The myopic and intertemporal demand for equities: Evidence from emerging markets

Laura Spierdijk[*] Zaghum Umar[†]

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Abstract

We calculate the myopic (single-period) and intertemporal hedge demand for stocks in twenty growth-leading emerging market economies and USA. We consider a domestic investor, whose returns are denominated in the local currency of the country. We also consider an international investor who can invest in USA together with an emerging market country and whose returns are denominated in US dollars. Our results show sizable total and hedging demand for a domestic investor in most of the emerging market economies. We find that accounting for hedging demand results in a sizable increase in the total demand of stocks for both a risk averse as well as a risk tolerant investor. For an international investor, we find sizable total and myopic demand for emerging market stocks. For the international investor, the relatively lower proportion of hedge demand in the total demand of emerging market stocks is compensated by a higher hedge demand of US stocks.

Keywords: portfolio choice, stocks, bills, myopic demand, intertemporal hedging demand, emerging markets

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[*]Laura Spierdijk is affiliated to University of Groningen and Netspar. Address: University of Groningen, Faculty of Economics & Business, Department of Economics, Econometrics, & Business, P.O. Box 800, NL-9700 AV Groningen, The Netherlands. Email: l.spierdijk@rug.nl.

[†]Zaghum Umar (corresponding author) is affiliated to University of Groningen and Netspar. Address: University of Groningen, Faculty of Economics & Business, Department of Economics, Econometrics and Finance P.O. Box 800, NL-9700 AV Groningen, The Netherlands. Email: z.umar@rug.nl.

1 Introduction

Ever since Markowitz's (1952) seminal work on mean-variance analysis, financial economists have vigorously researched various facets of portfolio choice. The traditional mean variance analysis is myopic in nature and is appropriate only for a single-period investment horizon with constant investment opportunities. However, in practise most investors are faced with investment problems spanning over multi-period investment horizon with time varying investment opportunities (Campbell and Viceria, 1999). In such multi-period settings, an investor looks beyond a single-period investment horizon and seek protection against adverse events affecting future returns. Mossin (1968) is among the first studies to examine the multi-period portfolio choice problem and differentiate it from its myopic counterpart. The study shows that myopic portfolio choice is optimal for an investor with log utility on terminal wealth and faced with investment opportunities that are either constant or are time varying but unhedgeable. Samuelson (1969) and Merton (1969) incorporate the role of consumption in the multi-period portfolio choice problem and highlight the difference between myopic and multi-period portfolio choice. They document that myopic portfolio choice is optimal for an investor with either log utility or i.i.d returns i.e. when returns are unpredictable.

However, during the last two decades a large volume of literature documented predictability of equity returns, particularly for longer investment horizons (Keim and Stambaugh, 1986; Campbell, 1987, 1991; Fama and French, 1988, 1989; Harvey, 1994; Barberies, 2000; Lynch, 2001; Ang and Bekaert, 2007). The predictability of equity returns has been cited as a possible explanation for strategies such as market timing and higher portfolio allocation to equities for longer investment horizons due to intertemporal hedging demand for equites (Campbell and Viceria, 2002). Merton (1973) introduced the concept of intertemporal hedging demand and documented that the variation in expected returns over time can lead to horizon effects for long term investors. For such investors, shocks to wealth as well as shocks to investment opportunities, i.e. the productivity of wealth, are important. The intertemporal hedging demand arises when an investor seeks to hedge against the shocks to investment opportunities (Campbell and Viceria, 2002).

Despite the theoretical soundness of Merton's model, analytical solutions of the model, in terms of portfolio weights as a function of state variables, were not available for a long time.

The advancement in fast computing technology towards the end of the twentieth century led to the development of a number of numerical solutions of the Merton model that were calibrated to the US data (Balduzzi and Lynch, 1999; Barberies, 2000; Brennan et. al, 1999; Lynch, 2001). However, these models fail to incorporate consumption in their solution methodologies.

Campbell and Viceria (1999) incorporate consumption in the portfolio choice problem and develop an approximate analytical solution of the Merton model for an infinitely lived investor with one risky asset and one state variable. They document that hedging demand can result in, an almost, twofold increase in the total demand of US stocks. Campbell et al. (2003; hence forth CCV) extend Campbell and Viceria's (1999) model for more assets and state variables, by employing a simple numerical procedure in conjunction with the approximate analytical solution. CCV calculate the myopic and the intertemporal hedging component of the total mean optimal asset demand, for an infinitely lived investor having Epstein-Zin utility. The myopic demand corresponds to the single-period demand for an asset, when there are no changes in the investment opportunity set, as in the traditional single-period portfolio choice problems. The hedge demand corresponds to the additional demand for an asset, when the changes in the investment opportunity set are incorporated in the portfolio choice problem, as in the multi-period portfolio choice problem of Merton (1973). The asset returns are described by a vector autoregressive (VAR) model and there are no borrowing or short sale constraints on asset allocation. In the empirical section of their study, they calculate the mean demand (total, myopic and hedge) for US stocks, bonds and T-bills. CCV's results show that the intertemporal hedging demand of stocks contributes to a substantial increase in the total demand for stocks. Rapach and Wohar (2009; henceforth RW), documents an empirical extension of the CCV model for six developed countries: Australia, Canada, France, Germany, Italy, and the UK alongwith the US. They show that the intertemporal hedging demand results in a sizable increase in the total demand for US and UK stocks, whereas the total and hedging demand for other countries is relatively small. Also, the proportion of hedge demand in total demand for stocks is low for all countries except USA, Germany and UK. RW also calculate confidence intervals for the mean optimal asset demand by employing a parametric bootstrap technique.

As mentioned above, most of the existing literature on multi-period portfolio choice is focused on developed markets. However, during the last two decades, emerging markets have emerged as a lucrative investment option for both domestic and international investors due to reasons such as high growth prospects and diversification benefits (Harvey, 1994; Bekaert and Harvey, 2003). Harvey (1994) documents that equity returns in emerging markets are characterized by higher return, higher volatility and higher return predictability than the developed markets. Chaudhuri and Wu (2003) document mean reversion in emerging markets. The global financial stability report (2011) of the IMF lists growth prospects as the main consideration for asset allocation by long term real-money investors.

The aforementioned facts suggest that emerging market equities can be an interesting portfolio component for both domestic as well as international investors with a multi-period investment horizon. Therefore, in this study we investigate the demand of emerging market stocks for long-term investors with time varying investment opportunities. We will examine the intertemporal effects of return predictability on portfolio choice for long-term investors in emerging market equities. As mentioned above, for a long term investor, the demand for stocks is induced by both myopic as well as intertemporal or strategic objectives. The myopic demand owes to the current risk premium in a single period setting, whereas, the intertemporal demand owes to the strategic objective of the investor to hedge against adverse future events in a multi-period setting. The intertemporal hedging demand can result in a sizable increase in the total demand for stocks, for a long term investor, thereby, resulting in a higher proportion of stocks in the overall portfolio of such investors. In this study, we will quantitatively examine the proportion of myopic and hedge demand in the total demand for emerging market stocks. The impact of hedge demand on total demand for stocks has been studied for developed markets only. To the best of our knowledge, the impact of myopic and intertemporal demand on the total demand for stocks has not been investigated for emerging markets.[1]

We extend the empirical application of CCV's model to emerging markets. Specifically, we will use data for the group of the emerging and growth-leading economies (EAGLEs) and EAGLEs Nest, created in 2010 by Banco Bilbao Vizcaya Argentaria, S.A. (BBVA).[2] EAGLEs group include economies whose expected contribution to the world economic growth in the next ten years is larger than the average of the G-6 economies (G-7 excluding the USA). The performance of group members is reviewed annually for possible inclusion or removal. A related classification is the

[1]De Vries et al. (2011) is a notable exception, who implemented the CCV model for the South African data.

[2]http://www.bbvaresearch.com/KETD/ketd/ing/nav/eagles.jsp

EAGLEs Nest, which includes countries with expected incremental GDP in the next decade to be lower than the average of the G-6 economies but higher than that of the smallest contributor of the G-6 group. Currently, there are 9 countries in the EAGLEs group; China, India, Brazil, Indonesia, Korea, Russia, Turkey, Mexico and Taiwan. There are 15 countries in the EAGLEs Nest group; Thailand, Argentina, Nigeria, Colombia, Poland, Vietnam, Pakistan, Bangladesh, Malaysia, South Africa, the Philippines , Peru, Egypt, Ukraine and Chile. [3]

We study the portfolio choice problem for a domestic investor with returns in the local currency and an international investor with returns in US dollars. The domestic investor can invest in the local market only, whereas the international investor can invest in each of the emerging market economies together with USA. We use Thompson Reuters Datastream global equity total return indices for each country. Following CCV, we employ a VAR specification to model asset returns. The benchmark asset for domestic investor in each country is a short term money market instrument. The benchmark asset for international investor is the yield on 3-month US T-bills. CCV employed nominal yield on benchmark asset, dividend yield and term spread as state variables in their model. However, the data for calculating term spread is not available for all the countries in our sample group. Besides, the results reported in CCV show that the term spread has, almost, negligible effect on the mean demand for stocks. In the empirical part of this study, we find that book-price ratio is a better predictor than the dividend yield. Therefore, we use nominal yield on benchmark asset and book-price ratio as predictive variables in our analysis. [4] [5] We calculate the mean optimal demand (total, myopic and intertemporal hedge demand) for various levels of risk aversion, along with the corresponding confidence intervals, for stocks and bills for each country.[6] In addition, we also report the monthly change in total and hedging demand over the sample period for each country.

Our results show sizable total and hedging demand of stocks for a domestic investor in many emerging market economies. We find that the book-price ratio improves the predictability of returns and thus the total and intertemporal demand for stocks. It is pertinent to mention here that the

[3] Due to non-availability of data, we do not calculate results for Nigeria, Vietnam, Bangladesh and Ukraine

[4] Lewellen (2004) documents the predictive ability of the dividend yield, book-price and earning-price ratio in predicting aggregate stock returns.

[5] The data of book-price ratio is not available for Brazil. Therefore, we use dividend yield instead of book-price ratio for Brazil.

[6] RW also use a parametric bootstrap technique to calculate the confidence intervals. However, they use percentile method, which results in non-symmetric confidence intervals.

hedging demand contributes a substantial part of the total demand for a domestic investor in each country, implying that accounting for variation in investment opportunities results in an increase in the demand for stocks in these countries. [7] For the international investor, who can invest in both US stocks and emerging market stocks, the emerging market stocks has sizable total and myopic demand for most of the countries in our sample group. The relatively lower proportion of hedge demand in total demand for emerging market stocks is compensated by a higher hedge demand for US stocks.

The rest of the paper is organized as follows. In Section 2, we present a brief summary of CCV's model. Section 3, discusses data and sample statistics followed by findings and analysis of the stocks demand for a domestic and an international investor in Section 4 and 5, respectively. The conclusion is presented in Section 6.

2 Empirical Approach

In this section we report a brief summary of the CCV model. For complete details of their methodology and model we refer to CCV.

Let $R_{p,t+1}$ be the real return of a portfolio of n assets, for an infinitely long-lived investor with Epstein-Zin preferences defined over a fixed stream of consumption. Let $R_{1,t+1}$ be the real return on the benchmark asset, which is a short-term instrument and $R_{i,t+1}$ $(i = 2, 3, ..., n)$ the real return on the remaining $n - 1$ assets. Then the portfolio return is given by

$$R_{p,t+1} = \sum_{i=2}^{n} \alpha_{i,t}(R_{i,t+1} - R_{1,t+1}) + R_{1,t+1}, \quad (1)$$

where $\alpha_{i,t}$ is the portfolio weight for asset i.

The log real return is denoted as $r_{i,t+1} = log(R_{i,t+1})$, for all i. Let x_{t+1} be the vector of excess returns such that $x_{t+1} = [r_{2,t+1} - r_{1,t+1}, ..., r_{n,t+1} - r_{1,t+1}]'$. Let s_{t+1} be the vector of the other state variables such as the dividend yield, short rate etc. We stack $r_{1,t+1}, x_{t+1}$ and s_{t+1} in a $m \times 1$ vector, z_{t+1}, called the state vector:

$z_{t+1} = [r_{1,t+1}, x_{t+1}, s_{t+1}]$.

[7] Although, the total and hedge demand varies in absolute terms, however, the proportion of hedge demand in total demand is sizable for all countries.

The system of state variables is assumed to follow a first-order vector autoregression for z_{t+1}, such that: [8]

$$z_{t+1} = \phi_0 + \phi_1 z_t + \nu_{t+1}, \tag{2}$$

where ϕ_0 is the $m \times 1$ vector of intercepts, and ϕ_1 is the $m \times m$ matrix of slope coefficients, and ν_{t+1} is an m-vector of shocks that are i.i.d $N(0, \sum_\nu)$ such that:[9]

$$\Sigma_\nu = Var_t(\nu_{t+1}) = \begin{pmatrix} \sigma_1^2 & \sigma_{1x}^{'} & \sigma_{1s}^{'} \\ \sigma_{1x} & \sum_{xx} & \sum_{xs}^{'} \\ \sigma_{1s} & \sum_{xs} & \sum_{ss} \end{pmatrix} \tag{3}$$

where σ_1^2 denotes the variance of the shocks to the benchmark asset. σ_{1x} is the vector with covariances between the shocks to the benchmark asset returns and the shocks to the other asset returns with $(n-1)$ elements. σ_{1s} is the vector of covariances between the shocks to the benchmark asset returns and the shocks to instruments with $(m-n)$ elements. $\sum_{xx}$ is the variance-covariance matrix of the shocks to excess returns with $(n-1) \times (n-1)$ elements. $\sum_{xs}$ is the variance-covariance matrix of the shocks to excess returns and the shocks to instruments with $(m-n) \times (n-1)$ elements . $\sum_{ss}$ is the variance-covariance matrix of the shocks to the instruments with $(m-n) \times (m-n)$ elements.

