Offshore Activities and Global Consumption Risk

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ABSTRACT

We use 10-K filings to construct novel text-based measures of the extent to which publicly traded U.S. firms are exposed to three types of offshore activities: the sale of output, the purchase of input, and the ownership of assets that produce input. Our framework has three advantages: we comprehensively account for activities in all nations, we assess returns in a single market which avoids market segmentation bias, and we use direct text-based measures of risk exposures to reduce error in variables. We find that global consumption risk is significantly priced in the U.S. equity market through exposure to offshore sales. In contrast, offshore purchasing of inputs serves as a hedge. We report country-level consumption risk premia, which are higher in Europe and Africa, and lower in Asia.

The question of whether consumption risk demands a risk premium has a long history in Financial Economics.[1] Yet, as we discuss in Section 1, evidence on this prediction remains elusive. This is at least in part due to econometric challenges including error in variables, market segmentation bias, and ambiguity regarding which measure of consumption growth (local or worldwide) should be priced.[2] We use text analytics of U.S. firm 10-Ks to directly measure firm-level exposures to offshore activities across nations with heterogeneous risk exposures. This framework mitigates the aforementioned econometric challenges, allowing us to conduct a more powerful test of the consumption risk hypothesis. We find strong evidence that global consumption risk is priced in the cross-section of U.S. equities.

Our framework is based on the simple idea that a U.S. firm that sells its output to a given nation is likely exposed to the risks inherent to consumption in that nation in general. This idea relies in part on the assumption that this output is likely consumed by citizens of the given nation either directly or indirectly through intermediate inputs being transformed to more sophisticated goods. Hence, a firm that sells output to high risk nations should face a higher cost of capital and its equity should earn a risk premium. With this hypothesis in mind, we identify statements in each firm's 10-K from 1997 to 2011 in which each firm mentions any nation by name alongside a keyword that associates the discussion with the sale of output. In all, we identify a complete time varying network identifying all of the nations each publicly traded U.S. firm sells its output to. We then separately score each nation based on how its domestic consumption growth comoves with aggregate world consumption growth. This then allows us to score each firm based on the extent to which it sells output to nations with higher consumption risk.

We extend this simple framework to include not only offshore output, but also offshore input (the act of purchasing key inputs to production from offshore sources). The central idea underlying this extension is that offshore input from high risk nations should serve as a hedge to global consumption risk. Consistent with this assumption, this hedging relationship is predicted by the production-based equilibrium in Tuzel and Zhang (2013), who also find

[1] This work dates back to seminal work by Rubinstein (1976), Lucas (1978), and Breeden (1979).
[2] This is related to the well-known Roll (1977) critique.

supportive evidence across local U.S. metropolitan areas. In our paper, this link is due to the fact that the cost of buying inputs in high risk nations is likely to be counter-cyclical due to the higher marginal utility that citizens face in such nations in bad times. In such times, employees should be willing to work for lower wages, and the cost of raw materials needed for inputs should also be lower due to reduced domestic demand. This prediction is particularly clear when a firm buys inputs without actually owning any assets in the given nation (a form of offshoring we henceforth define as "external input").

When a firm does own offshore assets used to produce input (we refer to this activity as "internal input"), the efficacy of the hedge may be reduced because the value of the assets themselves may be pro-cyclical, offsetting the counter-cyclical benefits of the cost of labor and raw materials. This prediction is also made by Tuzel and Zhang (2013) in the related context of real estate assets. With this extended hypothesis in mind, we identify all statements in each firm's 10-K in which each firm mentions any nation alongside a keyword that associates the discussion with the purchase of input, and in particular, whether the input is "internal input" or "external input", and is purchased with or without the ownership of assets, respectively.

We find broad support for the conclusion that offshoring output is associated with higher excess returns among U.S. equities that are exposed to this activity. Moreover, these risk premia are especially focused on nations in the highest tercile of exposure to global consumption risk. These findings, significant at the 1% level, support our broad conclusion that consumption risk is priced among U.S. equities. Returns attributable to offshore output are also economically large, and are as large as the value premium in our sample. A one standard deviation shift in offshore output is associated with 3% higher annual excess returns. We also find support for the conclusion that external offshore input is negatively priced. This result is only significant within the tercile of high consumption risk nations, and further supports the joint hypothesis that consumption risk is priced, and that the purchase of input can serve as a hedge against such risk. In all, these tests reveal strong support for the consumption risk hypothesis.

Our text-based framework addresses three key econometric challenges in earlier work: segmentation bias, errors in variables, and the issue of whether domestic versus global consumption risk or market risk is priced. Regarding segmentation, past work using stock returns from various nations suffers from potential segmentation bias because any revealed differences in expected returns across assets in different nations might be due to segmentation (and not risk premia), as such assets are traded in different markets. Our framework avoids segmentation bias because all of our test assets are traded in major U.S. equity markets, and all firms in our sample file 10-Ks with the Securities and Exchange Commission (SEC).

Our framework also addresses the error in variables bias, which is perhaps the most severe issue in earlier work. We are able to measure each firm's exposure to consumption risk using direct textual mentions of risky activity in each firm's 10-K. These direct mentions reduce error in variables. Because they are updated annually, they also remain precise even when risk exposures are time varying. This approach circumvents the need to identify risk exposures using measured covariances between specific asset returns and low frequency consumption growth. To put this in perspective, our ex-ante measured consumption betas using nation-level consumption data and firm-level exposures to each nation's risk are 45% correlated with ex-post out of sample consumption betas. In contrast, consumption betas estimated using individual stock returns over a five year rolling window are not significantly correlated with ex-post consumption betas. If a ten year rolling window is used, this correlation rises to 3.6%, which is statistically significant, but not economically material. Moreover, this 3.6% cannot be realized in a broad study because few stocks have the necessary ten years of past return data available. Our approach not only achieves the much sharper 45% correlation while controlling for time varying exposures, but it can also be measured even for firms with just a single year of past data.

Finally, our framework also allows us to test competing hypotheses regarding whether U.S. investors are more concerned about global consumption risk or U.S. consumption risk, and also if our results are due to stock market risk or consumption risk (for example, comparing the predictions of the standard CAPM with the Consumption CAPM). Our findings favor the conclusion that consumption risk is strongly priced, and do not support the conclusion that stock market risk is priced. We find some support for both global and U.S. consumption risk in earlier tests, which compare risky offshoring activities to less risky offshoring activities. We then conduct a more stringent test that additionally accounts for the level of consumption risk associated with operations in the U.S. itself. In particular, we compute an "all-in" consumption beta for each stock in our sample in each year. This second test supports the conclusion that only global consumption risk (and not U.S. consumption risk) can explain our results.

The intuition for this latter finding is that the U.S. intuitively ranks high among all nations regarding its exposure to U.S. consumption risk, but it ranks low among all nations regarding its exposure to global consumption risk. Therefore, the U.S. consumption risk hypothesis would predict that firms that sell offshore output to most nations should have *lower* expected returns than firms that do not offshore at all because most other nations are seen as less risky. The global consumption risk hypothesis has diametrically the opposite prediction, and our data strongly favor the global consumption risk hypothesis. This more stringent test also supports the conclusion that the purchase of external input from high risk nations can serve as a hedge. Finally, we also test alternative hypotheses relating to exchange rate risk, political risk, international trade openness, and nation-size as measured by GDP, and we find that these alternatives cannot explain our results.

We next measure the size of the risk premium associated with consumption risk by examining the coefficient on firm-level consumption betas in our ex-post return regressions. We find that the size of the global consumption risk premium is such that an asset with a global consumption beta of one is likely to have an expected return that is 1.01% to 4.04% higher than an asset with a beta of zero. In the cross section, expected return differences are roughly as large as the value premium in our sample.

We conclude our analysis with estimates of country-specific risk premia. This analysis, suggests that U.S. firms have relatively low exposures to global consumption risk, and in contrast, Europe and Sub-Saharan Africa are among the riskiest economies. Although standard text-book assessments of country risk are consistent with the view that investments in Africa may be risky compared to those in the U.S., many readers will find the high risk associated with Europe to be more surprising. The underpinnings for this conclusion are seen clearly in Figure 1, which shows actual consumption growth for Europe, Sub-Saharan Africa, and the United States as it compares to world consumption growth. The figure shows that consumption growth cycles in Europe are amplified relative to cycles in world consumption growth, as is also the case for Sub-Saharan Africa. The figure also shows that this conclusion is not spurious or unique to a narrow time period, as this relationship is consistent from the start of our available data in 1972 through 2011. The lower figure also shows that consumption growth in the U.S. is indeed far less cyclical.[3]

We also find that parts of the Middle East and Latin America have moderate levels of consumption risk, and parts of Asia tend to have lower levels of consumption risk. We note that although our country risk estimates make a contribution in illustrating how country risk premia estimates might be improved, we also note that there are many limitations associated with computing country risk premia in this way. Hence, these country-specific risk premia estimates should only be viewed as suggestive.

The remainder of the paper is organized as follows. In Section 1, we summarize existing literature and foundations. Section 2 describes our data and methods. Section 3 presents descriptive statistics regarding our network of firm- and nation-level offshoring activities. Section 4 examines the link between our key text-based variables and expected stock returns. In Section 5, we compute the implied consumption beta for each firm and estimate the global consumption risk premium as well as country-specific risk premia. Section 6 discusses limitations and robustness and Section 7 concludes.

[3]These stark differences in cyclicality might be due to Europe's more central geographic location or to its less aggressive fiscal and monetary policy reactions to consumption cycles. We note that understanding why Europe and Africa are more cyclical than the United States is outside the scope of our study.

1 Literature Review

Our assessment of worldwide consumption risk relates to many strands of literature including theoretical and empirical asset pricing models, and international finance.

1.1 Consumption Risk

The capital asset pricing model (CAPM) by Sharpe (1964) and Lintner (1965) illustrates how systematic risk premia can arise in a simple general equilibrium setting. However, empirical evidence is weak. For example, the CAPM predicts a single risk factor, and cannot explain the large number of variables that predict returns including size, book-to-market, past return, earnings momentum, and accruals, among others.[4] Merton (1973) points out that an asset's risk should be measured by its covariance with investors' marginal utility, which is not necessarily the market return. Roll (1977) claims that the CAPM is untestable, since the true market return is unobservable. Around this time of this critique, the consumption-based framework was suggested by Rubinstein (1976), Lucas (1978), and Breeden (1979).

Although our paper's central hypothesis goes back to the Consumption CAPM, our paper tests only one of its predictions: assets with greater exposure to aggregate consumption growth should demand higher risk premia. We do not see support for the other prediction that consumption growth should be the only priced risk factor, as other variables are also known to predict returns. The prediction that consumption growth is priced is also made in other asset pricing models, and such models can also predict that other factors are also priced. For example, Epstein and Zin (1989) use preferences to predict that both consumption risk and market risk are priced.

Although the consumption risk hypothesis is intuitive and compelling, this prediction has little empirical support in the existing literature.[5] The Consumption CAPM appears unable

[4]See, for example, Ball and Brown (1968), Basu (1977), Banz (1981), Debondt and Thaler (1985), Fama and French (1992), Fama and French (1993), Jagadeesh and Titman (1993), and Sloan (1996).

[5]See, for example, Hansen and Singleton (1982), Hansen and Singleton (1983), Mankiw and Shapiro (1986), Wheatley (1988), Breeden, Gibbons, and Litzenberger (1989), Cumby (1990), Campbell (1996), and Cochrane (1996) for tests of the Consumption CAPM.

to explain cross sectional returns across stocks. One reason for weak econometric results is the error in variables problem (see Vasicek (1973) and Dimson (1979), for example). For example, betas are measured using stock return covariances, which are very noisy. Beta estimation also requires long windows to estimate, which introduces additional bias as true betas likely change over time.

Our framework offers progress on both empirical issues. We estimate exposure to consumption risk using direct 10-K statements, avoiding the severe error in variables problem associated with using past stock returns to estimate beta. These direct statements yield risk exposures for each firm. The time-varying beta problem is also mitigated in our study because we measure each firm's offshoring activities separately in each year.

