXchange	1	-0.1037	-0.842	0.8440	0.010	2	-0.1473	-0.531	0.6790	0.018	4	-0.5205	-0.995	0.7590	0.0645
CAY	1	0.0397	0.283	0.3860	0.002	2	0.1342	0.430	0.3590	0.019	4	1.0937	**1.979**	0.1120	0.1410
Wealth-Income	1	-0.1356	-0.988	0.8350	0.016	2	-0.3195	-1.153	0.8140	0.049	4	-1.5074	**-2.974**	0.9440	0.2847
RiskFree-MMR/TBL	1	-0.1007	-0.820	0.8040	0.010	2	-0.1795	-0.940	0.7760	0.023	4	-0.7096	**-1.899**	0.9000	0.1172
Price-GDP	1	-0.1075	-0.834	0.7060	0.011	2	-0.2109	-0.801	0.6600	0.029	4	-0.1342	-0.274	0.5050	0.0190
CBRate	1	-0.1630	-1.315	0.8650	0.025	2	-0.2806	-1.119	0.7550	0.043	4	-0.8530	-1.510	0.8090	0.1276

Notes: Table A.4 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Beta is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.

Table A.5: In-sample forecast regressions including lag dependent variable for domestic predictors – South Africa.

1995Q1-2013Q2	One quarter ahead					Two quarters ahead					Four quarters ahead				
	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq	Horizon	Slope	t	p(t)	R-sq
Inflation-Inf	1	-0.2938	**-2.378**	**0.9960**	0.078	2	-0.6046	**-2.923**	**0.9810**	0.146	4	-1.1215	**-4.932**	**0.9990**	0.2487
OutputGaptoGDP	1	-0.3094	**-2.678**	**0.9950**	0.096	2	-0.5918	**-4.345**	**1.0000**	0.193	4	-0.9678	**-4.277**	**0.9900**	0.3042
M2Growth	1	-0.1357	-1.148	0.8400	0.021	2	-0.2788	**-1.852**	0.9180	0.051	4	-0.5593	**-1.887**	0.8800	0.1053
CommodityIndexGrowth	1	-0.0841	-0.706	0.7570	0.009	2	-0.0645	-0.264	0.5940	0.012	4	0.2083	0.444	0.3720	0.0308
FXchange	1	0.0920	0.771	0.2280	0.011	2	0.2219	1.532	0.0960	0.036	4	0.4109	1.492	0.1670	0.0703
CAY	1	-0.0121	-0.092	0.5250	0.002	2	0.0041	0.022	0.4910	0.008	4	0.2885	0.960	0.2660	0.0381
Wealth-Income	1	0.0707	0.544	0.2880	0.007	2	0.1965	0.927	0.2470	0.027	4	-0.0351	-0.082	0.5280	0.0184
RiskFree-MMR/TBL	1	-0.2016	-1.625	**0.9800**	0.039	2	-0.3932	**-1.888**	**0.9660**	0.075	4	-0.7867	**-2.272**	**0.9680**	0.1472
Price-GDP	1	-0.0624	-0.507	0.4890	0.006	2	-0.0495	-0.244	0.3510	0.011	4	0.0078	0.019	0.3090	0.0200
CBRate	1	-0.2216	**-1.798**	**0.9860**	0.047	2	-0.3998	**-1.818**	**0.9660**	0.079	4	-0.7671	**-2.127**	0.9490	0.1419

Notes: Table A.5 shows results of in-sample predictive regressions for one quarter (Horizon =1), two quarter (Horizon=2) and four quarter (Horizon=4) returns. See Table 1 for variable descriptions. Beta is the slope coefficient on the output gap, t is the t-statistic based on Newey-West procedure, p(t) is the one-sided p-value estimated from the bootstrap procedure described in section 3.2 of the text. R-sq is the goodness of fit. Bold type is used to demonstrate significance at the 10% level; for the bootstrapped p-value this occurs when p(t) is greater than 0.95 or less than 0.05.