Following Epstein and Zin (1989, 1991), CCV define the recursive preferences of an investor over an infinite investment horizon by

$$U[C_t, E_t(U_{t+1})] = [(1-\delta)C_t^{(1-\gamma)/\theta} + \delta(E_t(U_{t+1}^{1-\gamma}))^{1/\theta}]^{\theta/(1-\gamma)} \tag{4}$$

where C_t is the consumption at time t, $E_t(.)$ is the conditional expectation given all information at time t, $0 < \delta < 1$ is the time discount factor, $\gamma > 0$ is the coefficient of relative risk aversion (CRRA), $\theta \equiv (1-\gamma)/(1-\psi^{-1})$ and $\psi > 0$ is the elasticity of intertemporal substitution. One notable advantage of using this utility function is the separation of the notion of risk aversion (γ) from that of the elasticity of intertemporal substitution (ψ).[10]

[8] Authors employing similar specification include, but not limited to, Campbell (1991), Balduzzi and Lynch (1999), Campbell and Viceria (1999), Lynch (2001) and Hoevenaars et al. (2008).

[9] CCV assumes that shocks to the VAR model are homoscedastic and independently distributed over time but are cross sectionally correlated.

[10] Eq. (4) reduces to a special case of time separable power utility when $\gamma = \psi^{-1}$ and to log utility for the additional constraint of $\gamma = \psi^{-1} = 1$.

The budget constraint for an investor with wealth W_t is given as:

$$W_{t+1} = (W_t - C_t)R_{p,t+1} \tag{5}$$

Given the budget constraint defined in Eq. (5), Epstein and Zin (1989, 1991) derive the Euler equation for consumption for any asset i, in the portfolio p as;

$$E_t\left(\left\{\delta\left(\frac{C_{t+1}}{C_t}\right)^{-1/\psi}\right\}^{\theta} R_{p,t+1}^{-(1-\theta)}R_{i,t+1}\right) = 1 \tag{6}$$

For the power utility case with $\gamma = \psi^{-1}$ and $\theta = 1$, the first order condition in Eq. (6) reduces to the standard one. CCV point out that the optimal portfolio choice with constant investment opportunities is the same as the single period or myopic portfolio. However, with time varying investment opportunities, exact analytical solutions are generally not available except for specific values of γ and ψ. CCV extend the approximate analytical solution of Campbell and Viceria (1999, 2001), in conjunction with a simple numerical procedure to calculate optimal portfolio and consumption choices for any values of γ and ψ. CCV employ an approximation of the log real return on the portfolio, which is exact in continuous time and highly accurate for short time intervals. Furthermore, log-linear approximations of the budget constraint (first order) and the Euler equation (second order) are used.[11] The optimal portfolio (α_t) and consumption ($c_t - w_t$) rules are given by

$$\alpha_t = A_0 + A_1 z_t; \tag{7}$$

$$c_t - w_t = b_0 + B_1^{'} z_t + z_t^{'} B_2 z_t; \tag{8}$$

where c_t and w_t are log levels of C_t and W_t, respectively and $A_0[(n-1)\times 1]$, $A_1[(n-1)\times m]$, $b_0(1\times 1)$, $B_1(m\times 1)$ and $B_2(m\times m)$ are constant coefficient matrices that are function of γ, ψ, δ, ρ, ϕ_0, ϕ_1 and $\sum_{\nu}$, with $\rho = 1 - \exp[E(c_t - w_t)]$.

Because we focus primarily on an investor's portfolio choice, we are interested in the parameters of Eq. (7). Following Merton (1969, 1971), CCV derive the following two equations to divide the total demand into myopic and intertemporal hedging components:

$$A_0 = (1/\gamma)\Sigma_{xx}^{-1}[H_x\phi_0 + 0.5\sigma_x^2 + (1-\gamma)\sigma_{1x}] + [1-(1/\gamma)]\Sigma_{xx}^{-1}[-\Lambda_0/(1-\psi)]; \tag{9}$$

[11] These approximations are exact for $\psi = 1$.

$$A_1 = (1/\gamma)\Sigma_{xx}^{-1}H_x\phi_1 + [1-(1/\gamma)]\Sigma_{xx}^{-1}[-\Lambda_1/(1-\psi)]; \tag{10}$$

where H_x denotes the selection matrix that selects the vector of excess returns, x_t, from z_t, σ^2 denotes the vector of diagonal elements of $\sum_{xx}$, Λ_0 and Λ_1 denotes matrices whose values depend on B_0, B_1 and B_2, γ, ψ, δ, ρ, ϕ_0, ϕ_1 and $\sum_{\nu}$. The terms $(1/\gamma)\Sigma_{xx}^{-1}[H_x\phi_0 + 0.5\sigma_x^2 + (1-\gamma)\sigma_{1x}]$ and $(1/\gamma)\Sigma_{xx}^{-1}H_x\phi_1$ on the right side of Eqs. (9) & (10) represent the myopic demand in total demand of an asset. The myopic demand refers to the demand for an asset in a single period context, similar to the demand derived in static mean variance framework, wherein the investment opportunity set is assumed to be constant. The terms $[1-(1/\gamma)]\Sigma_{xx}^{-1}[-\Lambda_0/(1-\psi)]$ and $[1-(1/\gamma)]\Sigma_{xx}^{-1}[-\Lambda_1/(1-\psi)]$ on the right hand side of Eqs. (9) & (10) represent the intertemporal hedging demand. The intertemporal hedging demand can arise in a multi-period portfolio choice problem, when an investor accounts for the changes in the investment opportunity set and tries to hedge against the adverse future shocks. RW points out two conditions for the existence of the intertemporal demand in a multi-period portfolio choice framework; the returns should be predictable and the variance-covariance matrix for the VAR innovations, Σ_{ν}, cannot be diagonal.

The point estimates of the mean optimal asset demand obtained from the CCV procedure are subject to parameter uncertainty. To deal with this, we will calculate the associated confidence intervals by using the parametric bootstrap. [12]

3 Empirical Application

This section gives a brief description of the various variables and model parameters used in this study along with the sample statistics.

3.1 Data

We estimate Eqs. (7) and (8) for an infinitely lived investor in the emerging market economies and USA, with returns denominated in either the local currency (a domestic investor) or in US dollar (an international investor). The investor can invest in a short term money market asset (the benchmark asset) and a stock market index. Table 1 shows the variables employed for each country.

[12] RW calculate the parametric bootstrap using percentiles. However, their confidence intervals are not symmetric. To obtain symmetric confidence intervals, we impose normality instead of using the percentile approach.

We use monthly frequency for all variables. The sample period range from June-1999 to July-2012, encompassing 158 observations for each variable. Our sample period encompass the end of the financial crisis in East Asia, Russia and Latin America, the dot-com crisis of USA, the subsequent recovery and the latest credit crisis of 2008. The data is obtained either from Thompson Reuters database or from IMF's International Financial Statistics (IFS) database. [13] [14]

The first panel of Table 1 shows the benchmark asset for each country. The benchmark asset is a short term money market instrument and its choice is based on factors such as data availability, length of data series, recommendations by Datastream. The log real return on benchmark asset is calculated by subtracting the monthly log inflation from monthly log nominal return on the benchmark asset. The third panel of Table 1 lists the Mnemonic code for inflation series for each country.

We use Datastream global equity total return indices to calculate stock returns. The Mnemonic codes for the equity indices denominated in the domestic currency are listed in the fourth panel of Table 1. The log excess real return on the stock index is calculated by subtracting the log return on the short term money market instrument from the corresponding value of the log return on stock index. The return predictors in our VAR specification are the nominal yield on short term money market instrument and the book-price ratio on the corresponding stock market index. [15] CCV and RW use nominal yield on short term money market instrument, the dividend yield and term spread as predictor variables in their model. However, the data for calculating term spread is not available for most of the countries in our sample group. In addition, CCV document that the term spread has a very little effect on mean demand of stocks due to its low predictive ability. Therefore, we skip term spread. As explained later in Section 4.2, we find that the book-price ratio is a better predictor for stock returns and results in sizable increase in total and myopic demand for stocks. Therefore, we replace the dividend yield with book-price ratio in our VAR model. [16]

The fifth panel of Table 1 shows the equity indices employed for the international investor with return in US dollars. For the international investor, the benchmark asset is US 3-month T-

[13]The Mnemonic code of the data series obtained from Datastream is listed under the column titled Mnemonic for each variable.

[14]The data series obtained from IFS database are denoted by "IFS database" in the column titled Mnemonic.

[15]One or more of these predictor variables are commonly used in extant literature. (For Instance: Harvey, 1994; Ang and Bekaert, 2007; Brennan et al., 1997; Lewellen, 2004; Hoevenaars et al.,2008)

[16]We use price earning ratio for Brazil due to unavailability of book-price ratio data.

bills for all countries in the sample group. The log real return on the benchmark asset is calculated by subtracting the monthly log US inflation rate from the monthly log nominal yield on US 3-month T-bills. We use the Datastream equity total return indices in US dollars for calculating excess returns for each country. The equity indices for Colombia, Egypt, India, Pakistan, Peru and Russia are available in local currency only. Therefore, before calculating the excess return, we use the exchange rate to convert the local currency return in US dollar return. Here again, the return predictors are nominal yield on short term money market instrument (US 3-month T-bills) and the book-price ratio.

3.2 Sample Statistics

The third and fourth columns of Table 1 report the monthly percentage average return and standard deviation of return on the benchmark assets. The benchmark asset for Turkey has the highest average monthly return of 0.918%, whereas the benchmark assets for Russia and Chile have the lowest average return of -0.102% and -0.224%, respectively. The returns on the benchmark assets for India and Malaysia have the lowest monthly volatility of 0.336% and 0.410%, respectively, whereas, the returns on the benchmark assets for Argentina and Turkey have the highest monthly volatility of 1.17% and 2.32%, respectively.

The fourth panel of Table 1 shows the monthly mean, standard deviation and Sharpe ratio (SR) of stock excess returns for the domestic investor. Chile and Colombia has the highest mean excess return of 1.023% and 0.946%, respectively, whereas, Turkey, Argentina, Poland, Taiwan and China have negative mean excess returns of -0.72%, -0.235%, -0.140%, -0.045% and -0.038%, respectively. Turkey and Russia has the highest volatility for stock excess returns of 12.510% and 9.874%, respectively, whereas, USA and Chile has the lowest volatility for stock excess returns of 4.822% and 3.938%, respectively. Chile has the highest Sharpe ratios of 0.260, followed by a Sharpe ratio of 0.160 for Colombia. Turkey, Argentina, Poland, Taiwan and China have negative Sharpe ratios because of negative mean return. A higher value of Sharpe ratio implies higher demand for stocks, given all other factors affecting the demand for stocks remain the same.

The fifth panel of Table 1 displays the monthly mean, standard deviation and Sharpe ratio (SR) of stock excess returns for the international investor with returns denominated in US dollar.

Colombia and Russia have the highest mean excess return of 1.391% and 1.342%, respectively, whereas, Argentina has the lowest mean excess return of -0.384%, respectively. Turkey and Russia have the highest volatility for stock excess returns of 14.974% and 11.065%, respectively, whereas, Malaysia and Chile have lowest volatility for stock excess returns of 0.066% and 0.178%, respectively. The equity indices of Peru and Chile exhibit the highest Sharpe ratios of 0.181 and 0.178, respectively, whereas Argentina exhibit the lowest Sharpe ratios of -0.042.

3.3 Model Parameters

We estimate a VAR(1) model for each country in the sample group. In addition to the VAR coefficients, we need ψ, γ and δ to estimate Eqs. (7) and (8). As mentioned above, CCV's solution is exact for $\psi = 1$, only. They employ a recursive numerical procedure to obtain an approximate solution for the model for other values of ψ . CCV calculate the mean optimal demand of US stocks for $\psi = 0.5, 1$. RW use ψ values of 0.3, 1 and 1.5 for developed markets. Buffie et al. (2009) documents that the ψ for less developed countries are low and ranges between 0.1 and 0.5. Therefore, we start our analysis with $\psi = 1$ and as a robustness check calculate results for ψ = 0.1,0.2,0.3,0.4,0.5,0.6,0.7 and 0.8. [17]

CCV use γ values of 1, 2, 5 and 20, while RW use γ values of 4, 7 and 10. We calculate our results for γ values of 2, 5, 7 and 10. CCV and RW employ a time discount factor of 0.92 for developed markets. For this study, we employ annual time discount factors of 0.92, 0.95 and 0.99 to cater for different time preferences of investors. [18]

4 Asset allocation for a domestic investor

In this section, we report the results for a domestic investor in each of the emerging market countries and the US. The investor can invest in an aggregate stock index and a short term money market instrument. The returns are denominated in local currency for each country.

We start our analysis in this section by reporting the mean optimal demand (total, myopic and intertemporal hedging demand) for $\psi = 1$, $\delta = 0.92$ and $\gamma = 2, 5, 7, 10$. Tables 2 - 4 display the

[17]Campbell and Viceria (2002) document that CCV's approximate solution is highly accurate for lower values of ψ.

[18]Frederick et al. (2002) document a comprehensive review of time discount factors. Fuentes and Gredig (2007) document discount factor of 0.97-0.99 for Chile. Rebelo and Vegh (1995) employs a value of 0.99 for Argentina.

mean optimal demand for stocks along with the corresponding confidence intervals for a domestic investor in each country. The lower half of Table 4 reports the slope coefficients, t-stats and the residuals correlation of the stock excess returns equation. [19]

4.1 Demand for stocks

The total, myopic and hedge demand of stocks for a domestic investor in each of the countries in our sample group is shown in Tables 2 - 4.