1.2 Tests of Consumption Risk

Many existing studies examine consumption risk using a U.S.-centric framework, and for example consider covariance between U.S. asset returns and proxies for U.S. consumption growth. [6] More recently, there have been attempts to find a better measure of U.S. consumption risk. For example, Lettau and Ludvigson (2001) find that the U.S. consumption, wealth, and labor income ratio (cay) is a related predictor of excess stock market returns. Savov (2011) and Da and Yun (2010) find support for priced consumption risk through the use of U.S. based garbage volume and electricity consumption, respectively. Although these studies have made considerable headway, overall evidence is mixed. These mixed results might be due to the fact that the marginal U.S. investor is globally diversified (or at least in part). If so, global consumption growth, not U.S. consumption growth, should be priced. Our study finds strong support for this explanation.

A smaller number of studies have attempted to test consumption risk in an international setting. For example, Wheatley (1988) finds that the consumption beta model of Stulz

[6] See, Hansen and Singleton (1982) and Hansen and Singleton (1983), Mehra and Prescott (1985), Mankiw and Shapiro (1986), Breeden, Gibbons, and Litzenberger (1989), Ferson and Constantinides (1991), Hansen and Jagannathan (1991), Campbell (1996), Cochrane (1996), Kocherlakota (1996), and Hodrick, Ng, and Sengmueller (1998), Bansal and Yaron (2004), Bansal, Dittmar, and Lundblad (2005), Duffee (2005) and Da (2009) for papers that indirectly or directly test the Consumption CAPM based on U.S. consumption data.

(1981) performs well during 1970s and 1980s for some international markets. Cumby (1990) finds mixed results and shows that consumption risk appears to be priced during 1980s, but not in their full sample. These studies find mixed empirical results, which might be due to the fact that international markets are at least partially segmented (see Bekaert, Harvey, Lundblad, and Siegel (2011) for evidence).

Existing studies suggest that market segmentation is hard to overcome. Stehle (1977) and Jorion and Schwartz (1986) compare covariance data across individual country stock markets and compare them to equity returns in the same countries (see Karolyi and Stulz (2003) for an excellent review). The key problem with segmentation is from its definition: markets where the price of an asset depends on where it is traded are said to be segmented. Hence, cross-nation tests could generate evidence of risk premia either because they are genuine, or because segmentation can distort returns. [7]

Our paper overcomes segmentation bias because we examine cross-nation risk exposures using only assets traded in a single highly liquid market: the U.S. equity market. We use the fact that U.S. firms have meaningful levels of offshore activities in many different nations. Our use of assets from a single market avoids segmentation bias because they are traded by the same group of investors.

1.3 Other Related Literatures

Some international theories predict that exchange rate risk may also be priced (see Solnik (1974), Solnik (1977), Stulz (1981), Adler and Dumas (1983), and Dumas and Solnik (1995)). In a study of four global markets, Dumas and Solnik (1995) find evidence supporting this hypothesis. However, Jorion (1990), Amihud (1994), and Bartov and Bodnar (1994) do not find a link between contemporaneous exchange rate risk and U.S. multinational firm stock returns, and Vassalou (2000) finds that exchange rate risk is priced in some markets, but its premium can be positive or negative. Perold and Schulman (1988) further argue that hedging

[7] Other papers that examine the implications of partial segmentation include: Errunza and Losq (1985), Hietala (1989), Bailey and Jagtiani (1994), and Domowitz, Glen, and Madhavan (1997). For an extensive review of the related home bias literature, see Lewis (1999).

activities can reduce volatility driven by exchange rates at essentially no cost, potentially eliminating any observable exchange rate risk premium across firms. We examine whether our results can be explained by exchange rate risk. Our test is motivated by the model in Dumas and Solnik (1995), and we consider controls for each stock's exposure to the exchange rate risk of 40 large nations while testing if consumption risk or market risk is priced.[8] We do not find support for the conclusion that our findings can be explained by exchange rate risk.

Nation-by-nation political instability and trade openness (or goods-market openness) might also be relevant in interpreting our results. See for example Bailey and Chung (1995) for a discussion on political risk and stock returns, and Bekaert, Harvey, Lundblad, and Siegel (forthcoming) for a link to foreign investment. See Li, Morck, Yang, and Yeung (2004) for a discussion on goods-market openness and stock returns. We directly test if our results can be explained by political instability and openness, and find that our results cannot be explained by either.

We also examine the extent to which various nations are exposed to heterogeneous risk exposures. Because firms often evaluate investments that cross borders, it is useful to estimate country risk premia (See Damodaran (2003) for an excellent discussion of country risk and its measurement). Country risk is often estimated using the relative sovereign debt ratings, country bond default spreads, equity market volatilities, or mixtures of these measures. Although these methods have substantially informed researchers and practitioners alike, these approaches also have limitations as they can be backward looking, they can suffer from market segmentation bias, or they may incompletely account for all potential risks. We provide a new method for estimating country risk premia using a forward-looking firm-specific calculation, which has not been considered in past studies to our knowledge (see Section 5 for a description of our methodology to compute country risk premia in details).

Our study also relates to the studies of offshoring activity in the trade and corporate

[8] See for example Jorion (1990), Jorion (1991), Bartov and Bodnar (1994), and He and Ng (1998) for empirical methodologies to measure foreign exchange exposure.

finance literatures (see for example Grossman and Rossi-Hansberg (2008) and Moon and Phillips (2013) for recent studies in those literatures). Other studies examine U.S. exporters and multinationals through plant-level or aggregate-level data from the Census Bureau and the Bureau of Economic Analysis (see Bernard, Jensen, Redding, and Schott (2007) and Bernard, Jensen, and Schott (2009) for excellent reviews on this literature). These studies are relevant to understanding offshoring activity, but they do not address our central hypotheses.

Our paper also relates to a growing literature that considers text-based analysis to test theoretical hypotheses in Finance. Early financial studies using text include Antweiler and Frank (2004) and Tetlock (2007). More recent work includes Hanley and Hoberg (2010), Hoberg and Phillips (2010a), Loughran and McDonald (2011), and Garcia and Norli (2012). See Sebastiani (2002) for a review of text analytic methods.

2 Data and Methods

We collect and process electronically offshoring data from the SEC's Edgar 10-K filings. We utilize software provided by metaHeuristica LLC for parsing the text documents. We then merge the offshoring data with the Compustat database using the SEC Analytics table for CIK to gvkey links, the CRSP database for monthly stock returns using the CRSP/Compustat merged database. Our sample period covers from 1997 to 2011, as 1997 is the first year of full electronic coverage of 10-K filings in the SEC Edgar database. We apply a number of basic screens to ensure our analysis covers firms that are non-trivial publicly traded firms in the given year. We also discard firms with a missing SIC code or a SIC code in the range of 6000 to 6999 to exclude financial firms. We also require that each firm has a valid link from the 10-K CIK to the Compustat database. This leaves us with 79,056 firm-year observations and 677,850 firm-month stock return observations.

In the rest of this section, we describe offshoring data in detail, including how we construct our lists of *nation words* and *offshoring words* to identify each firm's offshoring activities from its 10-K, and in turn how we construct offshoring variables for asset pricing tests.

2.1 Offshoring Data

We first compile a complete list of *nation words* for 236 nations and 25 regions, considering variations that include official and non-official nation names, and their adjective forms. Then, we create another extensive list of the nearest neighbor words that co-exist with *nation words* from 10-K filings in the base-year 1997. We then manually inspect all roughly 5,000 nearest neighbor words that are mentioned more than 100 times, in order to determine whether the word refers to any of the following offshoring activities: A) Output, B) External inputs, C) Internal inputs, and D) Indeterminate inputs. For example,"Sell", "Sales", "Revenues", "Markets", "Consumers", "Store", "Export" and "Distribute" are regarded as A) Output. "Supplier", "Vendor", "Subcontract", "Import" and "Purchase & From" are regarded as B) External inputs. C) Internal inputs includes "Subsidiary", "Facility", "Plant", "Venture", "Factory" and "Warehouse" for example. Finally, some words that are not explicitly identified as either external inputs or internal inputs such as "Manufacture" and "Produce" are regarded as D) Indeterminate inputs. We create a list of all of these words and their variations, and define this aggregate list as *offshore words* throughout the paper.

We then reexamine all 10-K filings in the base-year 1997 and extract all paragraphs that contain words from both lists: (*nation words* and *offshore words*). Our approach to extract paragraphs instead of sentences intends to reduce false negatives. This choice is due to the fact that many firms discuss their offshoring activities over several sentences, and hence just one sentence often misses related *nation words* and *offshore words* as required. Our paragraph approach may generate false positives. To address this issue, we set a maximum distance between *nation words* and *offshore words* at 25 words, and drop hits when the two words are more than 25 words apart even if they are in the same paragraph.[9]

For our 1997 database of hits, we then estimate success rates based on whether each hit correctly identifies one of the four offshoring activities. Manual validation reveals that our success rate ranges from 75% to 90%. As an additional quality check, we additionally

[9]We conclude that the distance of 25 words is robust and quite accurate after manually inspecting alternatives such as 5, 15, 30 or 50 words.

examine paragraphs that contain *nation words* but no *offshore words*, and confirm that neighbor words with the *nation words* in these cases are not related to offshoring. For example, such unrelated discussions might mention words such as "University", "Patent", "Carry-forwards", "Airlines" and "Court".

Our final step is to run our final methodology for all 10K filings from 1997 to 2011. This generates a full panel of offshoring data with the raw counts of how many times a given firm mentions each of the four offshoring activities in each nation. Our final sample has 79,056 firm-year observations, and approximately 57,000 firm-years have at least one offshoring activity mentioned. We discuss details regarding these offshoring statistics in the next section.

2.2 Offshoring Variables

In our asset pricing tests, we consider the following three variables: *Offshore Output*, *Abnormal Offshore Input*, and *Abnormal Offshore External Input*. First, we construct *Offshore Output* by taking the natural log of one plus the raw count of how many times a firm mentions offshoring output words. This firm-year variable is zero if the firm does not mention any offshore output words.

Second, in each year, we regress the natural log of one plus the raw count of input words (Offshore Input) on the aforementioned Offshore Output variable and define the residual as *Abnormal Offshore Input*. We take this additional step to reduce the correlation between measured output and input, as more than 80% of offshoring firms in our sample do both output and input. This normalization is based on the fact that many firms localize input operations when they sell outputs in a foreign nation.

Third, following a similar procedure, we regress the log of one plus the raw count of external input words (Offshore External Input) on both Offshore Output and Offshore Input, and we define the residual from this regression as *Abnormal Offshore External Input*.

We use the above stepwise regression procedure to ensure that any findings are not driven by multicollinearity concerns. For example, the raw log output (Offshore Output) and the raw log input (Offshore Input) variables are 82% correlated. After the stepwise procedure, all offshoring variables by construction are uncorrelated, and this approach thus allows us to assess the impact of all offshoring activities by the given firms.

We further note three motivations as to why we order the stepwise decomposition as output, input, and then external input. The first two motivations are from our own empirical evidence. First, our data consists of a total of 466,043 firm-nation-year offshoring observations. Of these, 376,719 entail offshoring output (81%), 302,434 entail offshoring input (65%), and 59,289 entail offshoring external input (13%).[10] This confirms that offshoring output is indeed the most dominant offshoring activity in our data. Second, assessment of our main aggregated asset pricing test in Table IV (see Section 4) illustrates that our results are in fact not sensitive to the use of the stepwise residuals. In unreported tests, regardless of whether we use the raw values of our three offshoring variables, or if we use the stepwise residual values described here, our results change little. In both cases, offshore output is strongly priced with a t-statistic of 3.8 to 4.0, and offshore input is not priced. Our third motivation is theoretical: asset pricing theories predict that consumption risk should be priced, and the sale of output should be most directly linked to consumption.

3 International Input and Output

In this section, we present summary statistics and descriptive figures to summarize our key offshoring variables. We focus on both time-series and cross-sectional properties.

Figure 2 presents U.S. firms offshoring activities both in time series and across offshoring activity types.

[Insert Figure 2 Here]

The figure shows that, overall in our sample from 1997 to 2011, roughly 70% of U.S.

