Full Length Article

Dissecting anomalies and dynamic human capital: The global evidence

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Abstract

We argue that the risk of an asset is measured by the covariance of an asset's return with the return on the aggregate market and human capital. The intertemporal and consumption-based CAPM, along with an extended version of CAPM framework examines the excess return on Fama and French portfolios sorted on size- BE/ME and momentum across the economies. The frequently used priced factors in anomaly literature include, Fama and French factors, momentum, dividend yield, bond market factors, saving, along with aggregate market and human capital component. Using unique panel data sets of emerging and developed economies, the panel regression, IV-GMM with random effects and PCA, finds the aggregate market and human capital are the strongest predictors of asset returns across the economies. Furthermore, the aggregate market and saving are strong predictors of asset return in emerging economies, whereas aggregate market and human capital emerge the best predictors of asset return in developed economies. Interestingly, human capital subsumes the predictive ability of Fama and French factors and becomes redundant along with momentum, dividend yield, and bond market factors.

1. Introduction

Asset pricing literature in financial economics advocates that the substantial portion of aggregate wealth is non-tradable assets, primarily human capital wealth. The intertemporal models built on time additive utility of consumption functions extensively model the asset return predictability. Rational investors maximize the expected utility of their lifetime consumption to form the optimal portfolio. Owing to the investment opportunities in tradable assets, such as stocks and bonds, part of their wealth is tied in the form of non-tradable assets. Certainly, the human capital component owns the major chunk of wealth for almost entire investors. Heaton and Lucas (2000) and Lustig, Nieuwerburgh, and Verdelhan (2013) found

that the human capital component owes approximately 90% of the aggregate wealth, whereas only 10% consists of capitalized financial assets.

The asset pricing literature has witnessed the series of anomalies posing challenge to the capital asset pricing model (CAPM) to price the variation in return predictability. Harvey, Liu, and Zhu (2016) identified 316 factors and Hou, Xue, and Zhang (2015) traced 80 firm level anomalies are instrumental in explaining the expected stock returns. The role of value and size factors of Fama and French (1993) in asset return predictability is well established in anomalies literature and evident equally in developed and emerging economies. Successively, Jegadeesh and Titman (1993) introduced momentum strategy based on the prediction from three to twelve months past returns. Griffin, Ji, and Martin (2003) extend the momentum strategy across many economies to provide the international evidence. Carhart (1997) argues that the sensitivity towards momentum strategy is priced separately from the risk factors of Fama and French (1993). Lately, Kim, Kim, and

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Min (2011) opine that the revisions in future labor income dethrone the predictability of FF (Fama and French) value and size factors in U.S. Campbell (1996) attribute that the presence of human capital component along with aggregate market factor enhances the stock return predictability. Moreover, the fact that both the aggregate market and human capital captures the variability in return is economically justifiable in developed economies. However, there exists little empirical evidence in emerging economies, whether the dynamics in aggregate market factor and human capital component perform such a function to measure the variability in return predictability.

Building on the theoretical assumption Campbell (1996), measures the risk of an asset by the covariance of asset's return with the return on the aggregate market and human capital wealth. The present study has the wider scope since primarily it examines the excess returns of the assets by its covariance with the returns on the aggregate market and human capital component in developed and emerging economies. The value weighted index proxies the aggregate market while to proxy the human capital component we construct dual aggregates and one firm-level measure. The labor income growth rate (herewith LBR) and the wealth-to-consumption ratio (herewith WCR) represents aggregate, and Hansson Index (HI) signify firm level measurement of the human capital component. The intertemporal capital asset pricing (ICAPM) framework of Campbell (1993) was built on aggregate market factor along with the innovation in market return which proxies news about the future market return to assess the risk premium. However, we introduce saving in asset pricing framework as the proxy for expected future labor income growth that measures the innovation in the human capital component. By doing so the economic significance is that the representative agents save for the rainy day and thus saving must be the best predictor of declines in labor income (Deaton, 1992). We argue that the representative agents in emerging economies comparatively save today more than the agents do in developed economies to smooth their future consumption. In this regard, it is expected that saving should play an important role to capture the variability in asset return predictability in emerging economies. Primarily, we establish an ICAPM framework, consisting of the time variant component representing the present value of labor income growth, for testing the presumptions developed in the study. Alternatively, we employ the consumption-based CAPM, where the risk premium is measured by the asset's return with the covariance of returns on the aggregate market and wages-to-consumption ratio that proxy human capital component.

The size and value strategies occasionally relate to the human capital component in the asset pricing literature and proclaim that the dynamics in human capital component subsumes the predictive power of size and value effects (Kim et al., 2011). Campbell (1996) proposed adding FF factors in his intertemporal framework would be interesting. With this virtue, we introduce the size and value strategies along with the momentum strategy in an ICAPM and CCAPM framework by controlling the effects of dividend yield, term spread, and

the relative Treasury bill. We employ twelve sets of portfolios formed at the intersection of size-BE/ME and size-momentum return as test assets to examine empirically the proposition developed in the study. We used three sets of panel data of emerging and developed economies and the Aggregate in the ICAPM and CCAPM framework to quantify the presumptions developed in the study. To the best of our knowledge, the present study is first of its kind to quantify the presumptions by employing panel data sets in an intertemporal and consumption-based CAPM framework. Moreover, testing the crafted presumptions of the study in the intertemporal and consumption-based CAPM framework on country-specific data sets requires the country-specific component to be time variant. Thus, we rely on the panel data regression methodology with random and fixed effects. Further to deal with the endogeneity and derive the required parameters of interest in line with the objectivity of the study, we employ the instrumental variable-generalized method of moments (IV-GMM) and principal component analysis.

The Hausman's specification test accepts the null hypothesis that the panel regression with random effect better estimates the parameters of interest and the preliminary result show that ICAPM fits the data better than CCAPM. Further, the result is persistent in most of the FF portfolios across the emerging and developed economies. The estimation results show that both the aggregate market and human capital component are strong predictors of return on FF portfolios in developed economies. Interestingly, on the contrary, the aggregate market along with saving appears strong predictor of return on FF portfolios in the emerging economies. The IV-GMM result reveals that the FF factors, momentum, dividend yield, term spread, and relative Treasury bill are instrumental in capturing the variations in return predictability of FF portfolios for both emerging and developed economies. Our major contribution includes the methodological approach we used to fit the country-specific data that handles the statistical issues diligently in the ICAPM and CCAPM framework in line with the economic relationship built in the study. Moreover, it is empirically confirmed that the presence of the human capital component in the asset pricing framework subsequently absorb the predictive ability of FF factors, dividend yield, term spread, and relative Treasury bill, and becomes redundant. Furthermore, the aggregate market and the human capital priced the risk of FF portfolios in developed economies are well known in the asset pricing literature. Though the most intriguing finding indicates that the aggregate market along with the innovation in the human capital component, i.e., present value of future labor income, price the risk of the FF portfolios in emerging economies. The core findings that, the country-specific dimensions drive the priced factors in determining asset return predictability further deepened our understanding.

2. Data and variable definitions

The study uses three sets of panel data to test the proposition in an intertemporal and consumption-based CAPM