In general, the demand for stocks is high for countries with large Sharpe ratios and vice versa. Chile, Malaysia, Colombia, South Africa, Mexico, Peru, Pakistan, India, South Korea and Russia have a total demand of greater than 100% for atleast one value of γ. Stocks demand of more than 100% implies that the amount of investment in stocks exceeds the available wealth. Therefore, the investor borrows money to invest in stocks. [20] As expected, the total and hedge demand for stocks exhibit a decrease, in absolute terms, for higher levels of risk aversion (γ). However, the proportion of hedge demand in total demand of stocks increases with the level of risk aversion, implying that for a risk averse investor hedge demand is the major motivation to hold stocks. The hedge demand is an important contributor to the total demand of stocks for both the risk averse investor as well as risk tolerant investor.Thus, accounting for hedge demand results in a sizable increase in the total demand of stocks for all levels of risk aversion.

The confidence intervals show that the statistical significance of the mean demand varies across different countries. For instance, the demand of stocks (total, myopic and hedge) for Malaysia, Pakistan, India, South Korea and Russia is statistically significant for all levels of risk aversion. On the contrary, the demand of stocks for Egypt, Philippines, Indonesia, Brazil, USA, China, Taiwan, Argentina, Poland and Turkey is statistically insignificant for all levels of risk aversion.

4.2 Effect of state variables on demand for stocks

CCV document that the demand for stocks can be explained by the coefficient of the state variable in the VAR model and the correlation between the innovations to excess stock return and the in-

[19] To save space, we report results of the stocks excess return equation only. The complete results of the VAR model are available on request.

[20] Stocks demand of more than 100% will result in negative demand for bills, implying that the investor is short in bills, because total demand for stocks and bills must sum to 100%.

novations to the state variable. They point out dividend yield as the most influential state variable in determining the demand for stocks. They explain the intertemporal hedging demand by two factors: the positive coefficient of the lagged dividend yield in the stock returns equation of the VAR model and the strongly negative correlation between the innovations to stock returns and the dividend yield. CCV argue that investors are generally long in stocks with higher Sharpe ratios. A negative innovation to stock returns in the next period implies deterioration of investment opportunities for investors long in stocks. A strong negative correlation between innovations of excess stock returns and dividend yield implies that a negative innovation to excess stock return would be accompanied by a positive innovation to dividend yield next period. The positive coefficient of the lagged dividend yield in the excess stock return equation implies that the positive dividend yield in next period will have a positive impact on the excess stock returns two period ahead. Therefore, poor stock returns in the current period leads to higher returns in the future, thereby, providing a hedge over the long-run.

However, we find that the use of the dividend yield as a state variable underestimates the demand for stocks. For instance, the panel titled "Chile (without book-price ratio)" of Table 4 shows the demand for stocks in Chile, when only dividend yield and nominal yield on benchmark asset is used as predictor variables. [21] The demand for stocks reported here is substantially lower than the demand for Chilean stocks reported in Table 2, when book-price ratio and nominal yield on benchmark asset is used as a predictor variable. The low demand for stocks (without book-price ratio as predictor variable) can be explained by a substantially low correlation (-0.37) between the innovations to stock returns and the innovations to dividend yield. However, the inclusion of the book-price ratio in the VAR model results in a sizable total and hedge demand for stocks.

Similar to the dividend yield, the favorable effect of book-price ratio on the demand for stocks can be explained by the positive coefficient of the lagged book-price ratio in the stock return equation of the VAR model and the negative correlation between the innovations to stock returns and the book-price ratio. Here again, a negative innovation to stocks return in the next period implies deterioration of investment opportunities, for investors long in stocks. The strong negative correlation between innovations of excess stock returns and book-price ratio implies that a negative

[21]To save space, we report the results with and without book-price ratio for Chile, Malaysia and Colombia only. The results for other countries are available on request.

innovation to excess stock return would be accompanied by a positive innovation to book-price ratio next period. The positive coefficient of the lagged book-price in the excess stock return equation implies that the positive book-price ratio in next period will have a positive impact on the excess stock returns two period ahead. Therefore, poor stock returns in the current period leads to higher returns in the future, thereby, providing a hedge over the long-run.

4.3 Change in demand over the sample period

The above estimates show the mean optimal demand for the entire sample period. In order to gain additional insight into the changes in the mean optimal demand over the sample period, we present the historical total and hedging demand for stocks for each country in Figure 1. [22]

The total and hedge demand follow a similar pattern for Malaysia, South Africa, India, USA, China, Taiwan and Poland. In these countries, the hedge demand curve closely matches the total demand curve, implying that the hedge demand contributes a major portion in the total demand of stocks. In contrast for some countries such as Colombia, Peru, Philippines, Egypt, Brazil and Argentina the total demand curve is much more volatile than the hedge demand curve. For these countries, myopic demand is highly volatile resulting in high volatility in the total demand. Even for these countries, there are instances when total demand is equal or lower than the hedge demand, implying negative myopic demand and positive hedge demand. In general negative myopic demand implies that the current risk premium (implied by the myopic demand) for a single period is low, however, still stocks can be used as a hedge for change in investment opportunities over the long run.

The demand for stocks exhibits an interesting pattern during the the recent financial crisis of 2007-2008. The demand for stocks become negative in most of the countries around the beginning of 2007 and turns positive again towards the end of 2008. In general, the hedge demand increased first and subsequently resulting in an increase in the total demand curve. A change in the sign of stocks demand from negative to positive mean that investors have to switch from short position to long position or vice versa.

[22] Here again, the graph for each country are arranged in the same order as the order of the countries in Tables 2 - 4.

4.4 Demand for stocks for other parameters

The results in the above sections show that the mean demand for stocks change substantially for changing levels of γ. In order to analyze the effect of change in values of other parameters, we perform an additional robustness check for different values of ψ, γ and δ. We calculate the mean demand for stocks for $\psi = 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7$ and 0.8 , $\delta = 0.95, 0.99$ and $\gamma = 1, 2, 5, 7, 10.$ [23]

The general trend for the emerging market economies is that an increase in δ , given all else equal, results in an increase in the magnitude of the total and hedge demand for stocks. The results are intuitive because a present oriented consumer uses a low discount factor whereas a future oriented consumer uses a high discount factor. Thus, a consumer who is future oriented will forego more consumption today for better return tomorrow.

Similarly, an increase in ψ given all else equal, results in an increase in the magnitude of the total and hedge demand for stocks. The intuition for the results is that as ψ increases, investors are willing to hold more stocks.

The above results show that the total, myopic and hedge demand for stocks varies substantially across the emerging market economies. In general, hedge demand contributes a sizable portion to the total demand, particulary for higher levels of risk aversions. The change in the dynamics of demand for stocks over the sample period, displayed in in Figure 1, shows that the pattern of total and hedge demand varies across countries over the sample period. In addition, for certain countries the demand for stocks changes sign from positive to negative or vice versa , implying that an investor has to switch between long (positive sign) or a short(negative sign) position.

5 Asset allocation for international investor with returns in US dollars

In this section, we report the mean (total, myopic and hedge) demand for an investor with returns in US dollars. The investor can invest in the US stocks together with stocks from an emerging

[23]To save space we do not report the results here but the results are available upon request.

market country. [24] The total, myopic and hedge demand for various countries is reported in Tables 5 - 7.

5.1 Demand of stocks for international investor

In general the total demand for the emerging market stocks is higher than the total demand for US stocks for all the countries except Argentina. However, the composition of total demand in terms of myopic and hedge demand varies across different countries. A quick glance at the myopic and hedge demand of various countries reveals that the hedge demand is the dominant component of the total demand for stocks in USA, whereas, the myopic demand is the main component of the total demand for stocks in emerging markets. For instance, in case of Malaysia, Peru, Chile, Colombia, Brazil, India, Philippines, Thailand, Indonesia, Egypt and Taiwan the hedge demand for US stocks is positive despite negative or very low total demand. The high total and myopic demand for emerging market stocks owes to the higher Sharpe ratios for these countries making them an attractive investment for investors. On the contrary, a higher proportion of hedge demand for US stocks implies that US stocks maybe employed as a hedge against the emerging market stocks. Thus the emerging market stocks have a higher single period (myopic) return but are risky in the long run. Owing to the lower Sharpre ratio, the US stocks have a lower single period (myopic) return and thus not an attractive investment for a single period investor. However, for a long term investor they are safer as implied by the positive hedge demand for these countries.

The higher proportion of myopic demand in total demand for stocks in emerging markets implies that the higher returns due to change in single period risk premium is the main motivation for investor to hold them. Similarly, the higher proportion hedging demand in total demand for stock in USA implies that one of the main reason investors hold US stocks is due to the potential of the US stocks to act as a long term hedge against adverse future changes.

The higher (lower) intertemporal demand for US (emerging market) stocks can be explained by the argument used in the previous section. The positive coefficient of the lagged book-price ratio in the VAR equation and the high(low) negative correlation of the innovations to stock returns with innovations to book-price ratio, respectively, induces higher (lower) intertemporal hedging

[24] Following RW, we take each of the emerging market country one at a time to keep our VAR parameter space to a reasonable level.

demand for stocks.

The confidence intervals show that total, myopic and hedge demand of US stocks is statistically insignificant for all levels of risk aversion. The statistical significance of the demand for emerging market stocks varies. For instance, the total, myopic and hedge demand for Malaysian stocks is statistically significant for levels of risk aversion, whereas, the demand for stocks in India, Pakistan, Philippines,Thailand, Indonesia, Poland, China, Egypt, Taiwan and Argentina in the case of China, India, Malaysia, Pakistan and Taiwan the total, myopic and hedge demand of US stocks is statistically insignificant for all levels of risk aversion.

5.2 Change in demand over the sample period

We report the historical change in the total and hedge demand for stocks for the international investor over the sample period in Figure 2. The graph for each emerging market country alongwith USA depicts the corresponding total and myopic demand for $\gamma = 7$, $\psi = 1$ and $\delta = 0.92^{12}$. Figure 2 reveals certain interesting patterns. The proportion of hedge demand in total demand for US stocks is sizable throughout the sample period and at times the hedge demand exceeds the total demand. In general, the hedge demand for US stocks follows the same pattern as the total demand, implying that hedge demand is the main ingredient of the total demand. On the contrary, the patterns exhibited by the total and hedge demand for emerging market stocks are very different. The curves for total demand and hedge demand are generally far apart, implying that myopic demand is the main contributor towards the total demand of stocks. In addition, the total demand is more volatile whereas the hedge demand is more stable. Thus, the patterns exhibited by the total and hedge demand over the sample period are similar to the results calculated for the entire sample period.

Another interesting pattern is a sharp increase in the demand for stocks during the last quarter of 2008, for all countries. Here again, a closer look reveals that the hedging demand for stocks increase first, followed by an increase in total demand. Thus, our findings suggest that the hedge demand for stocks increases during the crisis.

5.3 Utility Gains

Following RW, we quantify the utility gains from international diversification by computing the value function per unit of wealth, by employing the CCV approach. For $\gamma = 7$, a domestic investor in US alone would require the following factor increases in wealth to enjoy the same utility as an international investor with diversification opportunities in each of the emerging market economies: Argentina, 3.03; Brazil, 2.53; Chile, 3.58; China, 10.79; Colombia, 10.52; Egypt, 2.49; India, 5.18; Indonesia, 5.19; Malaysia, 7.67; Mexico, 7.23; Pakistan, 6.23; Peru, 8.94; Philippines, 5.63; Poland, 3.14; Russia, 4.59; South Africa, 4.67; South Korea, 7.59; Taiwan, 2.61; Thailand, 6.31 and Turkey 5.08.

5.4 Demand for stocks for other parameters

In the end we analyze the effect of change in values of other parameters on the demand for stocks and perform an additional robustness check for different values of ψ, γ and δ. As mentioned above, we calculate the mean demand for stocks for $\psi = 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7$ and 0.8 , $\delta = 0.85, 0.95, 0.99$ and $\gamma = 1, 2, 5, 7, 10$. [25]

The general trend for the US stocks is that an increase in δ , given all else equal, results in an increase in the magnitude of the total and hedge demand for stocks. The results are intuitive because a present oriented consumer uses a low discount factor whereas a future oriented consumer uses a high discount factor. Thus, a consumer who is future oriented will forego more consumption today for better return tomorrow. Similarly, an increase in ψ, given all else equal, results in an increase in the magnitude of the total and hedge demand for stocks.

For the emerging market stocks, the effect of change is ψ and δ on the demand of stocks is rather less pronounced. As mentioned above, our results show that the myopic demand is main motivation for an international investor to hold emerging market stocks. Since myopic demand is independent of these two parameters, therefore, the effect of these two parameters is less pronounced for the emerging market stocks.

[25] To save space we do not report the results here but the results are available upon request.

6 Conclusion

This paper extends the empirical application of the CCV model to the growth leading emerging markets data. CCV developed an approximate analytical solution of the Merton (1973) model and explored the implication of the predictability of returns for long-term investor in US market. Similar to CCV, we solve a multi-period portfolio choice problem for an investor in twenty growth leading emerging markets, who can invest in a stock index and a short term money market security. The investor has an infinite investment horizon, Epstein-Zin utility and the asset dynamics are described by a VAR model. We use book-price ratio and nominal yield on short term money market instrument as predictor variables, whereas CCV use dividend yield instead of the book-price ratio. We calculate the mean demand for stocks for a domestic investor with returns in the local currency of the country as well as mean demand for stocks for an international investor with returns in US dollars.

As pointed out by RW, the mean asset demand can be interpreted either as a normative or a positive description of investor behavior. The normative interpretation, following Campbell and Viceria (2002), implies that the mean asset demand calculated here pertains to an investor whose investment preferences can be described by the set of assumptions made by CCV. The positive interpretation, following Lynch (2001), implies that the mean asset demand calculated here shows the behavior of a unique individual or a small group, who exploit the return predictability created by a large number of other investors with different prefreezes.

For the domestic investor, we find sizable total and hedging demand for most of the emerging market stocks. Thus, we conclude that in general accounting for hedge demand results in a sizable increase in the total demand for stocks. We find that the book-price ratio improves the predictability of returns and thus the total and intertemporal demand for stocks. Similar to CCV, the hedge demand for stocks can be explained by the correlation between the shocks to the predictor variables (book-price ratio) and unexpected asset returns.