[10] We have 57,176 firm-year observations with offshoring activity, and the mean and median number of counter-party nations in the sample are 8.14 and 6, respectively. See Section 3 for more details on these statistics.

firms participate in offshoring activities, and they do so in 8 different countries on average. Although U.S. firms do more offshore output than they do offshore input, the offshore input activities are significantly increasing over time. This increasing trend is especially pronounced for external offshore input (when input is obtained from a foreign source without ownership of assets). However, internal offshore inputs are overall one and a half times as common as external offshore inputs. The number of offshoring nations also steadily increases over time for both offshore output and input activities. This indicates that U.S. firms globally expanded their operations to many new nations over time, and both in terms of selling output and in terms of securing input.

[**Insert Table 1 Here**]

Table 1 displays the top 50 nations and regions most frequently mentioned in firm 10-Ks alongside offshoring words over time. The table shows that Europe has been strongest until 2007, but in recent years China has risen to the top in the list.

Figure 3 and Figure 4 show the international breadth of the these offshoring activities. They also display how offshoring counter-party nations change over time.

[**Insert Figure 3 and Figure 4 Here**]

Figure 3 shows the maps of the counter-party nations for offshoring output and input activities in 1997 and 2011. The color indicates the offshoring intensity with warm color for high intensity and cool color for low intensity. We construct an intensity measure for each offshoring activity including output, total input, external input, and internal input, using the percentage of firms with that offshoring activity in the given nation. For offshore output, we use the fraction of firms indicating offshore output to the given nation. For offshore input, we use the relative input intensity, which is the fraction of firms indicating offshore input to the given nation divided by the fraction of firms indicating either offshore input or output to the given nation. We use a relative measure for offshore input because raw offshore output and raw offshore input are correlated, as we discuss in the previous section.

In 1997, U.S. firms' outputs were primarily sold to Canada, England, and Japan. In

2011, offshore output significantly expanded to the southeast Asia region with its focus on China. The output figures also show an increase in sales to Brazil and India during the period from 1997 to 2011, while Japan and Europe show a relative decrease during the period. The figures also show that Latin America, Europe and Asia are regions where U.S. firms do offshore input operations relatively more than offshore output operations. In recent years, China and India lose some of their relative input focus, and some European nations gain input focus. This is possibly related to U.S. firms' increasing output growth in China and India compared to lower output growth in European nations.

Figure 4 takes a closer look at U.S. firms' offshore input operations. We construct a relative external (internal) input intensity measure using the ratio of the external (internal) input intensity to the total input intensity. The external input figures show that U.S. firms significantly rely on sources in the southeast Asia to obtain external inputs. This is likely because they purchase inputs which are heavily labor-oriented from those sources. Although Latin America and Europe have relatively high total input intensity in Figure 3, their external input intensity is not as high as the total input intensity. The internal input figures reinforce this point by showing that U.S. firms do more internal input operations than external input operations in Latin America and Europe. Accordingly, these figures suggest that U.S. firms own input-producing assets in those nations which are relatively close to U.S., whereas they purchase external inputs mainly from Asia.

Table 2 presents summary statistics for our offshoring data. In our sample, 72% of U.S. firms do at least one kind of offshoring activity over the sample period. 69% of U.S. firms participate in offshoring outputs, and most of these offshoring firms (about 85%) actually do both offshore outputs and inputs at the same time. 65% of the U.S. firms in our sample participate in offshoring inputs (this includes indeterminate inputs). Among these, 47% and 88% involve offshore external inputs and internal inputs, respectively.

[Insert Table 2 Here]

The table also presents summary statistics for our three important variables: *Offshore*

Output, *Abnormal Offshore Input*, and *Abnormal Offshore External Input* for asset pricing tests. In addition, we also report specifications relating to the raw counts of all offshoring words (Offshore). The average and median number of different nations or regions where U.S. firms offshore is about eight and six, respectively. The number of the offshore output nations is slightly greater than the number of the offshore input nations. The number of offshore external input nations is smaller and is one on average, while the number of offshore internal input nations is four.

The table also summarizes variables describing financial characteristics for firms in our sample. These variables will be considered in the next table to examine the extent to which these variables correlate strongly with our key measures of offshoring activities. The table also displays summary statistics for the control variables used in our asset pricing tests along with our three offshoring variables. These variables include firm size, the book-to-market ratio and the past 11 month return for momentum.

Table 3 displays Pearson correlation coefficients between our key offshoring variables and firm characteristic variables.

[**Insert Table 3 Here**]

We first note that our four offshoring activity variables correlate only weakly to moderately with all of the characteristic variables we consider. In particular, no correlation coefficient with the characteristic variables exceeds 20% in absolute magnitude. This finding illustrates that the information contained in our offshoring variables is quite novel given variables in the existing literature. Hence, any findings we obtain regarding return predictability are likely to be unrelated to existing variables that predict return (most of which obtain from CRSP or Compustat variables). We also conclude that our analyses should not be affected by multicollinearity.

We also note that some of the correlations, although modest in magnitude, are of independent interest. The positive correlation between our offshoring variables and firm size and age variables (except for abnormal offshore external input) indicates that larger and older firms are more likely to participate in offshoring with foreign nations. Firm profitability measured by operating margin is also positively correlated with all four offshoring variables.

The negative correlation between the offshoring variables and book leverage, PPE/Assets and CAPX/Sales (except for abnormal offshore inputs) is likely due to the fact that offshoring activities are associated with lower fixed asset ratios. This is expected because offshoring firms are more likely to use outside supply contracts or operating leases in foreign nations. It is also interesting that offshore inputs (which primarily loads on internal offshore inputs, i.e., situations where the firm owns input-producing assets in the given nation) show the opposite correlation for these financial ratios. This is also likely related to their higher fixed asset ratios and provides evidence that these firms own assets whose value is possibly subject to the foreign local economy.

The picture that emerges from these results is that offshoring firms are in general larger, older, and more profitable than non-offshoring firms. Our asset pricing tests control for some of these differences by controlling for size, book-to-market, and momentum factors.

4 Offshore Output, Input and Stock Returns

We next examine if the extent to which ex-ante firm offshoring is related to ex-post stock returns. Under the assumption that overseas output is related to aggregate consumption, we would expect offshore output to generate a positive risk premium in the cross section of stock returns. If offshore input is a hedge to this risk (see the model in Tuzel and Zhang (2013) for example), we would also expect offshore input, especially external input, to be associated with a negative risk premium. We also note that this test, while interesting, is over-simplified. For example, this test ignores information about the level of risk inherent to the offshoring counter-party nation. Offshoring to higher risk nations should entail a larger risk premium. In the next section, we consider more elaborate tests that also account for this information. We present the more parsimonious tests here to underscore the raw informativeness of our text-based measures, and because this allows us to use a more scientific approach when adding new layers of complexity later in the paper.

We consider Fama-MacBeth regressions based on data from July 1998 to June 2012. The dependent variable is the excess monthly stock return. As RHS variables, we consider our three central offshoring variables: *Offshore Output*, *Abnormal Offshore Input*, and *Abnormal Offshore External Input* (see Section 2 for details). Our central predictions are that offshore output generates a positive risk premium, and that offshore input generates a negative risk premium, especially external offshore input. We also include a standard slate of control variables from Fama and French (1992) and Jegadeesh and Titman (1993): the natural log of the book to market ratio, the natural log of firm market capitalization, and the past 11 month stock return from month $t-12$ to month $t-2$. We note that we follow the lagging convention identified in Fama and French (1992) not only to compute the book to market ratio and firm size, but also to compute our own 10-K based variables. In particular, to predict returns for an interval July of year t to June of year $t+1$, we consider 10-K data on offshoring activities measured from the fiscal year that ended in calendar year $t-1$. This ensures that all data used to predict ex-post returns is at least six months lagged and this ensures no look-ahead bias.

[**Insert Table 4 Here**]

The results of this test are presented in Table 4. We also note that all RHS variables are standardized to have a standard deviation of one prior to running the regression, which allows all coefficients to be interpreted as the impact of a one standard deviation shift in the given variable on the ex-post stock return. This allows us to report economic magnitudes directly. We also consider results based on offshoring to all nations (Panel A), offshoring specifically to developed nations (Panel B), and offshoring to developing nations only (Panel C). We obtain developing versus developed nation status from the World Bank (measured as of 1996).

Panel A of Table 4 shows that offshore output is indeed a strong positive predictor of ex-post monthly excess stock returns. Regardless of whether measures of offshoring input or external input are included, this result is significant at the 1% level with a t-statistic of roughly 3.9. The coefficient magnitude of 0.22 indicates that a one standard deviation increase in offshoring output text implies a 2.6% ($12 * 0.22$) higher annualized stock return. This figure is roughly as large as the value premium in the same period (coefficient of 0.230) although it is smaller than the small firm premium in this sample (coefficient of -0.384).

Panels B and C show that this result is robust and statistically significant both in the sample of developed nations, and in the sample of developing nations. The coefficient is also larger in Panel B for developed nations (0.22) versus Panel C for developing nations (0.095). This supports the intuition that consumption risk is likely higher in more developed nations, which contribute larger amounts of consumption to aggregate worldwide totals. The relevance for developing nations is also reassuring, as these nations might have consumption growth that is highly correlated with that of larger nations, and hence may not be devoid of risks. These results are based on direct textual mentions of offshoring activities, and are likely not highly susceptible to error in variables concerns. Also, the assets in our tests are all U.S. equities, and hence they are not exposed to any potential differences in investor segmentation in the cross section, ensuring that our results are free from potential segmentation bias.

We also note that, consistent with theoretical predictions, the intensity of offshoring matters over and above the simple state of whether a firm engages in offshoring activity or not. Although we do not report the results to conserve space, we note that if we include dummy variables indicating whether a firm engages in each type of offshoring activity or not in these regressions, that our main results are robust. In particular, in such specifications, the dummy variable is not significant and the existing intensity based variables remain little changed in these regressions. We also note that our results are additionally robust to including a control for profitability (operating income / sales), and hence our results are not due to the fact that offshoring firms tend to be more profitable, but rather is due to the intensity of risky offshoring activity itself, as also predicted by theory.

Although offshore output is consistently priced, all three Panels of Table 4 show that offshoring input, and offshoring external input, are not significantly related to stock returns.

This runs counter to our prediction that these activities likely serve as hedges to consumption risk due to the costs of inputs in high risk nations likely being counter-cyclical due to the higher marginal utility of citizens of such nations in bad times. Although we fail to reject the null hypothesis that offshoring input is not priced, we note that all six coefficients associated with these variables in the table are negative even though they are not significant. This result foreshadows results we report later, which show that offshoring external input becomes significantly negatively related to stock returns when we measure this exposure only in nations with high worldwide consumption risk.

4.1 Exposure to Offshoring and Risk-Based Subsamples

The tests in Table 4 do not consider the level of risk inherent to the specific nations a firm's offshoring takes place. In this subsection, we examine if these tests produce materially different results if we tabulate offshoring activity separately for low risk, medium risk, and high risk nations, where we consider the following measures of risk to create these groups: global consumption risk, U.S. consumption risk, global stock market risk, U.S. stock market risk, exchange rate risk, and Gross Domestic Product (large nation size risk). In these tests, we use the same sample and regression variables as in Table 4, with the exception of the offshoring variables. In particular, we replace each offshoring variable with three variables, where each of these three variables is separately tabulated for low, medium, and high risk nations using the same methods discussed in Section 2.

We first consider global consumption risk. For each nation, we compute the covariance between the given nation's consumption growth and aggregate global consumption growth using yearly observations from 1960 to 1995 obtained from the World Bank. Global consumption is defined as the total dollar value of all consumption in all nations in our sample. We view this as a rather direct measure of global consumption risk in our setting. In particular, a firm that participates in offshoring output activity with a given nation is selling its products to entities within that nation. It is likely that these goods are either being consumed directly by citizens of the given nation, or they are being used as intermediate inputs to downstream products, which are also likely consumed by citizens of the given nation. We then sort nations into terciles based on this covariance, and define the highest covariance tercile as the high risk nations, the middle tercile as the medium risk nations, and the lowest tercile as the low risk nations. We separately tabulate offshoring activities to nations in each of these groups. Hence, in total, we consider nine offshoring variables: output, input, and external input activities tabulated over nations from high, medium, and low risk groups.

[**Insert Table 5 Here**]

The results are displayed in Panel A of Table 5. Row (1) displays a specification that only includes the three offshore output variables (from high, medium, and low risk nations). The table shows that only offshoring output to high risk nations entails a significant risk premium. This result is significant in rows (2) and (3) as the additional variables are added, ensuring that our results are not influenced by multicollinearity. In all, this result provides more direct evidence that consumption risk might be priced. In particular, offshoring itself does not necessarily generate a significant risk premium. Rather, offshoring to nations that have high consumption covariance with global consumption entails a risk premium.

Rows (2) and (3) show that although offshoring input is not significantly priced, offshoring external input is significantly negatively priced when this activity is conducted with high risk nations. This finding also supports the conclusion that global consumption risk is priced, as the cost of labor and raw materials is likely lower when the given nation is experiencing a recession. Hence, although exposure to offshore output in a high risk nation is likely to be pro-cyclical, exposure to external offshore input is likely to be counter-cyclical. We further note that this prediction is most clear only for external input, as this form of input does not entail any ownership of assets in the given nation. If a firm does own assets in such a nation, the natural hedge associated with labor and raw materials cost is likely to be offset by the pro-cyclical value of the assets themselves. Our findings support these predictions.

We consider analogous tests for U.S. consumption risk in Panel B of Table 5. In particular, for each nation, we consider the covariance between the given nation's consumption growth and U.S. consumption growth using yearly observations from 1960 to 1995. Nations with high covariance are tagged as having high U.S. consumption risk, and those with low covariance have low U.S. consumption risk. We note that this test differs from that in Panel A as we now examine U.S. consumption risk instead of global consumption risk. Theoretically, if markets are heavily segmented across nations, then U.S. consumption risk should matter for our sample of U.S. traded assets. In contrast, if markets are not heavily segmented, then global consumption should matter. We view this as an empirical question.

Row (1) of Panel B displays a specification that only includes the three offshore output variables (offshore output to high, medium, and low risk nations). As was the case for global consumption risk, the table shows that only offshoring output to high risk nations entails a significant risk premium for U.S. consumption. Although the t-statistic is higher in Panel B of Table 5 than in Panel A of Table 5, the standardized coefficient magnitude is slightly smaller. This test overall does not draw a conclusion that U.S. consumption risk and global consumption risk are priced differently. However, rows (2) and (3) in Panel B show that only overall offshore input, and not external offshoring input, is priced when it comes to U.S. consumption in high risk nations. These tests suggest that U.S. consumption growth might be priced, but they also raise some questions. First, although we predict that external input should be negatively priced, we find instead that overall input has a negative and significant coefficient for U.S consumption risk in Panel B. Second, it is possible that the non-trivial correlation between U.S. consumption risk and global consumption risk renders this particular test to be weak in separating these two sources of risk. In the next section, we construct a test that is discriminating across these alternatives, and we will show that only global consumption risk is priced in that test.

We also consider stock market risk. In particular, consumption risk might be correlated with either world stock market risk, or U.S. stock market risk. Moreover, it is a separate and equally interesting question as to whether stock market risk is priced (for example Epstein and Zin (1989) predict that both consumption risk and market risk might be priced). We therefore use the Datastream nation-by-nation stock market index returns and compute the covariance between each nation's stock return and both a worldwide stock return index and also the U.S. stock return index. We compute the world stock return index as the market capitalization weighted average stock return of the indices of all nations in the Datastream sample. We use the five year window from 1992 to 1996 to compute these covariances using monthly stock index returns,[11] as is standard in the market risk literature. We consider tests analogous to those in Table 5.

[**Insert Table 6 Here**]

The results in both Panel A (world stock market risk) and Panel B (U.S. stock market risk) do not support the conclusion that stock market risk can explain our results.[12] In particular, in both panels, we do not observe a monotonic pattern of high expected stock returns for firms that offshore output to high risk nations compared to middle or low risk nations. In fact, in both panels, offshoring output to middle risk countries is associated with the highest expected return. Analogously, we also do not observe the predicted result that offshoring external input demands a high negative risk premium in the high risk nations. We conclude that our results likely cannot be explained by stock market risk.

We consider analogous tests for Political Instability Risk and Export/Import Openness in Table 7. For each nation, we use the World Bank "Political Stability and Absence of Violence/Terrorism" Index from 1996. Nations with low political stability are tagged as having the greatest political instability risk, and nations with high political stability are tagged as having the lowest political instability. We hypothesize that if investors are concerned about political instability, then stock returns will be higher for high political instability nations. To compute Openness, we also use World Bank values from 1996 to compute the following ratio for each nation: $\frac{Imports+Exports}{GDP}$. We then sort nations into terciles as having high, medium and low openness. Although openness can entail risk, and the tests we conduct can

[11]We note that stock market index availability reduces our sample of nations to just 51 instead of the 130 for which we have consumption data. However, this likely has little impact on power due to the fact that the 51 nations that are covered have the lion's share of offshoring activities.

[12]Further supporting the conclusion that our results are due to consumption risk uniquely, we note from the raw data that nation-by-nation consumption growth betas with global consumption growth are just 9% correlated with nation-by-nation stock return betas with world stock returns.

be viewed through that lens, we also examine openness to challenge the key assumption in our work that the sale of output to a given nation is likely correlated with consumption in that nation because the output sold to the nation is likely being consumed there. If this assumption is driving our results in a non-economic way, we would expect strong separation of our results across the openness terciles.

[Insert Table 7 Here]

The results in Panel A of Table 7 sharply reject the political risk hypothesis, as our results are strongest for nations in the lowest political risk tercile. In contrast to a political risk hypothesis, this finding fits in well with our primary consumption risk hypothesis. In particular, nations with lower political risk are more likely to embrace globalized world economic policies, and are thus likely to have higher consumption betas and higher returns, as the table illustrates. The results in Panel B are not consistent with a conclusion that our results are driven in any way by openness. We do not see strong sorting of predictable returns across openness terciles, and at best, there may be a weak U-shaped pattern.

We also consider a model that controls for a wide array of exchange rate risks, and a test examining a potential role for Gross Domestic Product (GDP) in Table 8. To control for exchange rate exposures, we consider 40 large nations that pass basic data screens[13] and we compute each asset's exposure to each of the 40 currency changes using five year regressions in which the dependent variable is a firm's excess return and the RHS variable is a given nation's exchange rate changes. We use up to five years of ex-ante monthly data to fit these regressions on a rolling basis, although we require at least 12 months of available data in order to include a given currency's beta estimate in our analysis. A firm-year's exposure to a given currency is then the slope of this regression (an exchange rate beta). We also winsorize the resulting exchange rate betas in each year at the 1/99% level to ensure

[13] We start with the universe of nations having valid World Bank data identifying their GDP in 1996. Among all nations that adopted the Euro, we only include Germany in order to avoid collinearity of exposures. We also exclude nations that pegged their currency strictly to the dollar including Ecuador and Argentina. We then sort the remaining nations by 1996 GDP and retain only the fifty largest. Finally, we additionally require that Datastream has adequate monthly exchange rate data starting in 1997 , which leaves us with 40 nations for which we can estimate exchange rate exposures in our Panel.

that our results are not affected by outliers. We hypothesize that if our results for global consumption risk can be explained by exchange rate risk, then controls for the firm-specific exchange rate exposures will subsume our variables based on consumption growth exposure. We also consider GDP for each nation as measured in 1996 to explore whether our results can be explained by nations with large economic size.

[Insert Table 8 Here]

The results in Panel A of Table 8, especially when compared to the results in Panel A of Table 5, show that exchange rate exposures cannot explain our central findings regarding global consumption risk, as our key findings retain their significance despite the forty added controls for exchange rate exposures. The results in Panel B also reject the GDP-based explanation. In Panel B, the link between expected returns and GDP is U-shaped, and is not monotonically declining as predicted by a GDP-based explanation.

In a final test, we examine if our results can be explained by nations that simply had the high stock returns in our sample period from 1997 to 2011. In order for this to be the case, we would expect that nation-by-nation consumption covariances would be strongly positively correlated with the nation-by-nation stock returns in our ex-post sample. We note that this is not the case, as these quantities are in fact -22% correlated. The fact that high consumption risk nations tend to have lower stock returns is likely consistent with a strong role for market segmentation, as investors in many nations might have a hard time investing in assets around the world. As such, we would only expect clean risk-based pricing across liquid assets traded by the same groups of traders, as is the case for the assets in our sample (U.S. equities). We conclude overall that consumption risk, and in particular global consumption risk, best explains our findings.

5 Implied Consumption Betas and Country Risk

The results in the previous section show strong support for the hypothesis that U.S. firms exposed to higher global consumption risk experience higher ex-post stock returns. In this section, we further stress-test this hypothesis by estimating firm-specific consumption betas, and examining if these comprehensive consumption betas are also priced. This more refined test also offers additional power to examine whether global consumption or U.S. consumption is most relevant, as we can use all information in the distribution of country-specific betas to compare firms with and without various offshoring activities.

In order to compute each firm i's global consumption beta, we first compute C_i, a vector of weights indicating the relative frequency at which a given firm-year mentions offshoring output to each of the nations in our sample. Where N is the total number of nations in our sample, C_i is thus a vector of length N with weights that sum to one. A given element of this vector $C_i[j]$ is computed as the number of times firm i mentions offshoring output to nation j divided by the number of times firm i mentions offshoring output to any nation in our sample.[14] The vector C_i thus indicates the distribution of nations across which firm i has offshoring output activities.

Our next step is to identify F_i, the fraction of firm i's sales that are sold overseas. This scalar is obtained from both Datastream and the Compustat segment tapes to maximize coverage, and it indicates directly how much of each firm's sales are overseas rather than domestic. Importantly, although both Datastream and Compustat report this aggregate fraction, it does not indicate the specific countries to which the sales originate. This underscores the value added from our text-based firm-level database, which fills this void.

Our final input is γ, the $N-vector$ of consumption betas for each nation. We estimate this quantity for a given nation j as the slope of a regression of the consumption growth of nation j on global consumption growth. This regression is based on annual observations, consumption data are in U.S. dollars, and are obtained from the World Bank. After computing these slopes for each nation, we subtract the consumption beta of the U.S. from the same time period

[14]We also considered a specification where the weight attached to a given mention of offshoring output was set to be proportional to the given nation's share of world GDP in 1996. This specification thus incorporates an additional assumption that mentions of larger nation likely entail economically larger offshoring commitments. It is unclear whether such an assumption entails more or less overall data quality. Although we do not report these results for conciseness, we note here that our results are just as strong if we use this approach.

in order to obtain γ.[15] We only consider observations from 1960 to 1995 to compute γ in order to avoid any look ahead bias in our asset pricing tests. We note that consumption betas estimated at the nation-by-nation level are highly persistent, as is necessary for a strong test of consumption risk. For the top fifty nations in our ample, ex-ante measured consumption betas measured using this approach are 45% correlated with ex-post out of sample consumption betas (measured during the out of sample period from 1996 to 2011).[16]

For each firm i, we thus compute its asset consumption beta $\beta_{i,asset}$ as follows:

$$\beta_{i,asset} = F_i(C_i \cdot \gamma) \tag{1}$$

We then lever each firm's asset beta to obtain each firm's equity beta, which we denote simply as β_i.[17]

We compute analogous measures of global consumption exposure for our offshore input and our offshore external input variables. In particular, the vector C_i is based on offshoring input counts instead of offshoring output counts. Once these variables are computed, analogous to our earlier analysis, we perform stepwise regressions to ensure that our offshore input measures are not highly correlated with offshore output. Analogous to the discussion in Section 2, we regress offshore input consumption exposure beta on our offshore output consumption exposure beta, and use the residual from this regression as abnormal offshore input global consumption exposure beta. For external input, we regress this exposure on both offshore output exposure and offshore input exposure, and take the residual. These three variables (offshoring output, offshore input, and external offshore input global consumption exposures) are then included in our primary Fama-MacBeth regression where the monthly stock return is the dependent variable as before.