For the international investor, who can invest in both US dollar stocks and an emerging market stocks, the total and myopic demand for most of the emerging market stocks is sizable. For the international investor, the relatively lower proportion of hedge demand in total demand for emerging market stocks is compensated by a higher hedge demand for US stocks.

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Figure 1: **Historical change in mean total and intertemporal hedging demand with $\psi = 1$, $\gamma = 7$, $\delta = 0.92^{1/12}$**

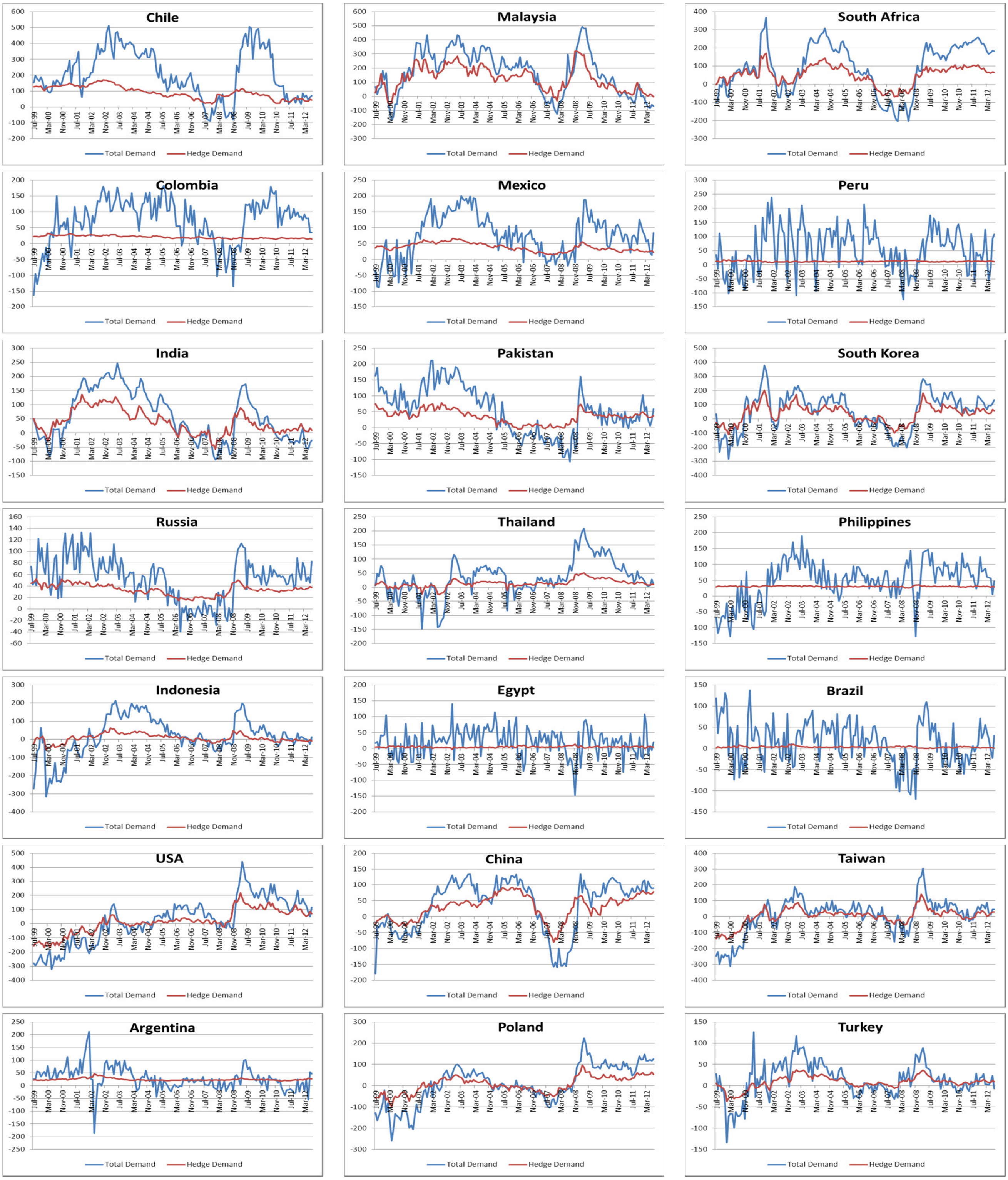

Figure 2: **Historical change in mean total and intertemporal hedging demand for US dollar investor, with $\psi = 1, \gamma = 7, \delta = 0.92^{1/12}$**

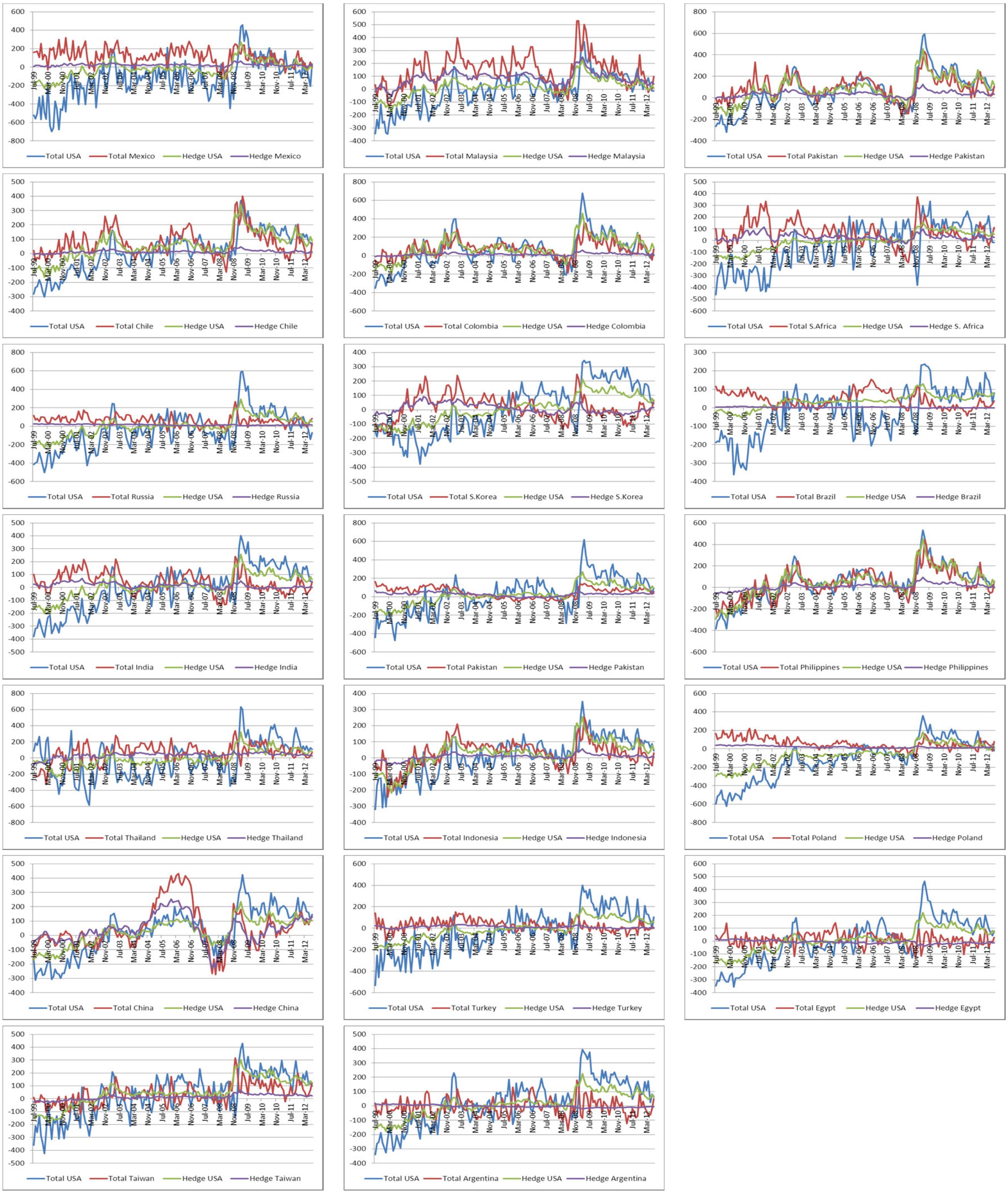

Table 1: **Sample Statistics**

This table shows the monthly sample statistics for the variables employed. The mean and standard deviation values are in monthly percentage.

	Benchmark Asset (log real return)				Log nominal yield		Log Inflation			Stocks (log excess Local currency return)				Stocks (log excess US dollar return)					Log Book-Price	
														Mnemonic						
Country	Asset	Mnemonic	Mean	Std. dev.	Mean	Std. dev.	Mnemonic	Mean	Std. Dev.	Mnemonic	Mean	Std. dev.	SR	Stocks	Exchange rate	Mean	Std. dev.	SR	Mean	Std. dev.
Argentina	90-day deposit	AG90DPP	0.315	1.171	1.008	0.894	AGCONPRCF	0.693	1.026	TOTMKAR	-0.235	8.942	-0.026	TOTMAR$(RI)		-0.384	9.173	-0.042	-0.680	0.416
Brazil	Selic target rate	BRSELIC	0.743	0.455	1.273	0.362	BRCONPRCF	0.530	0.405	TOTMKBR	0.164	6.588	0.025	TOTMBR$(RI)		1.135	10.364	0.143	-0.789	0.303
Chile	CD 90-day	CLCD90D	-0.224	0.436	0.031	0.014	CLCONPRCF	0.255	0.437	TOTMKCL	1.023	3.938	0.260	TOTMCL$(RI)		0.873	6.105	0.178	-1.050	0.323
China	3-mon Relending rate	CHDIS3M	0.262	0.656	0.287	0.031	CHCONPRCF	0.025	0.650	TOTMKCH	-0.038	8.400	-0.004	TOTMCA$(RI)		0.224	8.343	0.080	-0.555	0.149
Colombia	90-day CD rate	CB90CDR	0.243	0.452	0.684	0.286	CBCONPRCF	0.441	0.429	TOTMKCB	0.946	5.913	0.160	TOTMKCB(RI)	COLUPE$	1.391	7.799	0.134	-0.667	0.272
Egypt	T-bills	IFS database	0.154	0.822	0.770	0.168	EYCONPRCF	0.616	0.781	TOTMKEY	0.361	8.310	0.043	TOTMKEY(RI)	EGYPTN$	0.575	8.485	0.087	-0.729	0.309
India	91- day T-bills	INTB91D	0.022	0.336	0.545	0.151	INCPANNL	0.524	0.264	TOTMKIN	0.588	8.605	0.068	TOTMKIN(RI)	INDRUP$	0.777	9.742	0.063	-0.566	0.568
Indonesia	1-mon SBI discount rate	IFS database	0.246	0.900	0.842	0.314	IFS database	0.597	0.856	TOTMKID	0.153	7.937	0.019	TOTMID$(RI)		0.703	10.962	0.121	-0.457	0.308
Malaysia	3-mon T-bills	IFS database	0.057	0.410	0.232	0.035	MYCONPRCF	0.176	0.411	TOTMKMY	0.521	4.904	0.106	TOTMMY$(RI)		0.751	5.580	0.066	-0.521	0.228
Mexico	91-day cetes	MXCTM91	0.360	0.424	0.758	0.375	MXCONPRCF	0.398	0.354	TOTMKMX	0.563	5.365	0.105	TOTMMX$(RI)		0.930	6.983	0.075	-0.066	0.387
Pakistan	Money Market rate	IFS database	0.010	0.800	0.706	0.302	IFS database	0.696	0.793	TOTMKPK	0.696	9.237	0.075	TOTMKPK(RI)	PAKRUP$	0.832	9.592	0.087	-0.778	0.158
Peru	Interbank rate	PEINBIR	0.207	0.458	0.422	0.328	PECONPRCF	0.215	0.312	TOTMKPE	0.758	5.817	0.130	TOTMKPE(RI)	PERUSO$	1.139	6.289	0.181	-0.174	0.199
Philipines	91-day T-bills	PHTBL3M	0.058	0.464	0.462	0.218	PHCONPRCF	0.404	0.421	TOTMKPH	0.226	5.927	0.038	TOTMPH$(RI)		0.437	6.971	0.063	-0.683	0.207
Poland	Interbank rate	POIBKON	0.317	0.535	0.607	0.435	POCONPRCF	0.290	0.416	TOTMKPO	-0.140	7.090	-0.020	TOTMPO$(RI)		0.385	9.856	0.039	-0.817	0.305
Russia	Interbank rate	RSIBK90	-0.103	0.674	0.865	0.593	RSCONPRCF	0.968	0.664	TOTMKRS	0.835	9.874	0.085	TOTMKRS(RI)	CISRUB$	1.342	11.069	0.121	-0.514	0.339
South Africa	91-day T-bills	SATBL3M	0.253	0.461	0.715	0.178	SACONPRCF	0.462	0.453	TOTMKSA	0.608	5.265	0.116	TOTMSA$(RI)		0.953	8.129	0.117	-1.000	0.274
South Korea	91-day COD	KOCD91D	0.124	0.412	0.373	0.111	KOCONPRCF	0.249	0.399	TOTMKKO	0.428	7.916	0.054	TOTMKO$(RI)		0.639	9.718	0.066	0.010	0.009
Taiwan	Money market rate	TAMM90D	0.088	0.798	0.182	0.118	TWCONPRCF	0.094	0.786	TOTMKTA	-0.045	7.474	-0.006	TOTMTA$(RI)		0.000	8.234	0.000	0.013	0.004
Thailand	Interbank rate	THBTIBN	-0.023	0.566	0.198	0.095	IFS database	0.221	0.549	TOTMKTH	0.604	8.269	0.073	TOTMTH$(RI)		0.714	9.490	0.075	0.000	0.000
Turkey	Money Market rate	IFS database	0.918	2.320	2.379	2.899	IFS database	1.461	1.666	TOTMKTK	-0.720	12.508	-0.058	TOTMTK$(RI)		0.530	14.974	0.035	0.003	0.000
US	3-mon T-bills	FRTBS3M	-0.012	0.421	0.191	0.166	IFS database	0.203	0.407	TOTMKUS	0.016	4.822	0.003						0.007	0.003