[15]We adjust nation-by-nation betas as a convenience. For example, this gives a beta of zero an intuitive interpretation: a firm with $\beta_i = 0$ is a firm that has no offshore activity. Firms with positive relative betas should have higher expected returns.

[16]In contrast, consumption betas estimated using individual stock returns over a five year rolling window (as is commonly used in existing studies) are not significantly correlated with ex-post consumption betas. If a ten year rolling window is used, this correlation rises to 3.6%, which is statistically significant, but not economically material.

[17]We assume a tax rate of 35% to compute levered betas, and we use the formulation $\beta_i = (1 + (1 - T_c)\frac{D}{E})\beta_{i,asset}$, where the debt to equity ratio is based on book leverage.

[Insert Table 9 Here]

The results are displayed in Table 9. The results in Panel A further support our earlier findings that offshore output, our most direct measure of exposure to foreign consumption, generates a risk premium, which is larger when firms are exposed to nations with greater comovement in consumption growth with global consumption growth. In particular, the consumption beta due to offshore output is positive and significant in all rows, and moreover is significant at the 1% level.

As was the case in our earlier tests, we do not find that offshoring input is priced. However, we do find that offshore external input is negatively priced. In row (3), this result is significant at the 10% level. This supports the conclusion that the purchase of input is counter-cyclical and serves as a hedge, whereas the sale of output is pro-cyclical. In particular, when a nation is in a deep recession and has low consumption, we expect that individuals in this nation are likely willing to provide labor and/or raw materials at lower cost, generating the hedge.

In Panel B of Table 9, we make one refinement to the calculation of our consumption risk exposures in equation (1). In particular, when computing exposures for offshoring input and offshoring output, we use the percentage of assets that are overseas instead of the percentage of sales that are overseas when computing the F_i's. We consider this for offshoring input variables only (and not offshore output) because a firm's scale for input is potentially more linked to its asset base than to its sales.

The results in Panel B of Table 9 are analogous to, and even stronger than those in Panel A. In particular, the consumption beta due to offshore external input is now negative and significant at the 5% level with a t-statistic of -2.39. Also, the coefficient for offshore output is close to unchanged and remains significant at the 1% level. Although not displayed to conserve space, we note that these results are robust to dropping European offshoring activity from our sample (this is important given that European nations have high consumption betas as will be clear in the next section), and are also robust to dropping the year of the Financial crisis from our sample.

Panels C and D of Table 9 replicate Panels A and B, respectively, but the regressions additionally include controls for the 40 large-nation exchange risk exposures. We calculate the 40 risk exposures as described above in Section 4.4.1. The results of Panels C and D are highly similar to those in Panels A and B, and we conclude that our findings cannot be explained by exchange rate risk.

We next consider a fully analogous test for U.S. consumption risk instead of global consumption risk. In order to compute analogous measures of U.S. consumption risk, we simply recompute the vector γ in equation (1) by regressing each nation's own consumption growth on U.S. consumption growth instead of global consumption growth. The rest of the formulation is then fully analogous to our above-described framework for global consumption risk.

The results of this test based on U.S. consumption risk are displayed in Table 10. The results show that U.S. consumption risk is not priced. None of our key variables (offshoring output, input, external input) are statistically significant in any of the Panels. We thus reject the hypothesis that the risk premia reported earlier in this study are due to U.S. consumption risk.

[Insert Table 10 Here]

Instead, the results of this section (and the results of earlier sections) support the conclusion that the risk premia we document are likely related to global consumption risk. Offshoring output generates a risk premium when it is done in high global consumption risk nations, and offshoring external input to these same nations serves as a hedge.

The power of this test to separate the impact of global consumption risk in Table 9 and U.S. consumption risk in Table 10 is primarily due to the fact that the U.S. itself ranks fairly low in terms of its exposure to global consumption risk. In particular, it is ranked 123 out of 130 World Bank nations or regions in our sample (that is, 122 have higher world consumption betas than the U.S.). The U.S. has a world consumption beta of just 0.168, whereas many other nations have betas exceeding unity and some are as high as two. This is primarily due to the fact that U.S. consumption growth is considerably less volatile than that of other nations. In contrast, the U.S. has a U.S.-centric consumption beta of unity (by definition), which ranks 61st out of 130 regarding U.S. consumption betas across world economies. Therefore, a theory based on U.S. consumption risk would predict that exposure to more than half of all nations would help a U.S. firm achieve a lower expected return, whereas a theory of global consumption risk would predict that almost all nations are riskier than the U.S. Therefore, by computing beta estimates that account for each firm's total operations, both at home and abroad, these hypotheses generate starkly different predictions for U.S. and global consumption risk and how they are priced. In all, global consumption risk not only explains returns comprehensively in this stringent setting, but it also correctly predicts which particular nations generate the highest risk premia (as illustrated directly in the previous section where we show tercile results).

This test imposes a very high bar for consumption risk, and also addresses key challenges in the existing literature. First, we use direct textual mentions of exposure to offshoring activities along with numerical data regarding the fraction of sales and assets that are overseas in order to reduce the error in variables problem associated with measuring consumption risk. Second, we have excellent power to test consumption risk due to our assessing exposure to all nations, and the fact that we use 35-years of consumption growth data to estimate each nation's exposure to global consumption. These steps should reduce the error in variables problem associated with estimating firm-specific betas, especially when consumption growth is typically observed at low frequency and asset returns are observed at high frequency. Third, our approach is not susceptible to market segmentation bias, as all of the assets we consider are traded in the same U.S. markets. U.S. investors are a natural choice for this test, because they likely face a low level of segmentation with respect to foreign markets, as U.S. investors have access to global assets and can diversify internationally.

5.1 Estimating Country Risk Premia

In this section, we estimate and report country risk premia for all of the nations in our sample. This analysis is interesting first because it can inform future research on international risk. Second, information about country risk premia is also relevant to research in the area of discount rate identification, for example for the purposes of identifying hurdle rates for corporate investment. Although we believe the information provided here is relevant in that setting, in the next section, we also caution readers regarding some limitations in using these results in that way. Yet given the scarcity of related information in the academic literature, this analysis can at least be viewed as an important first step toward establishing better metrics of international risk premia.

We use a parsimonious approach based on the results from Table 9 to compute country-specific risk premia. We report these risk premia as a range due to some of the known limitations in this analysis, as for example firm-specific offshoring activities are growing during our sample period.

We begin with the "un-standardized" regression coefficient for offshoring output from Table 9, which is 0.337. This indicates that a firm having a global consumption beta of one is expected to have a monthly return that is 33.7 basis points higher than a firm that has a global consumption beta of zero. Over one year, this translates to an annual risk premium of 4.04%. However, we note that this estimate is likely biased upward, potentially severely, because consumption beta estimates are based on present data, and our results also show that offshoring is indeed growing rapidly. This implies that risk premia estimates based on present-data likely under-account for risk associated with this expected growth. For example, we find that firms with less than 10% of their output being sold overseas experience next-year growth in offshoring by a whopping three percentage-points. As a result, although our test accurately reveals that firms with higher consumption betas do have higher returns, this calculation likely overstates the magnitude of the risk premium that a firm with one unit of additional consumption beta might experience.

To provide bounds on the annual risk premium, we note that the average offshoring output firm in our sample has 25% of its sales being sold overseas. Because this number is typically growing rapidly, and also because investors view a firm's value as the discounted value of its future cash flows, the true long-term percentage of offshoring output must therefore be between 25% and 100%. We thus compute country-specific risk premia as a range, and the lower bound is based on assuming the 100% figure, and the upper bound is based on assuming the 25% figure.

We compute each nation's risk premium as the product of the consumption beta risk premium and each nation's estimated consumption beta as in the vector γ described in the previous section. The upper bound of the consumption beta risk premium is thus 4.04% as discussed above, and the lower bound is 1.01%. Table 11 lists the range of potential country risk premia for each country, where nations are listed after sorting from highest to lowest.

[**Insert Table 11 Here**]

Table 11 shows that the highest risk premia are generally in Europe and in parts of Africa. The high loadings on global consumption risk in Europe likely relate to its more centralized location geographically, and also to the large size of the European economy and the influence it has around the world. Regarding Africa, we indeed see that consumption risk tends to be high, but it is also more dispersed likely due to the fact that the consumption growth in individual nations tends to be noisy.

Due to the possibility that any particular country may be exposed to noise in its consumption growth time series, we also use the World Bank data to report expected country risk premia in major regions. For example, we report the country risk premium in Europe and Central Asia, and separately a risk premium for Sub-Saharan Africa. Consistent with the results for the individual countries, we see that these two regions are exposed to elevated levels of consumption risk.

Other parts of the world including Latin America and the Middle East appear to have mid-levels of consumption risk, and East Asia has lower levels. In some ways, these results suggest that distance from Europe may have some traction in identifying where consumption risk is the greatest. In all, we view these results as being suggestive regarding potential country risk premia, and as a solid first step. Yet, we acknowledge some limitations next.

6 Robustness and Limitations

Our main results were based on Fama-MacBeth regressions. We note here that our results are also robust to using long-short calendar time portfolios, where we control for risk factors using time series tests. We use an approach that is similar to Davis, Fama, and French (2000). In each month, we first sort firms into terciles (small, medium and large) based on their market capitalization. We then sort firms in each tercile into additional terciles based on their book to market ratio, leaving us with nine size and value based portfolios. Within each portfolio, we sort firms into quintiles based on their output-based consumption beta.[18] We then compute the time series return of the zero-cost portfolio that entails buying one-ninth of each high consumption beta portfolio (these portfolios are balanced based on size and value), and then selling one-ninth of each low consumption beta portfolio. Finally, we regress the time-series returns of this zero-cost portfolio on the three Fama-French factors plus the momentum factor.[19] We then compute the intercept, and find that it is positive and statistically significant at the 5% level. The intercept is 22.3 basis points, or 2.7% annualized return. If we instead base our quintile portfolios on the intensity of output mentions to countries in the high consumption risk tercile, the results are similar and the intercept implies a 3.3% annualized return.

We also note that our results, both in regression form, and based on calendar time portfolios, are robust to the subsample of larger firms. In particular, we consider the sample of firms with market capitalizations in the highest tercile in the given month as above. Our results are robust. The coefficient magnitudes are somewhat smaller, but because there is less volatility in this sample, the results maintain their overall significance levels. This finding

[18] Results are very similar if we use terciles for all three variables. We use quintiles due to the large number of firms available in our sample, which is more recent than the one in Davis, Fama, and French (2000).

[19] We thank Ken French for providing factor data on his website.

is particularly consistent with a risk-based explanation as we would predict that all exposed firms should have higher returns, even if firms are larger and are more easily arbitraged.

We also note that our findings regarding country risk premia, while informative, are also limited in terms of their practical use. First and foremost, these estimates only include estimates of country risk as related to global consumption growth exposure. They do not, therefore, consider exposures to expropriation risk, or other forms of priced risk that may exist. Fortunately, some issues like expropriation risk can be identified through other means, as for example firms can purchase annual insurance policies to hedge this risk.[20] In a more general setting, the country risk premium for expropriation risk or for other risks, for example, could be added to the country risk premium due to consumption (summarized here), to get an all-in country risk premium.

Two more limitations associated with our estimates are noise, and the fact that country-specific exposures to consumption risk are likely time varying. We believe that consideration of world regions, as discussed above, rather than the individual countries, can reduce the impact of noise. Regarding time varying consumption risk, future research might consider how future exposure to global consumption is best estimated. Armed with more technical improvements, superior measures of country risk premia should be available.

We also note that in many settings, practitioners use country risk premia to assess the value of projects that entail both the purchase of offshore assets along with the sale of offshore output. For example, a practitioner might want to value a plant in India that produces output that will be sold in India. In such a case, we note that the project will indeed be exposed to consumption risk due to the sale of output in India, but we also note that this will be bundled with a natural hedge due to the sourcing of input from the same nation. Hence, projects that focus on input alone will likely experience minimal or even negative risk premia. However, this hedge-effect is reduced when the project additionally entails the ownership of assets. Projects that entail the use of both input and output in a given nation may entail risk premia toward the middle of our reported range, and projects

[20]For example, the MIGA division of the World Bank sells such insurance.

that entail output alone potentially entail risk premia toward the high end of the range.