Table 2: **Total, mypoic and intertemporal hedging demand**

	Stocks			Bills			Stocks			Bills			Stocks			Bills		
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**561.02**	**402.34**	**158.67**	**-461.02**	**-302.34**	**-158.67**	**261.13**	**144.65**	**116.48**	**-161.13**	**-44.65**	**-116.48**	**233.14**	**145.58**	**87.56**	**-133.14**	**-45.58**	**-87.56**
L	282.24	216.03	36.84	-739.79	-488.66	-280.50	109.91	64.17	40.51	-312.34	-125.14	-192.44	59.77	36.26	18.01	-306.51	-154.90	-157.11
U	839.79	588.66	280.50	-182.24	-116.03	-36.84	412.34	225.14	192.44	-9.91	35.83	-40.51	406.51	254.90	157.11	40.23	63.74	-18.01
5	**277.86**	**160.94**	**116.92**	**-177.86**	**-60.94**	**-116.92**	**195.57**	**57.60**	**137.97**	**-95.57**	**42.40**	**-137.97**	**134.80**	**57.96**	**76.84**	**-34.80**	**42.04**	**-76.84**
L	119.66	86.35	10.24	-336.05	-135.52	-223.60	73.32	25.36	42.94	-217.82	10.17	-233.00	32.27	14.24	13.72	-137.33	-1.67	-139.96
U	436.05	235.52	223.60	-19.66	13.65	-10.24	317.82	89.83	233.00	26.68	74.64	-42.94	237.33	101.67	139.96	67.73	85.76	-13.72
7	**206.52**	**114.95**	**91.56**	**-106.52**	**-14.95**	**-91.56**	**167.31**	**41.02**	**126.29**	**-67.31**	**58.98**	**-126.29**	**104.74**	**41.27**	**63.47**	**-4.74**	**58.73**	**-63.47**
L	83.41	61.64	3.29	-229.63	-68.26	-179.84	60.16	17.97	37.88	-174.46	35.93	-214.70	24.31	10.04	10.74	-85.17	27.51	-116.20
U	329.63	168.26	179.84	16.59	38.36	-3.29	274.46	64.07	214.70	39.84	82.03	-37.88	185.17	72.49	116.20	75.69	89.96	-10.74
10	**148.39**	**80.47**	**67.93**	**-48.39**	**19.53**	**-67.93**	**137.89**	**28.58**	**109.31**	**-37.89**	**71.42**	**-109.31**	**78.57**	**28.75**	**49.82**	**21.43**	**71.25**	**-49.82**
L	55.81	43.11	-1.43	-140.98	-17.82	-137.29	47.68	12.42	31.75	-128.11	55.25	-186.88	17.72	6.89	8.06	-39.42	49.39	-91.58
U	240.98	117.82	137.29	44.19	56.89	1.43	228.11	44.75	186.88	52.32	87.58	-31.75	139.42	50.61	91.58	82.28	93.11	-8.06
	Colombia						**Mexico**						**Peru**					
	Stocks			**Bills**			**Stocks**			**Bills**			**Stocks**			**Bills**		
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**212.51**	**177.43**	**35.08**	**-112.51**	**-77.43**	**-35.08**	**179.58**	**127.80**	**51.77**	**-79.58**	**-27.80**	**-51.77**	**151.25**	**147.14**	**4.11**	**-51.25**	**-47.14**	**-4.11**
L	39.39	39.38	-20.61	-285.63	-215.48	-90.76	8.56	12.75	-15.06	-250.59	-142.86	-118.61	-20.75	7.27	-54.81	-223.26	-187.02	-63.03
U	385.63	315.48	90.76	60.61	60.62	20.61	350.59	242.86	118.61	91.44	87.25	15.06	323.26	287.02	63.03	120.75	92.73	54.81
5	**95.91**	**70.86**	**25.05**	**4.09**	**29.14**	**-25.05**	**96.48**	**51.42**	**45.06**	**3.52**	**48.58**	**-45.06**	**69.65**	**58.94**	**10.71**	**30.35**	**41.06**	**-10.71**
L	12.94	15.61	-16.36	-78.88	-26.11	-66.46	-0.18	5.40	-13.88	-93.14	2.55	-103.99	-14.09	2.97	-32.72	-53.38	-14.90	-54.14
U	178.88	126.11	66.46	87.06	84.39	16.36	193.14	97.45	103.99	100.18	94.60	13.88	153.38	114.90	54.14	114.09	97.03	32.72
7	**71.15**	**50.56**	**20.60**	**28.85**	**49.44**	**-20.60**	**75.29**	**36.87**	**38.42**	**24.71**	**63.13**	**-38.42**	**54.42**	**42.13**	**12.29**	**45.58**	**57.87**	**-12.29**
L	9.24	11.08	-12.56	-33.06	9.96	-53.75	0.01	3.99	-10.77	-50.57	30.24	-87.60	-8.29	2.15	-22.39	-17.13	17.88	-46.96
U	133.06	90.04	53.75	90.76	88.92	12.56	150.57	69.76	87.60	99.99	96.01	10.77	117.13	82.12	46.96	108.29	97.85	22.39
10	**52.06**	**35.33**	**16.73**	**47.94**	**64.67**	**-16.73**	**57.89**	**25.96**	**31.93**	**42.11**	**74.04**	**-31.93**	**43.07**	**29.53**	**13.53**	**56.93**	**70.47**	**-13.53**
L	6.90	7.68	-8.99	2.78	37.01	-42.44	0.96	2.94	-7.40	-14.82	51.01	-71.25	-2.74	1.54	-13.19	11.13	42.47	-40.25
U	97.22	62.99	42.44	93.10	92.32	8.99	114.82	48.99	71.25	99.04	97.06	7.40	88.87	57.53	40.25	102.74	98.46	13.19
	India						**Pakistan**						**South Korea**					
	Stocks			**Bills**			**Stocks**			**Bills**			**Stocks**			**Bills**		
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**116.51**	**68.36**	**48.16**	**-16.51**	**31.64**	**-48.16**	**113.46**	**71.51**	**41.96**	**-13.46**	**28.49**	**-41.96**	**115.02**	**65.66**	**49.36**	**-15.02**	**34.34**	**-49.36**
L	9.80	6.21	1.32	-123.23	-30.50	-94.99	19.25	11.47	4.24	-107.68	-31.54	-79.67	-14.59	-10.06	-6.31	-144.64	-41.39	-105.02
U	223.23	130.50	94.99	90.20	93.79	-1.32	207.68	131.54	79.67	80.75	88.53	-4.24	244.64	141.39	105.02	114.59	110.06	6.31
5	**73.08**	**27.27**	**45.81**	**26.92**	**72.73**	**-45.81**	**68.44**	**28.75**	**39.68**	**31.56**	**71.25**	**-39.68**	**71.18**	**26.20**	**44.98**	**28.82**	**73.80**	**-44.98**
L	4.51	2.41	-0.19	-41.64	47.87	-91.80	13.23	4.70	5.42	-23.65	47.19	-73.94	-9.19	-4.12	-6.57	-51.54	43.48	-96.53
U	141.64	52.13	91.80	95.49	97.59	0.19	123.65	52.81	73.94	86.77	95.30	-5.42	151.54	56.52	96.53	109.19	104.12	6.57
7	**58.30**	**19.44**	**38.86**	**41.70**	**80.56**	**-38.86**	**55.51**	**20.61**	**34.89**	**44.49**	**79.39**	**-34.89**	**55.92**	**18.68**	**37.24**	**44.08**	**81.32**	**-37.24**
L	2.51	1.69	-1.27	-14.10	62.80	-78.98	12.12	3.40	6.07	1.11	62.18	-63.72	-7.75	-2.99	-6.03	-19.58	59.65	-80.50
U	114.10	37.20	78.98	97.49	98.31	1.27	98.89	37.82	63.72	87.88	96.60	-6.07	119.58	40.35	80.50	107.75	102.99	6.03
10	**44.89**	**13.57**	**31.32**	**55.11**	**86.43**	**-31.32**	**44.52**	**14.50**	**30.02**	**55.48**	**85.50**	**-30.02**	**42.10**	**13.04**	**29.05**	**57.90**	**86.96**	**-29.05**
L	0.55	1.15	-2.49	10.76	74.00	-65.13	11.42	2.42	6.76	22.38	73.41	-53.27	-6.44	-2.14	-5.33	9.37	71.77	-63.44
U	89.24	26.00	65.13	99.45	98.85	2.49	77.62	26.59	53.27	88.58	97.58	-6.76	90.63	28.23	63.44	106.44	102.14	5.33

Table 3: **Total, mypoic and intertemporal hedging demand**

	Russia						**Thailand**						**Philipinnes**					
	Stocks			**Bills**			**Stocks**			**Bills**			**Stocks**			**Bills**		
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**105.23**	**69.72**	**35.51**	**-5.23**	**30.28**	**-35.51**	**96.51**	**72.97**	**23.54**	**3.49**	**27.03**	**-23.54**	**81.24**	**59.26**	**21.99**	**18.76**	**40.74**	**-21.99**
L	31.17	19.20	6.68	-79.28	-20.24	-64.34	-15.67	-11.48	-7.13	-108.70	-57.43	-54.20	-95.11	-64.75	-39.38	-157.60	-83.26	-83.35
U	179.28	120.24	64.34	68.83	80.80	-6.68	208.70	157.43	54.20	115.67	111.48	7.13	257.60	183.26	83.35	195.11	164.75	39.38
5	**64.59**	**27.58**	**37.01**	**35.41**	**72.42**	**-37.01**	**47.58**	**29.47**	**18.11**	**52.42**	**70.53**	**-18.11**	**53.65**	**23.63**	**30.02**	**46.35**	**76.37**	**-30.02**
L	20.31	7.37	8.31	-8.87	52.21	-65.71	-7.04	-4.35	-4.81	-2.19	36.72	-41.02	-48.39	-25.98	-30.12	-55.69	26.77	-90.16
U	108.87	47.79	65.71	79.69	92.63	-8.31	102.19	63.28	41.02	107.04	104.35	4.81	155.69	73.23	90.16	148.39	125.98	30.12
7	**53.31**	**19.55**	**33.76**	**46.69**	**80.45**	**-33.76**	**36.02**	**21.18**	**14.84**	**63.98**	**78.82**	**-14.84**	**47.98**	**16.84**	**31.14**	**52.02**	**83.16**	**-31.14**
L	17.78	5.12	8.72	11.16	66.01	-58.79	-4.71	-2.99	-3.41	23.25	54.65	-33.09	-33.17	-18.59	-21.23	-29.14	47.72	-83.51
U	88.84	33.99	58.79	82.22	94.88	-8.72	76.75	45.35	33.09	104.71	102.99	3.41	129.14	52.28	83.51	133.17	118.59	21.23
10	**43.69**	**13.53**	**30.16**	**56.31**	**86.47**	**-30.16**	**26.81**	**14.97**	**11.84**	**73.19**	**85.03**	**-11.84**	**43.65**	**11.75**	**31.90**	**56.35**	**88.25**	**-31.90**
L	15.79	3.42	9.07	28.41	76.35	-51.24	-2.77	-1.98	-2.12	43.61	68.09	-25.81	-19.39	-13.06	-12.01	-6.70	63.44	-75.82
U	71.59	23.65	51.24	84.21	96.58	-9.07	56.39	31.91	25.81	102.77	101.98	2.12	106.70	36.56	75.82	119.39	113.06	12.01

	Indonesia						**Egypt**						**Brazil**					
	Stocks			**Bills**			**Stocks**			**Bills**			**Stocks**			**Bills**		
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**55.28**	**39.34**	**15.94**	**44.72**	**60.66**	**-15.94**	**54.41**	**53.07**	**1.35**	**45.59**	**46.93**	**-1.35**	**48.86**	**44.99**	**3.88**	**51.14**	**55.01**	**-3.88**
L	-116.38	-87.92	-30.94	-126.94	-66.60	-62.81	-50.08	-40.64	-23.28	-58.91	-46.77	-25.97	-67.14	-61.22	-14.00	-64.87	-51.19	-21.76
U	226.94	166.60	62.81	216.38	187.92	30.94	158.91	146.77	25.97	150.08	140.64	23.28	164.87	151.19	21.76	167.14	161.22	14.00
5	**25.45**	**15.42**	**10.02**	**74.55**	**84.58**	**-10.02**	**25.48**	**21.49**	**3.99**	**74.52**	**78.51**	**-3.99**	**21.55**	**18.05**	**3.51**	**78.45**	**81.95**	**-3.51**
L	-54.24	-35.50	-20.55	-5.13	33.66	-40.60	-21.51	-16.04	-15.02	27.52	40.97	-23.01	-28.23	-24.45	-9.99	28.67	39.45	-17.00
U	105.13	66.34	40.60	154.24	135.50	20.55	72.48	59.03	23.01	121.51	116.04	15.02	71.33	60.55	17.00	128.23	124.45	9.99
7	**18.52**	**10.87**	**7.66**	**81.48**	**89.13**	**-7.66**	**20.16**	**15.48**	**4.68**	**79.84**	**84.52**	**-4.68**	**16.13**	**12.91**	**3.22**	**83.87**	**87.09**	**-3.22**
L	-39.97	-25.52	-15.95	22.98	52.75	-31.26	-14.80	-11.36	-11.48	44.88	57.67	-20.84	-20.23	-17.45	-8.25	47.50	56.72	-14.69
U	77.02	47.25	31.26	139.97	125.52	15.95	55.12	42.33	20.84	114.80	111.36	11.48	52.50	43.28	14.69	120.23	117.45	8.25
10	**13.08**	**7.45**	**5.63**	**86.92**	**92.55**	**-5.63**	**16.21**	**10.97**	**5.24**	**83.79**	**89.03**	**-5.24**	**12.02**	**9.07**	**2.96**	**87.98**	**90.93**	**-2.96**
L	-28.74	-18.04	-11.94	45.09	67.06	-23.21	-9.66	-7.86	-8.62	57.93	70.20	-19.10	-14.20	-12.20	-6.90	61.76	69.66	-12.82
U	54.91	32.94	23.21	128.74	118.04	11.94	42.07	29.80	19.10	109.66	107.86	8.62	38.24	30.34	12.82	114.20	112.20	6.90