7 Conclusions

Theoretical models including those by Breeden (1979) and Epstein and Zin (1989) predict that aggregate consumption risk should be priced. Yet, evidence remains elusive primarily because tests of this prediction are susceptible to issues relating to error in variables, market segmentation bias, and a lack of clarity regarding whether domestic or worldwide consumption risk should be priced. We use novel text-based measures to directly test this prediction by measuring the extent to which U.S. firms sell their output overseas to nations with heterogeneous exposures to consumption risk. In addition to this direct test, we also test more nuanced predictions regarding whether the purchase of input from offshore sources serves as a hedge to this risk.

Firms that sell more of their output to high consumption risk nations experience higher ex-post stock returns. This result is consistently significant at the 1% level across specifications. This result is also especially strong when measured using output sold to the nations in the highest tercile based on their consumption risk. We also find support for the conclusion that the purchase of input from high risk nations, especially when this purchase of input is done without any ownership of offshore assets, serves as a hedge against consumption risk. Both results support the hypothesis that global consumption risk is priced.

We also estimate firm-specific consumption betas and estimate the magnitude of the consumption risk premium. We find that firms with a consumption beta of one have expected returns that are 1.01% to 4.04% higher than firms with a consumption beta of zero. This test uses more data and is more discriminating than our earlier tests. We find that only global consumption risk is priced, and that U.S. consumption risk is not priced.

We then use our estimate of the consumption risk premium to compute country-specific risk premia associated with the sale of output. Although this assessment has many limitations, the results suggest that Europe and Sub-Saharan Africa are among the riskiest economies to invest in when it comes to exposure to global consumption risk. Nations in the Middle East and Latin America have moderate levels of consumption risk, and nations in Asia tend to have lower levels of consumption risk.

We believe that our time varying network of international offshoring activities should be useful to address many research questions in international finance. We also view our assessment of country risk premia to be an important first step toward constructing more refined models that can further inform this topic, which we feel is under-researched relative to its practical importance.

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Figure 1: Consumption growth for the United States, Europe, and Africa

The figures display consumption growth for the United States, Europe, and Africa compared to worldwide consumption growth from 1972 to 2011. Data is from the World Bank.

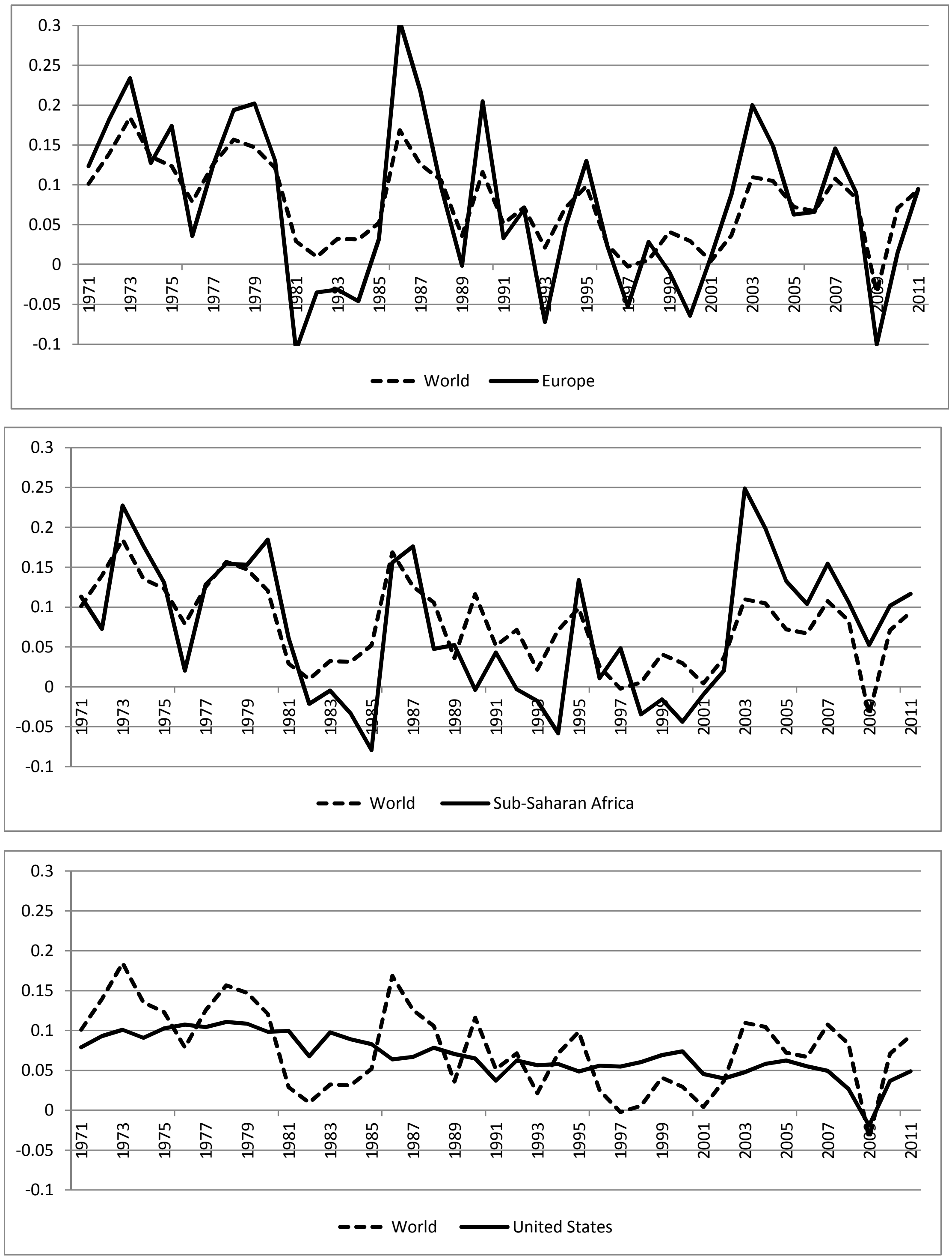
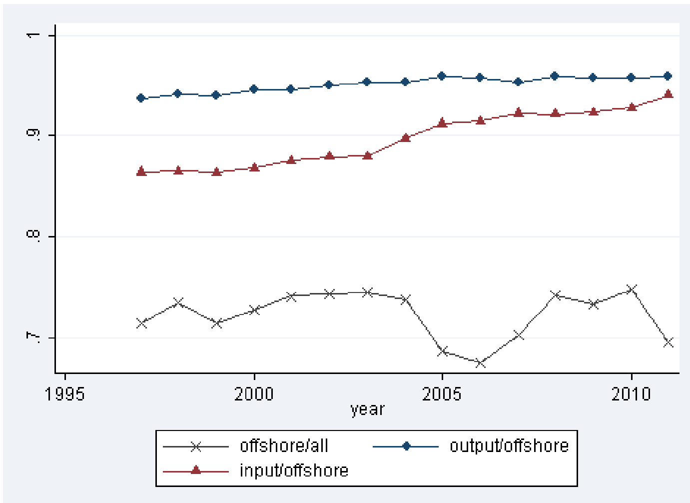
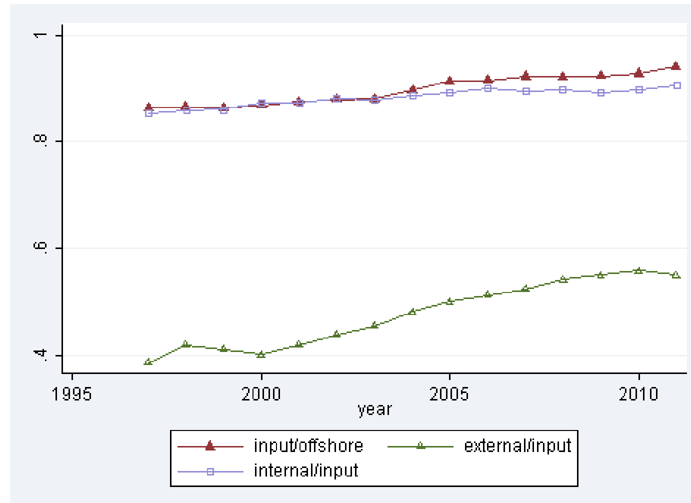


Figure 2: Offshoring Activities Over Time

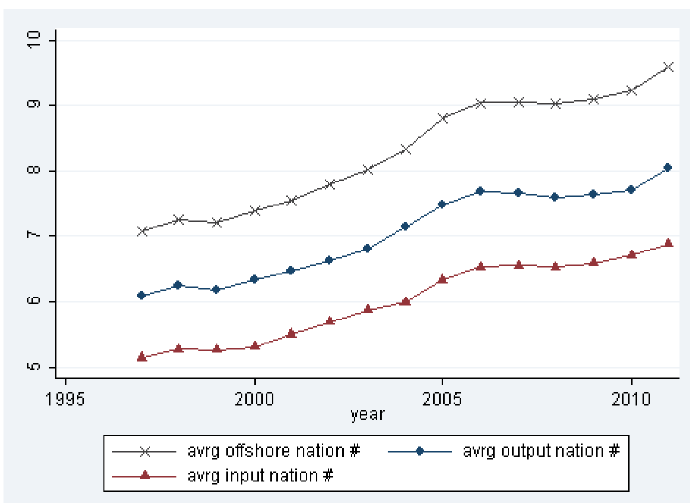
The figures display time-series trends of the U.S. firm offshoring activities. (a) and (b) show the percentage of the firms with each offshore activity among offshore, offshore output, offshore input, offshore external input and offshore internal input in a relevant sample in each year. (c) and (b) show the counts of the counter-party nations or regions for each offshore activity in each year.



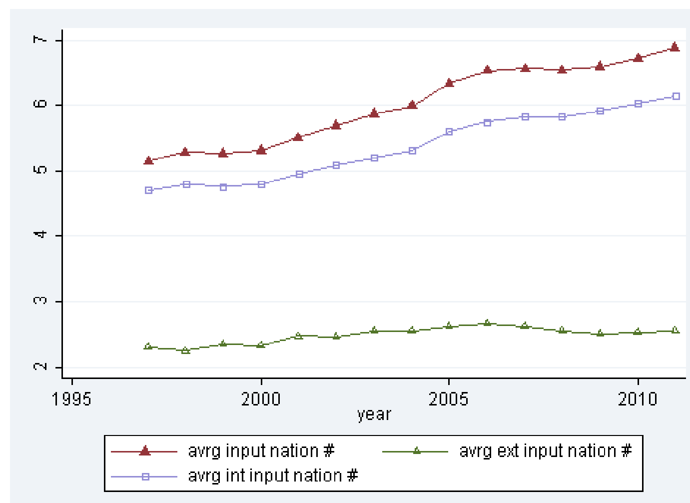
(a) Output offshore vs. Input offshore



(b) External input vs Internal input



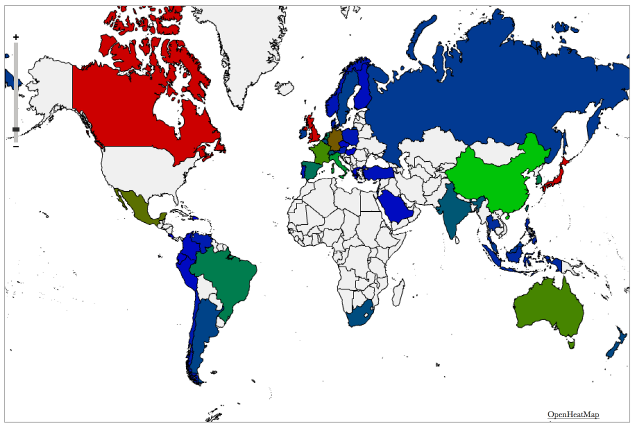
(c) Number of counter-party nations



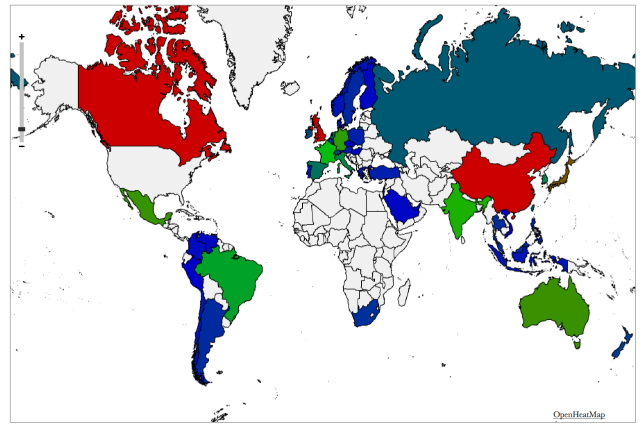
(d) Number of counter-party nations for inputs

Figure 3: Offshoring Output and Input by Nation

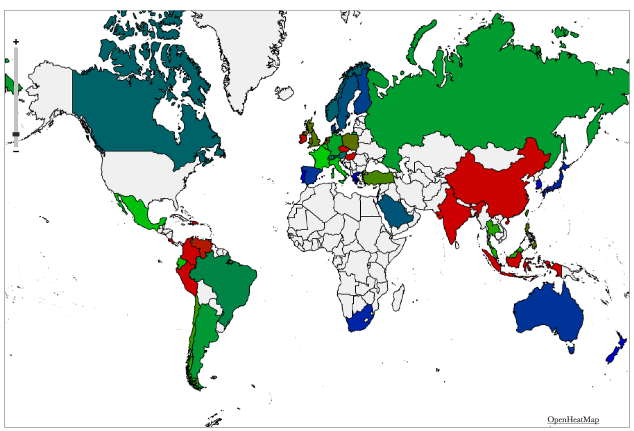
The figures display the top 50 nations where the U.S. firms in our sample offshore their outputs or inputs. (a) and (b) are for outputs, and (c) and (d) are for relative inputs. The figures also compare the offshoring counter-parties of each activity between 1997 and 2011. The color indicates the offshoring intensity with warm color for high intensity and cool color for low intensity. The intensity for offshoring output is the percentage of the offshoring firms in the given year that mention the nation's name along with the offshoring output words. Relative input intensity is the ratio of the input intensity to the sum of both input intensity and output intensity.



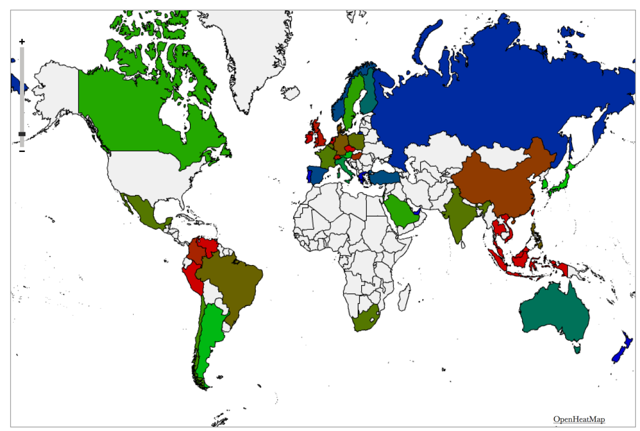
(a) Offshore output in 1997



(b) Offshore output in 2011



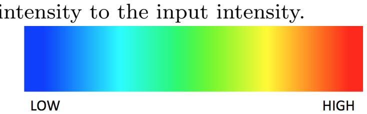
(c) Relative input intensity in 1997

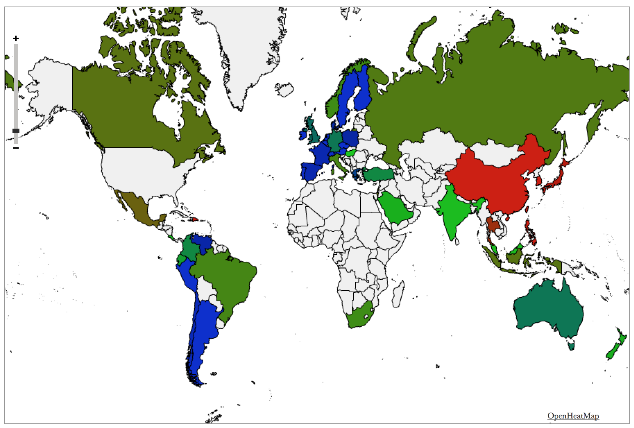


(d) Relative input intensity in 2011

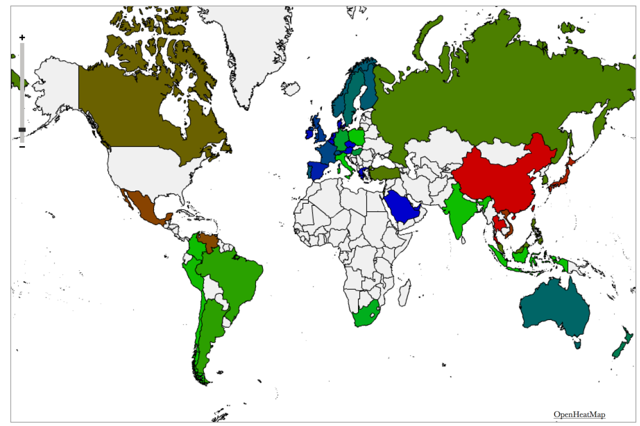
Figure 4: Offshoring External Input and Internal Input by Nation

The figures display the top 50 nations where the U.S. firms in our sample offshore outputs or inputs. (a) and (b) are for relative external inputs, and (c) and (d) are for relative internal inputs. The figures also compare the offshoring counter-parties of each activity between 1997 and 2011. The color indicates the offshoring intensity with warm color for high intensity and cool color for low intensity. The intensity for each offshoring activity is the percentage of the offshoring firms in the given year that mention the nation's name along with one of the offshore activity words. Relative external (internal) input intensity is the ratio of the external (internal) input intensity to the input intensity.

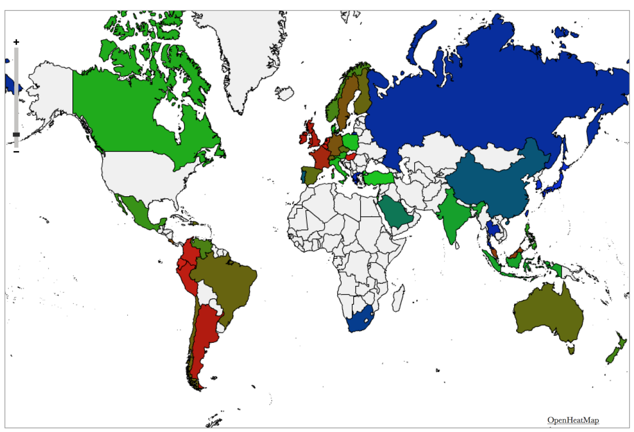




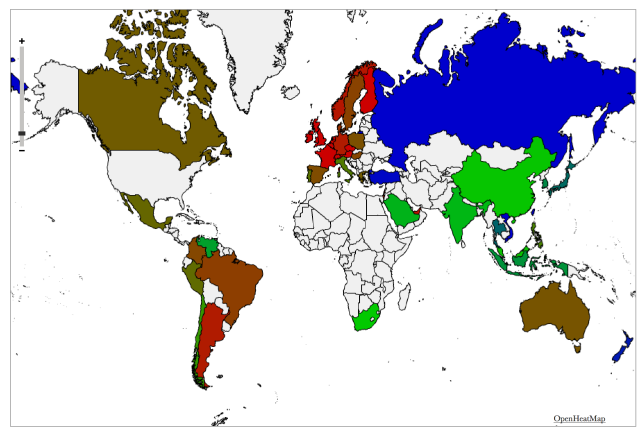
(a) External input intensity in 1997



(b) External input intensity in 2011



(c) Internal input intensity in 1997



(d) Internal input intensity in 2011

Table 1: Nations and Regions for Offshoring Activities over Time

The table displays the top 50 nation words mentioned with any type of the offshore words by the firms in our sample in their 10-Ks. Due to the limited space, we report for years ending an odd number from 1997 to 2011. Nation words include 236 nation names. All variations of nation names including official and non-official names, and their adjective forms are standardized.

Word Rank	1997	1999	2001	2003	2005	2007	2009	2011
1	Canada	Canada	Canada	Canada	Canada	Canada	China	China
2	United Kingdom	United Kingdom	United Kingdom	United Kingdom	China	China	Canada	Canada
3	Japan	Japan	China	China	United Kingdom	United Kingdom	United Kingdom	United Kingdom
4	Mexico	Mexico	Japan	Mexico	Mexico	Japan	Mexico	Japan
5	Germany	China	Mexico	Japan	Japan	Mexico	Japan	Mexico
6	China	Germany	Germany	Germany	Germany	Germany	Germany	Australia
7	Australia	Australia	Australia	Australia	Australia	Australia	Australia	Germany
8	France	France	France	Singapore	South Korea	South Korea	South Korea	Brazil
9	Singapore	Singapore	Singapore	South Korea	France	Singapore	Hong Kong	South Korea
10	Hong Kong	Hong Kong	Hong Kong	France	Singapore	France	Singapore	Singapore
11	South Korea	South Korea	South Korea	Hong Kong	Hong Kong	Hong Kong	India	India
12	Brazil	Brazil	Brazil	Brazil	Brazil	India	France	Hong Kong
13	Italy	Italy	Italy	India	India	Brazil	Brazil	France
14	Netherlands	New Zealand	Taiwan	Italy	Italy	Italy	Italy	Italy
15	New Zealand	Netherlands	Netherlands	Taiwan	Taiwan	Taiwan	Taiwan	Taiwan
16	Taiwan	Taiwan	New Zealand	New Zealand	Netherlands	Netherlands	Netherlands	Russia
17	India	India	India	Netherlands	New Zealand	New Zealand	New Zealand	Netherlands
18	Spain	Spain	Ireland	Spain	Spain	Spain	Russia	New Zealand
19	Ireland	Ireland	Spain	Ireland	Ireland	Ireland	Israel	Switzerland
20	Switzerland	Argentina	Israel	Israel	Switzerland	Switzerland	Ireland	Ireland
21	Argentina	Israel	Argentina	Switzerland	Israel	Russia	Spain	Israel
22	Russia	Switzerland	Switzerland	Malaysia	Belgium	Israel	Switzerland	Spain
23	Israel	Russia	Malaysia	Argentina	Malaysia	Malaysia	Malaysia	Malaysia
24	Malaysia	Malaysia	Belgium	Belgium	Philippines	Belgium	Argentina	Thailand
25	Belgium	South Africa	South Africa	South Africa	Russia	Philippines	Belgium	Argentina
26	Indonesia	Belgium	Sweden	Russia	South Africa	Argentina	Philippines	Poland
27	Thailand	Sweden	Russia	Czech Republic	Czech Republic	South Africa	Poland	Saudi Arabia
28	South Africa	Thailand	Philippines	Philippines	Argentina	Poland	South Africa	Belgium
29	Sweden	Philippines	Thailand	Thailand	Sweden	Thailand	Czech Republic	South Africa
30	Saudi Arabia	Indonesia	Czech Republic	Sweden	Thailand	Czech Republic	Saudi Arabia	Philippines
31	Philippines	Poland	Poland	Venezuela	Saudi Arabia	Sweden	Thailand	Sweden
32	Poland	Czech Republic	Indonesia	Poland	Poland	Bermuda	Bermuda	Chile
33	Venezuela	Chile	Venezuela	Indonesia	Bermuda	Saudi Arabia	Sweden	Bermuda
34	Dominica	Venezuela	Chile	Saudi Arabia	Venezuela	Hungary	Venezuela	Turkey
35	Czech Republic	Dominica	Saudi Arabia	Iraq	Turkey	Turkey	Chile	Czech Republic
36	Colombia	Colombia	Austria	Denmark	Denmark	Austria	Indonesia	Indonesia
37	Chile	Austria	Dominica	Chile	Indonesia	Indonesia	Turkey	Venezuela
38	Austria	Saudi Arabia	Denmark	Norway	Dominica	Denmark	Peru	Colombia
39	Denmark	Denmark	Norway	Austria	Austria	Dominica	Denmark	Denmark
40	Norway	Norway	Colombia	Dominica	Norway	Venezuela	Austria	Austria
41	Peru	Turkey	Hungary	Turkey	Hungary	Norway	Hungary	Peru
42	Hungary	Peru	Turkey	Peru	Chile	Chile	Dominica	Norway
43	Turkey	Hungary	Finland	Bermuda	Peru	Luxembourg	Colombia	Luxembourg
44	Dominican Republic	Finland	Costa Rica	Hungary	Colombia	Peru	Norway	Hungary
45	Portugal	Costa Rica	Peru	Costa Rica	Luxembourg	Portugal	Luxembourg	Greece
46	Finland	Portugal	Portugal	Finland	Finland	Ghana	Vietnam	Vietnam
47	Costa Rica	Dominican Republic	Bermuda	Portugal	Iraq	Colombia	Finland	Portugal
48	Luxembourg	Bermuda	Dominican Republic	Colombia	Portugal	Greece	Portugal	Costa Rica
49	Bolivia	Honduras	Luxembourg	Luxembourg	Costa Rica	Costa Rica	Macao	Dominica
50	Cyprus	Ecuador	Ecuador	Dominican Republic	Dominican Republic	Finland	Costa Rica	Finland