	USA						**China**						**Taiwan**					
	Stocks			**Bills**			**Stocks**			**Bills**			**Stocks**			**Bills**		
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**49.27**	**28.78**	**20.49**	**50.73**	**71.22**	**-20.49**	**45.11**	**22.63**	**22.47**	**54.89**	**77.37**	**-22.47**	**30.97**	**19.84**	**11.13**	**69.03**	**80.16**	**-11.13**
L	-157.62	-87.92	-72.02	-156.17	-45.48	-113.00	-68.69	-40.42	-29.28	-58.90	14.31	-74.23	-60.38	-33.47	-27.80	-22.32	26.86	-50.06
U	256.17	145.48	113.00	257.62	187.92	72.02	158.90	85.69	74.23	168.69	140.42	29.28	122.32	73.14	50.06	160.38	133.47	27.80
5	**31.43**	**11.52**	**19.92**	**68.57**	**88.48**	**-19.92**	**40.58**	**9.97**	**30.61**	**59.42**	**90.03**	**-30.61**	**14.70**	**7.32**	**7.38**	**85.30**	**92.68**	**-7.38**
L	-116.03	-35.22	-83.19	-78.90	41.75	-123.03	-40.64	-15.28	-26.36	-21.79	64.79	-87.58	-49.14	-14.07	-36.08	21.46	71.30	-50.85
U	178.90	58.25	123.03	216.03	135.22	83.19	121.79	35.21	87.58	140.64	115.28	26.36	78.54	28.70	50.85	149.14	114.07	36.08
7	**24.19**	**8.23**	**15.96**	**75.81**	**91.77**	**-15.96**	**37.88**	**7.55**	**30.33**	**62.12**	**92.45**	**-30.33**	**8.68**	**4.93**	**3.74**	**91.32**	**95.07**	**-3.74**
L	-99.19	-25.18	-76.18	-47.57	58.36	-108.10	-30.04	-10.50	-20.46	-5.80	74.39	-81.11	-44.70	-10.38	-35.30	37.95	79.75	-42.78
U	147.57	41.64	108.10	199.19	125.18	76.18	105.80	25.61	81.11	130.04	110.50	20.46	62.05	20.25	42.78	144.70	110.38	35.30
10	**16.89**	**5.76**	**11.13**	**83.11**	**94.24**	**-11.13**	**34.93**	**5.74**	**29.19**	**65.07**	**94.26**	**-29.19**	**2.78**	**3.14**	**-0.36**	**97.22**	**96.86**	**0.36**
L	-82.43	-17.66	-66.71	-16.21	70.82	-88.97	-19.77	-6.92	-13.70	10.36	81.59	-72.08	-40.37	-7.64	-33.70	54.06	86.08	-32.98
U	116.21	29.18	88.97	182.43	117.66	66.71	89.64	18.41	72.08	119.77	106.92	13.70	45.94	13.92	32.98	140.37	107.64	33.70

Table 4: **Total, mypoic and intertemporal hedging demand**

	Argentina						Poland						Turkey					
		Stocks			Bills			Stocks			Bills			Stocks			Bills	
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**24.11**	**9.80**	**14.31**	**75.89**	**90.20**	**-14.31**	**13.78**	**9.77**	**4.01**	**86.22**	**90.23**	**-4.01**	**5.84**	**3.35**	**2.50**	**94.16**	**96.65**	**-2.50**
L	-63.89	-55.59	-11.05	-12.12	24.81	-39.67	-128.54	-74.76	-55.22	-56.09	5.70	-63.23	-55.02	-36.17	-19.96	33.30	57.14	-24.95
U	112.12	75.19	39.67	163.89	155.59	11.05	156.09	94.30	63.23	228.54	174.76	55.22	66.70	42.86	24.95	155.02	136.17	19.96
5	**27.37**	**4.54**	**22.83**	**72.63**	**95.46**	**-22.83**	**9.85**	**3.81**	**6.04**	**90.15**	**96.19**	**-6.04**	**11.30**	**4.56**	**6.74**	**88.70**	**95.44**	**-6.74**
L	-18.32	-21.64	0.20	26.94	69.27	-45.46	-78.54	-29.99	-50.18	1.77	62.39	-62.27	-25.75	-11.41	-15.90	51.66	79.48	-29.39
U	73.06	30.73	45.46	118.32	121.64	-0.20	98.23	37.61	62.27	178.54	129.99	50.18	48.34	20.52	29.39	125.75	111.41	15.90
7	**27.96**	**3.54**	**24.42**	**72.04**	**96.46**	**-24.42**	**9.10**	**2.67**	**6.42**	**90.90**	**97.33**	**-6.42**	**12.91**	**4.79**	**8.13**	**87.09**	**95.21**	**-8.13**
L	-7.61	-15.19	4.35	36.47	77.73	-44.49	-61.58	-21.47	-41.71	20.23	73.19	-54.56	-17.31	-6.74	-12.30	56.86	83.68	-28.55
U	63.53	22.27	44.49	107.61	115.19	-4.35	79.77	26.81	54.56	161.58	121.47	41.71	43.14	16.32	28.55	117.31	106.74	12.30
10	**28.39**	**2.79**	**25.60**	**71.61**	**97.21**	**-25.60**	**8.54**	**1.82**	**6.72**	**91.46**	**98.18**	**-6.72**	**14.34**	**4.96**	**9.38**	**85.66**	**95.04**	**-9.38**
L	0.65	-10.35	7.69	43.87	84.07	-43.51	-46.33	-15.07	-32.85	36.59	81.29	-46.29	-10.33	-3.30	-8.92	60.99	86.78	-27.68
U	56.13	15.93	43.51	99.35	110.35	-7.69	63.41	18.71	46.29	146.33	115.07	32.85	39.01	13.22	27.68	110.33	103.30	8.92

	Chile without book-price ratio						Malaysia without book-price ratio						Colombia without book-price ratio					
		Stocks			Bills			Stocks			Bills			Stocks			Bills	
CRRA	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**	**Total**	**Myopic**	**Hedging**
2	**407.95**	**402.79**	**5.16**	**-307.95**	**-302.79**	**-5.16**	**190.06**	**142.70**	**47.36**	**-90.06**	**-42.70**	**-47.36**	**177.87**	**176.69**	**1.18**	**-76.69**	**-1.18**	**3.94**
L	63.87	68.96	-52.36	-652.04	-636.62	-62.69	20.94	19.90	-9.50	-259.18	-165.49	-104.22	17.12	22.51	-27.46	-230.87	-29.81	-25.68
U	752.04	736.62	62.69	36.13	31.04	52.36	359.18	265.49	104.22	79.06	80.10	9.50	338.62	330.87	29.81	77.49	27.46	33.56
5	**162.43**	**161.06**	**1.37**	**-62.43**	**-61.06**	**-1.37**	**93.65**	**56.71**	**36.94**	**6.35**	**43.29**	**-36.94**	**73.40**	**70.60**	**2.80**	**29.40**	**-2.80**	**1.41**
L	22.02	27.49	-32.63	-202.85	-194.64	-35.37	5.35	7.56	-10.40	-81.94	-5.86	-84.28	6.72	8.95	-15.24	-32.26	-20.84	-31.01
U	302.85	294.64	35.37	77.98	72.51	32.63	181.94	105.86	84.28	94.65	92.44	10.40	140.09	132.26	20.84	91.05	15.24	33.82
7	**115.93**	**115.02**	**0.91**	**-15.93**	**-15.02**	**-0.91**	**70.13**	**40.33**	**29.80**	**29.87**	**59.67**	**-29.80**	**53.68**	**50.40**	**3.29**	**49.60**	**-3.29**	**-0.48**
L	15.20	19.59	-24.90	-116.67	-110.45	-26.73	2.93	5.20	-8.89	-37.33	24.55	-68.49	5.64	6.36	-10.68	5.57	-17.26	-30.25
U	216.67	210.45	26.73	84.80	80.41	24.90	137.33	75.45	68.49	97.07	94.80	8.89	101.73	94.43	17.26	93.64	10.68	29.28
10	**81.14**	**80.49**	**0.66**	**18.86**	**19.51**	**-0.66**	**51.11**	**28.05**	**23.06**	**48.89**	**71.95**	**-23.06**	**38.94**	**35.24**	**3.70**	**64.76**	**-3.70**	**-2.49**
L	10.36	13.66	-18.31	-51.92	-47.31	-19.62	1.48	3.43	-7.12	-0.73	47.34	-53.24	5.01	4.42	-6.90	33.94	-14.30	-29.44
U	151.92	147.31	19.62	89.64	86.34	18.31	100.73	52.66	53.24	98.52	96.57	7.12	72.87	66.06	14.30	95.58	6.90	24.46

	VAR coefficents				R^2	t-stats				Correlation			
	real tbill	**stocks**	**nom. tbill**	**bp**		**real tbill**	**stocks**	**nom. tbill**	**bp**	**real tbill**	**stocks**	**nom. tbill**	**bp**
Chile	1.16	0.03	-78.20	0.01	0.11	1.53	0.35	-3.59	0.58	-0.05	1.00	0.06	-0.82
Malaysia	-1.24	0.15	-7.66	0.07	0.07	-1.21	1.79	-0.78	2.99	0.06	1.00	-0.03	-0.92
Colombia	0.68	-0.01	0.03	0.00	0.51	10.73	-1.17	0.13	0.30	0.04	1.00	-0.05	-0.67
South Africa	0.18	0.05	-8.06	0.07	0.08	0.22	0.52	-3.53	2.44	-0.03	1.00	0.00	-0.84
Mexico	-0.79	0.12	-1.93	0.03	0.04	-0.77	1.27	-1.08	1.92	-0.10	1.00	0.06	-0.82
Peru	4.51	0.01	-7.36	0.00	0.08	2.81	0.11	-3.67	0.34	0.00	1.00	0.03	-0.74
Pakistan	1.20	0.04	-7.50	0.06	0.10	1.18	0.58	-2.16	2.63	0.05	1.00	-0.01	-0.81
India	2.85	0.08	-16.46	0.03	0.08	1.06	0.97	-2.66	1.26	0.19	1.00	0.11	-0.88
South Korea	3.07	0.06	-16.43	0.09	0.12	2.08	0.78	-2.27	2.37	-0.03	1.00	-0.11	-0.82
Thailand	-0.03	-0.02	-10.61	0.07	0.07	-0.02	-0.30	-1.77	2.86	-0.05	1.00	-0.16	-0.40
Russia	0.19	0.18	-0.92	0.04	0.04	0.14	1.71	-0.45	1.84	0.16	1.00	0.18	-0.89
Egypt	0.17	0.25	-0.65	0.01	0.06	0.19	2.68	-0.15	0.39	0.03	1.00	-0.13	-0.76
Philippines	-1.04	0.15	-4.97	0.03	0.06	-0.97	2.23	-1.67	1.94	-0.07	1.00	0.01	-0.92
Indonesia	0.14	0.16	-6.05	0.08	0.17	0.31	1.69	-3.47	4.41	0.02	1.00	0.03	-0.52
Brazil	0.80	0.19	-0.67	0.04	0.05	0.65	1.97	-0.45	1.52	-0.06	1.00	-0.14	-0.55
USA	-0.88	0.15	5.43	0.06	0.08	-1.01	1.53	1.97	3.04	0.08	1.00	0.08	-0.92
China	-0.92	0.02	-50.07	0.04	0.07	-0.79	0.19	-1.90	1.64	-0.34	1.00	-0.05	-0.91
Taiwan	1.34	0.05	-6.95	0.06	0.09	1.65	0.53	-0.77	1.19	0.08	1.00	0.14	-0.93
Argentina	1.33	0.17	-1.91	0.05	0.06	2.11	1.49	-1.66	1.11	-0.07	1.00	-0.11	-0.78
Poland	-0.98	0.08	-2.05	0.04	0.07	-0.66	1.11	-1.06	1.63	0.01	1.00	0.03	-0.90
Turkey	-0.14	-0.08	0.45	0.07	0.05	-0.16	-0.82	0.60	2.28	-0.21	1.00	-0.21	-0.91

Table 5: **Total, mypoic and intertemporal hedging demand for local currency investor**

	Mexico									Malaysia								
	Stocks Mexico			Stocks USA			Bills USA			Stocks Malaysia			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**362.16**	**320.81**	**41.35**	**-388.04**	**-346.63**	**-41.41**	**125.88**	**125.82**	**0.05**	**297.23**	**198.60**	**98.63**	**-84.79**	**-84.47**	**-0.32**	**-112.44**	**-14.13**	**-98.31**
L	88.06	90.68	-26.61	-832.75	-685.44	-183.26	-110.64	-12.95	-118.63	136.17	86.06	32.10	-298.90	-223.32	-93.25	-304.39	-115.42	-200.84
U	636.26	550.93	109.32	56.67	-7.82	100.45	362.39	264.60	118.74	458.28	311.14	165.15	129.33	54.38	92.62	79.51	87.16	4.21
5	**158.67**	**129.13**	**29.54**	**-166.14**	**-139.65**	**-26.49**	**107.47**	**110.51**	**-3.05**	**178.76**	**79.56**	**99.20**	**-18.07**	**-33.75**	**15.68**	**-60.69**	**54.19**	**-114.89**
L	31.09	37.11	-24.71	-408.06	-275.13	-157.57	-59.37	55.01	-125.74	78.55	34.50	28.56	-160.73	-89.31	-85.73	-218.57	13.68	-240.41
U	286.25	221.15	83.78	75.78	-4.16	104.59	274.30	166.02	119.65	278.98	124.62	169.85	124.60	21.80	117.09	97.19	94.71	10.63
7	**115.96**	**92.62**	**23.34**	**-120.45**	**-100.22**	**-20.23**	**104.49**	**107.60**	**-3.11**	**143.19**	**56.88**	**86.30**	**-7.26**	**-24.09**	**16.84**	**-35.93**	**67.21**	**-103.14**
L	21.17	26.91	-21.13	-309.85	-196.98	-132.55	-34.63	67.95	-111.19	60.66	24.67	23.11	-126.47	-63.78	-74.53	-175.04	38.26	-219.87
U	210.76	158.34	67.81	68.95	-3.46	92.10	243.61	147.24	104.97	225.72	89.10	149.50	111.96	15.60	108.20	103.18	96.15	13.59
10	**82.83**	**65.24**	**17.58**	**-85.96**	**-70.65**	**-15.31**	**103.14**	**105.41**	**-2.27**	**110.78**	**39.88**	**70.90**	**-1.94**	**-16.85**	**14.91**	**-8.84**	**76.97**	**-85.81**
L	14.03	19.25	-17.41	-230.33	-138.37	-107.19	-8.62	77.66	-92.68	44.49	17.30	17.01	-98.68	-44.64	-63.50	-126.83	56.70	-188.69
U	151.63	111.23	52.58	58.41	-2.93	76.58	214.90	133.17	88.14	177.08	62.46	124.80	94.80	10.95	93.32	109.15	97.24	17.07

	Peru									Chile								
	Stocks Peru			Stocks USA			Bills USA			Stocks Chile			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**272.16**	**211.06**	**61.09**	**46.42**	**-65.95**	**112.38**	**-218.58**	**-45.11**	**-173.47**	**248.94**	**222.79**	**26.14**	**-64.70**	**-137.22**	**72.52**	**-84.24**	**14.43**	**-98.66**
L	79.72	74.88	-16.43	-160.60	-176.25	-24.67	-518.53	-201.23	-333.11	57.08	61.97	-27.21	-320.89	-313.42	-54.37	-318.47	-109.35	-226.60
U	464.59	347.24	138.62	253.45	44.35	249.43	81.37	111.01	-13.83	440.79	383.62	79.49	191.49	38.98	199.42	150.00	138.21	29.27
5	**131.49**	**85.24**	**46.26**	**78.06**	**-26.78**	**104.84**	**-109.56**	**41.54**	**-151.10**	**106.27**	**89.40**	**16.88**	**14.55**	**-55.08**	**69.64**	**-20.82**	**65.69**	**-86.51**
L	27.06	30.78	-18.70	-82.79	-70.88	-32.15	-319.76	-20.89	-308.12	15.85	25.06	-23.96	-152.62	-125.55	-53.43	-191.40	16.16	-215.79
U	235.93	139.70	111.22	238.91	17.32	241.83	100.65	103.97	5.92	196.69	153.73	57.71	181.73	15.38	192.71	149.75	115.21	42.77
7	**98.35**	**61.27**	**37.08**	**67.55**	**-19.32**	**86.86**	**-65.89**	**58.05**	**-123.94**	**76.43**	**63.99**	**12.44**	**18.53**	**-39.44**	**57.97**	**5.04**	**75.45**	**-70.41**
L	17.82	22.37	-16.47	-68.09	-50.81	-32.14	-238.78	13.46	-259.42	8.91	18.03	-20.84	-119.16	-89.76	-49.38	-137.93	40.06	-184.14
U	178.87	100.17	90.62	203.18	12.18	205.86	107.00	102.63	11.55	143.94	109.94	45.72	156.23	10.89	165.32	148.00	110.83	43.32
10	**71.72**	**43.29**	**28.43**	**53.48**	**-13.72**	**67.20**	**-25.20**	**70.43**	**-95.63**	**53.29**	**44.93**	**8.36**	**16.68**	**-27.70**	**44.38**	**30.03**	**82.77**	**-52.74**
L	11.51	16.07	-13.69	-55.94	-35.76	-30.82	-161.74	39.22	-206.40	4.06	12.75	-17.73	-92.89	-62.93	-44.74	-85.22	57.99	-147.80
U	131.93	70.52	70.55	162.90	8.32	165.22	111.34	101.63	15.15	102.53	77.11	34.46	126.25	7.53	133.49	145.29	107.55	42.32

	Colombia									South Africa								
	Stocks Colombia			Stocks USA			Bills USA			Stocks South Africa			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**220.96**	**194.36**	**26.59**	**33.70**	**-92.25**	**125.94**	**-154.65**	**-2.11**	**-152.54**	**186.21**	**161.21**	**25.00**	**-153.23**	**-152.26**	**-0.97**	**67.03**	**91.06**	**-24.03**
L	27.84	39.50	-39.46	-179.05	-216.35	-22.17	-435.14	-145.11	-306.64	62.20	55.88	-6.95	-407.91	-313.52	-128.40	-161.40	-29.85	-148.32
U	414.08	349.22	92.65	246.45	31.86	274.05	125.84	140.88	1.56	310.22	266.53	56.96	101.44	8.99	126.46	295.45	211.97	100.26
5	**96.77**	**77.75**	**19.02**	**66.88**	**-36.89**	**103.77**	**-63.65**	**59.14**	**-122.79**	**83.09**	**64.88**	**18.21**	**-57.79**	**-61.29**	**3.50**	**74.69**	**96.41**	**-21.71**
L	4.37	15.82	-27.02	-89.93	-86.51	-31.97	-254.11	1.94	-264.84	25.60	22.74	-6.22	-234.44	-125.83	-128.50	-94.88	48.01	-150.83
U	189.18	139.69	65.07	223.69	12.73	239.51	126.81	116.34	19.25	140.59	107.01	42.65	118.87	3.26	135.50	244.26	144.80	107.40
7	**70.41**	**55.54**	**14.87**	**56.87**	**-26.35**	**83.21**	**-27.28**	**70.81**	**-98.09**	**61.06**	**46.53**	**14.52**	**-41.41**	**-43.96**	**2.54**	**80.36**	**97.42**	**-17.07**
L	1.58	11.30	-21.52	-73.83	-61.78	-32.84	-182.65	29.95	-219.31	18.38	16.43	-5.25	-188.67	-90.08	-113.70	-62.10	62.84	-130.75
U	139.25	99.78	51.27	187.57	9.08	199.27	128.09	111.66	23.14	103.73	76.63	34.30	105.85	2.17	118.79	222.81	132.01	96.62
10	**49.86**	**38.88**	**10.98**	**43.84**	**-18.44**	**62.28**	**6.29**	**79.56**	**-73.26**	**43.97**	**32.77**	**11.20**	**-30.50**	**-30.96**	**0.46**	**86.53**	**98.19**	**-11.66**
L	-0.10	7.92	-16.71	-60.67	-43.24	-32.20	-115.70	50.96	-171.70	13.04	11.69	-4.17	-148.63	-63.28	-96.51	-28.26	73.96	-106.44
U	99.83	69.85	38.67	148.36	6.36	156.77	128.28	108.16	25.17	74.90	53.85	26.57	87.64	1.36	97.43	201.32	122.42	83.12

Table 6: **Total, mypoic and intertemporal hedging demand for local currency investor**

	Russia									South Korea								
	Stocks Russia			Stocks USA			Bills USA			Stocks South Korea			Stocks USA			Bills USA		
CRAA	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**
2	**164.87**	**131.73**	**33.14**	**-256.16**	**-162.26**	**-93.90**	**191.28**	**130.53**	**60.75**	**163.85**	**117.17**	**46.68**	**-159.92**	**-140.18**	**-19.74**	**96.07**	**123.01**	**-26.94**
L	43.22	38.27	-7.80	-601.98	-373.91	-249.33	-64.76	-6.82	-73.01	18.61	14.62	-2.89	-465.28	-335.42	-151.27	-131.79	-6.22	-138.44
U	286.52	225.19	74.08	89.66	49.39	61.54	447.33	267.89	194.52	309.09	219.72	96.25	145.44	55.06	111.79	323.92	252.24	84.55
5	**78.23**	**53.14**	**25.10**	**-143.25**	**-65.55**	**-77.70**	**165.02**	**112.42**	**52.60**	**85.03**	**47.28**	**37.75**	**-62.20**	**-56.61**	**-5.59**	**77.17**	**109.33**	**-32.16**
L	16.31	15.77	-9.04	-361.30	-150.18	-223.76	-14.75	57.50	-80.19	6.36	6.24	-5.31	-254.82	-134.70	-135.30	-83.48	57.66	-148.93
U	140.16	90.50	59.24	74.80	19.07	68.37	344.78	167.33	185.39	163.70	88.32	80.81	130.43	21.48	124.13	237.81	161.00	84.61
7	**57.84**	**38.17**	**19.67**	**-110.78**	**-47.13**	**-63.65**	**152.95**	**108.97**	**43.98**	**64.24**	**33.97**	**30.27**	**-43.73**	**-40.69**	**-3.04**	**79.49**	**106.72**	**-27.24**
L	10.76	11.49	-8.51	-286.33	-107.56	-188.50	4.40	69.75	-71.31	3.60	4.65	-5.54	-199.65	-96.47	-115.26	-53.97	69.82	-129.79
U	104.91	64.85	47.85	64.76	13.30	61.20	301.49	148.18	159.27	124.89	63.29	66.09	112.19	15.09	109.19	212.94	143.62	75.32
10	**41.37**	**26.94**	**14.43**	**-83.62**	**-33.32**	**-50.30**	**142.25**	**106.38**	**35.87**	**46.88**	**23.99**	**22.89**	**-31.15**	**-28.75**	**-2.39**	**84.27**	**104.77**	**-20.50**
L	6.53	8.27	-7.84	-220.08	-75.61	-151.79	24.17	78.94	-59.15	1.50	3.45	-5.55	-153.17	-67.81	-94.67	-22.37	78.94	-105.84
U	76.21	45.61	36.69	52.84	8.97	51.19	260.33	133.81	130.90	92.26	44.53	51.34	90.88	10.30	89.89	190.91	130.59	64.84
	Brazil									India								
	Stocks Brazil			Stocks USA			Bills USA			Stocks India			Stocks USA			Bills USA		
CRAA	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**
2	**150.41**	**146.86**	**3.55**	**-183.55**	**-201.02**	**17.48**	**133.14**	**154.16**	**-21.02**	**117.30**	**91.49**	**25.81**	**-66.95**	**-72.89**	**5.94**	**49.65**	**81.40**	**-31.75**
L	-3.90	-1.13	-16.52	-571.93	-503.10	-116.96	-139.16	-17.83	-149.19	-33.83	-13.19	-27.09	-368.33	-271.61	-114.27	-163.67	-42.70	-135.08
U	304.72	294.85	23.61	204.84	101.06	151.91	405.44	326.15	107.15	268.44	196.17	78.71	234.42	125.82	126.15	262.97	205.51	71.57
5	**62.28**	**59.07**	**3.21**	**-61.69**	**-80.92**	**19.22**	**99.41**	**121.84**	**-22.43**	**56.83**	**36.57**	**20.26**	**-16.87**	**-29.11**	**12.24**	**60.04**	**92.54**	**-32.50**
L	-2.03	-0.12	-11.14	-286.72	-201.72	-112.67	-84.33	53.06	-150.40	-28.55	-5.31	-28.83	-209.10	-108.56	-114.34	-96.41	42.91	-148.52
U	126.60	118.27	17.56	163.34	39.89	151.11	283.14	190.62	105.53	142.21	78.45	69.35	175.36	50.34	138.81	216.49	142.17	83.53
7	**45.25**	**42.35**	**2.89**	**-40.61**	**-58.04**	**17.43**	**95.36**	**115.68**	**-20.32**	**42.02**	**26.11**	**15.92**	**-9.31**	**-20.77**	**11.46**	**67.29**	**94.66**	**-27.37**
L	-1.25	0.07	-8.65	-220.96	-144.32	-97.71	-56.32	66.56	-132.42	-24.76	-3.81	-25.73	-166.56	-77.50	-100.30	-65.36	59.21	-131.79
U	91.74	84.63	14.44	139.74	28.24	132.56	247.05	164.80	91.78	108.81	56.03	57.56	147.94	35.96	123.22	199.93	130.11	77.04
10	**32.40**	**29.81**	**2.59**	**-26.12**	**-40.88**	**14.75**	**93.72**	**111.07**	**-17.34**	**29.92**	**18.26**	**11.66**	**-5.31**	**-14.51**	**9.20**	**75.39**	**96.25**	**-20.86**
L	-0.52	0.21	-6.40	-166.36	-101.27	-80.71	-26.93	76.69	-110.53	-20.76	-2.68	-22.00	-129.70	-54.21	-84.30	-32.78	71.43	-109.73
U	65.33	59.41	11.58	114.11	19.51	110.21	214.37	145.45	75.84	80.60	39.21	45.32	119.07	25.19	102.70	183.56	121.06	68.01
	Pakistan									Philippines								
	Stocks Pakistan			Stocks USA			Bills USA			Stocks Philippines			Stocks USA			Bills USA		
CRAA	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**	**Total**	**Myopic**	**Hedge**
2	**112.40**	**74.76**	**37.64**	**26.24**	**0.69**	**25.55**	**-38.64**	**24.55**	**-63.20**	**106.17**	**89.82**	**16.35**	**48.55**	**-26.21**	**74.76**	**-54.71**	**36.39**	**-91.11**
L	-0.56	-1.11	-4.57	-186.05	-109.14	-90.53	-302.72	-120.38	-194.02	-162.38	-104.27	-70.82	-145.61	-179.84	-35.21	-321.09	-89.54	-240.41
U	225.36	150.63	79.86	238.53	110.51	141.63	225.44	169.49	67.63	374.72	283.90	103.52	242.70	127.42	184.72	211.66	162.33	58.20
5	**61.92**	**29.99**	**31.93**	**27.84**	**0.19**	**27.65**	**10.24**	**69.81**	**-59.58**	**48.06**	**35.86**	**12.20**	**50.92**	**-10.40**	**61.32**	**1.02**	**74.54**	**-73.52**
L	-2.19	-0.37	-6.02	-134.46	-43.74	-98.80	-178.07	11.83	-197.65	-97.59	-41.72	-65.80	-77.80	-71.80	-48.95	-195.12	24.19	-223.82
U	126.04	60.36	69.89	190.14	44.13	154.10	198.55	127.80	78.50	193.71	113.43	90.20	179.65	51.00	171.59	197.15	124.89	76.77
7	**47.31**	**21.46**	**25.84**	**22.80**	**0.10**	**22.70**	**29.89**	**78.43**	**-48.54**	**34.94**	**25.58**	**9.36**	**40.83**	**-7.38**	**48.21**	**24.23**	**81.80**	**-57.57**
L	-2.60	-0.23	-5.83	-114.24	-31.29	-89.12	-126.46	37.00	-169.54	-77.94	-29.80	-56.29	-67.04	-51.22	-48.45	-139.35	45.85	-188.68
U	97.22	43.16	57.51	159.84	31.49	134.52	186.25	119.87	72.45	147.81	80.96	75.00	148.70	36.45	144.87	187.81	117.76	73.54
10	**34.77**	**15.07**	**19.70**	**16.41**	**0.03**	**16.38**	**48.82**	**84.90**	**-36.08**	**24.33**	**17.87**	**6.46**	**29.05**	**-5.12**	**34.17**	**46.63**	**87.25**	**-40.63**
L	-2.80	-0.13	-5.39	-94.35	-21.96	-76.98	-75.78	55.88	-136.28	-60.60	-20.87	-46.18	-58.20	-35.79	-46.29	-84.29	62.09	-149.06
U	72.35	30.27	44.79	127.17	22.02	109.74	173.41	113.92	64.11	109.25	56.61	59.10	116.29	25.54	114.64	177.54	112.42	67.81

Table 7: **Total, mypoic and intertemporal hedging demand for local currency investor**

	Thailand									Indonesia								
	Stocks Thailand			Stocks USA			Bills USA			Stocks Indonesia			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**104.44**	**88.92**	**15.52**	**4.04**	**-62.56**	**66.60**	**-8.48**	**73.64**	**-82.12**	**89.58**	**73.36**	**16.22**	**1.66**	**-49.14**	**50.79**	**8.76**	**75.77**	**-67.01**
L	-71.41	-59.16	-18.46	-197.79	-208.87	-61.60	-260.86	-47.56	-228.14	-77.45	-65.00	-17.59	-205.76	-191.50	-84.79	-243.99	-42.78	-218.53
U	280.29	236.99	49.51	205.86	83.75	194.80	243.90	194.85	63.90	256.60	211.72	50.02	209.07	93.23	186.37	261.52	194.33	84.51
5	**50.42**	**35.79**	**14.63**	**36.38**	**-25.04**	**61.41**	**13.20**	**89.25**	**-76.04**	**40.09**	**29.42**	**10.67**	**18.79**	**-19.66**	**38.45**	**41.12**	**90.24**	**-49.12**
L	-31.61	-23.45	-12.86	-107.88	-83.55	-66.62	-171.78	40.82	-219.95	-35.66	-25.92	-13.19	-125.16	-76.68	-86.01	-136.66	42.79	-186.82
U	132.45	95.02	42.12	180.63	33.48	189.44	198.19	137.68	67.86	115.83	84.77	34.52	162.74	37.35	162.92	218.91	137.69	88.58
7	**38.47**	**25.67**	**12.80**	**33.16**	**-17.89**	**51.05**	**28.37**	**92.22**	**-63.85**	**29.19**	**21.05**	**8.14**	**15.33**	**-14.05**	**29.38**	**55.48**	**93.00**	**-37.52**
L	-22.55	-16.65	-9.78	-88.39	-59.68	-60.45	-125.34	57.65	-188.50	-26.56	-18.48	-10.84	-104.34	-54.81	-77.33	-90.53	59.09	-155.00
U	99.49	67.99	35.39	154.71	23.91	162.55	182.08	126.79	60.80	84.93	60.59	27.11	135.00	26.71	136.09	201.49	126.90	79.96
10	**28.96**	**18.08**	**10.88**	**26.96**	**-12.53**	**39.49**	**44.08**	**94.45**	**-50.37**	**20.62**	**14.78**	**5.85**	**10.46**	**-9.84**	**20.30**	**68.92**	**95.06**	**-26.15**
L	-15.32	-11.55	-6.86	-71.26	-41.79	-52.51	-78.33	70.27	-152.67	-19.41	-12.90	-8.66	-85.20	-38.41	-66.80	-46.33	71.31	-121.57
U	73.23	47.71	28.61	125.19	16.73	131.50	166.49	118.63	51.93	60.65	42.45	20.35	106.13	18.73	107.41	184.16	118.82	69.27
	Poland									China								
	Stocks Poland			Stocks USA			Bills USA			Stocks China			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**83.19**	**66.44**	**16.75**	**-78.53**	**-61.99**	**-16.54**	**95.34**	**95.55**	**-0.21**	**79.19**	**43.50**	**35.69**	**36.80**	**11.17**	**25.63**	**-15.99**	**45.32**	**-61.32**
L	-50.45	-36.87	-18.00	-417.26	-283.72	-143.47	-141.21	-42.16	-105.42	-31.20	-18.94	-13.95	-181.24	-111.53	-75.60	-268.57	-92.07	-179.81
U	216.83	169.75	51.49	260.20	159.74	110.39	331.89	233.25	105.00	189.59	105.94	85.33	254.84	133.88	126.85	236.58	182.72	57.18
5	**39.66**	**26.95**	**12.71**	**-33.94**	**-25.43**	**-8.51**	**94.28**	**98.48**	**-4.20**	**62.11**	**17.61**	**44.50**	**34.77**	**4.35**	**30.43**	**3.12**	**78.05**	**-74.93**
L	-26.91	-14.39	-16.95	-239.80	-114.13	-133.56	-66.43	43.39	-114.26	-18.31	-7.37	-12.62	-122.57	-44.72	-82.80	-185.36	23.10	-211.28
U	106.24	68.30	42.37	171.92	63.27	116.54	254.98	153.56	105.86	142.52	42.58	101.62	192.12	53.41	143.65	191.61	133.00	61.43
7	**29.60**	**19.43**	**10.17**	**-24.41**	**-18.47**	**-5.95**	**94.81**	**99.04**	**-4.22**	**54.90**	**12.67**	**42.22**	**29.62**	**3.05**	**26.57**	**15.48**	**84.28**	**-68.80**
L	-20.77	-10.11	-14.56	-189.21	-81.83	-114.00	-37.62	59.69	-100.99	-13.29	-5.17	-9.62	-102.68	-32.00	-74.85	-144.44	45.03	-191.89
U	79.97	48.97	34.90	140.39	44.90	102.11	227.25	138.39	92.54	123.09	30.52	94.06	161.92	38.09	128.00	175.41	123.53	54.30
10	**21.52**	**13.79**	**7.74**	**-17.71**	**-13.24**	**-4.47**	**96.19**	**99.45**	**-3.27**	**47.40**	**8.98**	**38.42**	**23.06**	**2.07**	**20.99**	**29.54**	**88.95**	**-59.42**
L	-15.65	-6.90	-12.06	-145.33	-57.60	-93.13	-8.97	71.90	-83.89	-8.29	-3.52	-6.06	-83.90	-22.46	-64.85	-100.69	61.48	-164.19
U	58.70	34.48	27.53	109.90	31.12	84.19	201.34	127.01	77.36	103.09	21.47	82.90	130.03	26.60	106.84	159.77	116.43	45.36
	Turkey									Egypt								
	Stocks Turkey			Stocks USA			Bills USA			Stocks Egypt			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**72.09**	**51.72**	**20.36**	**-87.90**	**-69.56**	**-18.34**	**115.81**	**117.84**	**-2.03**	**63.16**	**74.27**	**-11.11**	**2.39**	**-20.62**	**23.01**	**34.44**	**46.35**	**-11.90**
L	7.48	5.27	-0.35	-319.00	-206.71	-125.95	-95.85	-0.50	-106.04	-73.84	-52.31	-45.74	-222.91	-148.25	-96.66	-211.78	-99.13	-128.77
U	136.69	98.18	41.07	143.21	67.58	89.28	327.48	236.18	101.99	200.17	200.85	23.52	227.70	107.02	142.68	280.66	191.82	104.97
5	**36.28**	**20.58**	**15.70**	**-36.91**	**-27.62**	**-9.30**	**100.64**	**107.04**	**-6.40**	**21.21**	**29.92**	**-8.71**	**5.76**	**-8.52**	**14.28**	**73.03**	**78.60**	**-5.56**
L	2.15	1.99	-1.90	-195.90	-82.47	-122.75	-52.34	59.70	-118.45	-39.25	-20.68	-34.19	-156.33	-59.58	-107.15	-91.45	20.41	-120.70
U	70.40	39.17	33.30	122.07	27.24	104.15	253.62	154.37	105.65	81.67	80.52	16.77	167.85	42.55	135.70	237.51	136.78	109.57
7	**26.67**	**14.65**	**12.02**	**-26.04**	**-19.63**	**-6.41**	**99.37**	**104.98**	**-5.61**	**13.90**	**21.47**	**-7.57**	**3.71**	**-6.21**	**9.92**	**82.39**	**84.74**	**-2.35**
L	0.54	1.36	-2.55	-158.07	-58.81	-106.66	-29.01	71.16	-105.13	-30.73	-14.66	-28.39	-131.82	-42.69	-96.82	-53.01	43.18	-103.01
U	52.79	27.94	26.59	105.99	19.55	93.83	227.75	138.79	93.91	58.53	57.60	13.25	139.24	30.27	116.66	217.78	126.30	98.31
10	**18.60**	**10.20**	**8.40**	**-18.29**	**-13.63**	**-4.65**	**99.69**	**103.44**	**-3.75**	**8.57**	**15.14**	**-6.57**	**1.13**	**-4.48**	**5.61**	**90.30**	**89.35**	**0.95**
L	-0.84	0.89	-3.13	-124.11	-41.07	-88.75	-4.05	79.76	-87.57	-23.76	-10.14	-23.05	-107.84	-30.03	-83.45	-17.26	60.25	-82.71
U	38.04	19.51	19.93	87.54	13.80	79.44	203.43	127.11	80.08	40.90	40.41	9.92	110.10	21.07	94.67	197.86	118.44	84.62
	Taiwan									Argentina								
	Stocks Taiwan			Stocks USA			Bills USA			Stocks Argentina			Stocks USA			Bills USA		
CRAA	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge	Total	Myopic	Hedge
2	**35.70**	**23.10**	**12.60**	**13.72**	**5.19**	**8.53**	**50.58**	**71.71**	**-21.13**	**-10.65**	**-8.66**	**-1.98**	**52.96**	**35.36**	**17.60**	**57.68**	**73.30**	**-15.62**
L	-72.15	-45.62	-28.50	-227.77	-135.39	-96.23	-158.80	-47.79	-113.63	-148.80	-131.81	-25.38	-156.39	-94.54	-89.77	-177.40	-58.35	-125.89
U	143.55	91.82	53.70	255.20	145.77	113.28	259.97	191.21	71.38	127.51	114.48	21.41	262.32	165.26	124.97	292.76	204.95	94.65
5	**21.56**	**9.29**	**12.26**	**11.28**	**1.96**	**9.32**	**67.16**	**88.74**	**-21.58**	**-6.01**	**-3.34**	**-2.67**	**30.50**	**14.01**	**16.48**	**75.51**	**89.33**	**-13.82**
L	-46.53	-18.20	-30.49	-156.55	-54.28	-105.92	-79.63	40.94	-122.94	-67.36	-52.57	-21.05	-118.98	-37.88	-95.00	-84.45	36.67	-125.00
U	89.64	36.79	55.01	179.12	58.21	124.56	213.95	136.54	79.78	55.34	45.88	15.71	179.98	65.91	127.97	235.47	141.99	97.36
7	**17.20**	**6.66**	**10.53**	**8.66**	**1.35**	**7.31**	**74.14**	**91.99**	**-17.84**	**-4.93**	**-2.33**	**-2.60**	**22.40**	**9.95**	**12.45**	**82.53**	**92.38**	**-9.85**
L	-38.10	-12.98	-27.08	-130.93	-38.84	-95.26	-47.99	57.84	-107.90	-49.99	-37.48	-17.72	-102.89	-27.09	-85.98	-49.52	54.77	-107.39
U	72.50	26.31	48.15	148.24	41.54	109.87	196.28	126.13	72.22	40.12	32.82	12.52	147.69	46.99	110.89	214.58	130.00	87.69
10	**13.32**	**4.69**	**8.63**	**5.40**	**0.89**	**4.51**	**81.28**	**94.42**	**-13.14**	**-4.03**	**-1.57**	**-2.46**	**14.43**	**6.90**	**7.53**	**89.60**	**94.67**	**-5.08**
L	-30.22	-9.07	-22.86	-106.39	-27.26	-81.79	-16.45	70.51	-88.73	-36.39	-26.16	-14.46	-86.56	-19.01	-74.86	-15.55	68.34	-86.36
U	56.85	18.45	40.11	117.19	29.04	90.81	179.02	118.33	62.46	28.33	23.02	9.54	115.42	32.81	89.93	194.74	121.01	76.20