Table 2: Summary Statistics

Summary statistics are reported for our sample of 79,056 annual firm observations from 1997 to 2011. Our sample is all firms with machine readable 10-Ks, and having both Compustat data and CRSP data. Offshore 'action' dummy is one, if the firm discusses its offshore 'action' with vocabulary in our offshore words list along with nation words. *Offshore* and *Offshore Output* are the natural log of the raw count (plus one) of offshore and offshore output words, respectively. *Abnormal Offshore Input* is the regression residual of the raw count of offshore input words on *Offshore Output*. *Abnormal Offshore External Input* is the regression residual of the raw count of offshore external input words on both the raw counts of offshore output words and offshore input words. Other financial variables are self-explanatory. All non-binary variables are winsorized at the top and bottom 1% of the distribution.

Variable	Mean	Std. Dev.	Minimum	Median	Maximum	# Obs.
Panel A: Data on Offshoring Activities						
Offshore Dummy	0.723	0.447	0	1	1	79056
Offshore Output Dummy	0.687	0.464	0	1	1	79056
Offshore Input Dummy	0.645	0.478	0	1	1	79056
Offshore Output & Input Dummy	0.609	0.488	0	1	1	79056
Offshore External Input Dummy	0.302	0.459	0	0	1	79056
Offshore Internal Input Dummy	0.568	0.495	0	1	1	79056
Offshore External & Internal Input Dummy	0.262	0.440	0	0	1	79056
Offshore	2.389	1.846	0	2.639	6.933	79056
Offshore Output	1.975	1.648	0	2.079	6.297	79056
Abnormal Offshore Input	0.000	0.896	-3.966	-0.123	4.522	79056
Abnormal Offshore External Input	0.000	0.617	-1.734	0.049	3.286	79056
# of Offshore Countries	8.138	7.072	1	6	73	57176
# of Offshore Output Countries	6.578	6.143	0	5	65	57176
# of Offshore Input Countries	5.281	5.595	0	3	55	57176
# of Offshore External Input Countries	1.036	1.921	0	0	30	57176
# of Offshore Internal Input Countries	4.170	5.116	0	2	55	57176
Panel B: Data on Financial Characteristics						
Log(MV Assets)	6.226	2.146	-0.026	6.122	13.872	67224
Log(1+Age)	2.154	0.987	0	2.197	3.912	67370
Tobin Q	2.077	1.713	0.560	1.512	11.094	67224
Operating Margin	-0.094	0.941	-6.656	0.099	0.663	67442
Book Leverage	0.219	0.219	0	0.173	0.983	67182
Dividend Payer	0.420	0.494	0	0	1	79056
Cash/Assets	0.203	0.224	0	0.112	0.997	67434
PPE/Assets	0.503	0.392	0.022	0.396	1.842	67196
CAPX/Sales	0.127	0.296	0.001	0.041	2.161	56664
R&D/Sales	0.153	0.539	0	0.002	4.166	57113
Panel C: Data For Asset Pricing Tests						
Monthly Return	0.011	0.209	-0.981	0	15.774	677850
Log B/M Ratio	-0.509	1.275	-8.864	-0.591	9.628	677850
Log Size	19.449	2.114	9.802	19.418	27.028	677850
Past 11 Mon. Return	0.131	1.083	-0.999	0	436.684	677850

Table 3: Pearson Correlation Coefficients (Offshoring and Financial Variables)

Pearson Correlation Coefficients are reported for our sample of 79,056 annual firm observations from 1997 to 2011. See Table 2 for the description of our key variables.

	Offshore	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log (MV Assets)	Log (1+Age)	Tobin Q	Operating Margin	Book Leverage	Dividend Payer	Cash/ Assets	PPE/ Assets	CAPX/ Sales	R&D/ Sales
						Correlation Coefficients								
Offshore	1.000													
Offshore Output	0.966	1.000												
Abnormal Offshore Input	0.221	0.000	1.000											
Abnormal Offshore External Input	-0.009	0.000	0.000	1.000										
Log(MV Assets)	0.087	0.070	0.177	-0.050	1.000									
Log(1+Age)	0.174	0.149	0.144	-0.011	0.197	1.000								
Tobin Q	0.043	0.070	-0.132	-0.046	0.114	-0.177	1.000							
Operating Margin	0.003	-0.004	0.076	0.024	0.203	0.160	-0.203	1.000						
Book Leverage	-0.075	-0.107	0.129	-0.019	0.179	0.021	-0.164	0.070	1.000					
Dividend Payer	-0.131	-0.141	0.080	-0.006	0.404	0.297	-0.080	0.171	0.074	1.000				
Cash/Assets	0.047	0.090	-0.197	-0.016	-0.174	-0.224	0.374	-0.399	-0.417	-0.254	1.000			
PPE/Assets	-0.139	-0.183	0.151	-0.029	0.112	0.183	-0.170	0.147	0.259	0.219	-0.381	1.000		
CAPX/Sales	-0.108	-0.131	0.052	-0.051	0.073	-0.162	0.036	-0.164	0.128	-0.027	-0.002	0.258	1.000	
R&D/Sales	0.034	0.048	-0.088	-0.042	-0.094	-0.134	0.248	-0.726	-0.090	-0.157	0.460	-0.161	0.199	1.000

Table 4: Offshoring Activities and Stock Returns

Fama-MacBeth regressions with own-firm monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word "abnormal" in each variable's label. Panels A, B, and C show results based on constructing the offshoring variables using all nations, only developed nations, and only developing nations, respectively. Nation-by-nation developing versus developed status is from the World Bank using data as of 1996, the start of our sample. We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
				Offshoring based on All Nations				
(1)	Entire Sample	0.232			0.226	-0.392	0.109	677,886
		(3.94)			(1.73)	(-2.15)	(0.58)	0.024
(2)	Entire Sample	0.232	-0.049		0.231	-0.380	0.109	677,886
		(3.90)	(-0.85)		(1.86)	(-2.15)	(0.58)	0.025
(3)	Entire Sample	0.234	-0.046	-0.054	0.232	-0.385	0.109	677,886
		(3.93)	(-0.80)	(-1.55)	(1.88)	(-2.16)	(0.58)	0.026
				Panel B: Offshoring based on Developed Nations Only				
(4)	Developed Countries	0.228			0.214	-0.395	0.106	677,886
		(4.03)			(1.62)	(-2.17)	(0.56)	0.024
(5)	Developed Countries	0.228	0.003		0.212	-0.395	0.106	677,886
		(4.03)	(0.07)		(1.65)	(-2.20)	(0.56)	0.025
(6)	Developed Countries	0.229	0.004	-0.035	0.213	-0.396	0.107	677,886
		(4.04)	(0.10)	(-1.42)	(1.67)	(-2.20)	(0.56)	0.025
				Panel C: Offshoring based on Developing Nations Only				
(7)	Developing Countries	0.095			0.179	-0.381	0.104	677,886
		(2.38)			(1.31)	(-2.11)	(0.55)	0.023
(8)	Developing Countries	0.095	-0.081		0.184	-0.372	0.104	677,886
		(2.39)	(-1.74)		(1.38)	(-2.09)	(0.55)	0.024
(9)	Developing Countries	0.095	-0.079	-0.018	0.183	-0.374	0.104	677,886
		(2.40)	(-1.70)	(-0.62)	(1.38)	(-2.10)	(0.55)	0.024

Table 5: Offshoring Activities and Stock Returns vs World Consumption Exposures

Fama-MacBeth regressions with own-firm excess monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word “abnormal” in each variable’s label. To contrast contributions from nations with different world consumption risk (Panel A) and U.S. consumption risk (Panel B), we construct these independent variables separately for the set of nations in the highest, middle, and lowest tercile of consumption risk. World consumption risk is measured using the pre-sample covariance between each nation’s total annual consumption growth and worldwide annual consumption growth (nations with higher covariances being riskier). U.S. consumption risk is measured analogously using U.S. consumption growth instead of world consumption growth. We thus include nine variables: three offshoring variables for each tercile as noted in the column headers. We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Panel A: World Consumption Risk

		High Risk Nation OffShoring			Medium Risk Nation OffShoring			Low Risk Nation OffShoring						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.170			0.036			0.056			0.208	-0.403	0.103	677,886
	Headers	(2.18)			(0.85)			(1.16)			(1.60)	(-2.21)	(0.55)	0.025
(2)	See Column	0.171	0.052		0.034	-0.058		0.052	-0.048		0.211	-0.396	0.102	677,886
	Headers	(2.23)	(1.50)		(0.82)	(-1.45)		(1.07)	(-1.28)		(1.69)	(-2.23)	(0.55)	0.027
(3)	See Column	0.169	0.053	-0.060	0.033	-0.058	0.004	0.055	-0.045	0.007	0.213	-0.398	0.102	677,886
	Headers	(2.22)	(1.56)	(-2.12)	(0.81)	(-1.43)	(0.17)	(1.17)	(-1.21)	(0.29)	(1.70)	(-2.23)	(0.54)	0.028

Panel B: U.S. Consumption Risk

		High Risk Nation OffShoring			Medium Risk Nation OffShoring			Low Risk Nation OffShoring						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.165			0.073			0.032			0.203	-0.410	0.102	677,886
	Headers	(3.82)			(1.39)			(0.42)			(1.52)	(-2.23)	(0.54)	0.025
(2)	See Column	0.160	-0.094		0.076	0.046		0.035	-0.003		0.207	-0.406	0.101	677,886
	Headers	(3.76)	(-2.37)		(1.43)	(1.09)		(0.45)	(-0.09)		(1.62)	(-2.27)	(0.54)	0.027
(3)	See Column	0.160	-0.096	0.017	0.074	0.043	-0.026	0.036	0.001	-0.040	0.209	-0.407	0.100	677,886
	Headers	(3.78)	(-2.39)	(0.64)	(1.39)	(1.03)	(-1.06)	(0.47)	(0.03)	(-1.39)	(1.64)	(-2.26)	(0.53)	0.028

Table 6: Offshoring Activities and Stock Returns vs World and U.S. Stock Market Risk

Fama-MacBeth regressions with own-firm excess monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word "abnormal" in each variable's label. To contrast contributions from nations with different world stock market risk (Panel A) or U.S. stock market risk (Panel B), we construct these variables separately for the set of nations in the highest, middle, and lowest tercile of world and U.S. stock market risk, respectively. World stock market risk is measured using the pre-sample covariance between each nation's monthly stock return using its Datastream index and a worldwide stock market return index computed as the market capitalization weighted returns over all nations having Datastream index stock return data. U.S. stock market risk is the covariance between each nation's stock return and the stock return of the U.S. stock market. Nations with higher covariances with world stock returns are deemed to be riskier. We thus include nine variables: three offshoring variables for each tercile as noted in the column headers. We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Panel A: World Stock Market Risk

		High Risk Nation OffShoring			Medium Risk Nation OffShoring			Low Risk Nation OffShoring						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.082			0.132			0.041			0.208	-0.404	0.105	677,886
	Headers	(1.43)			(3.19)			(1.18)			(1.56)	(-2.20)	(0.55)	0.025
(2)	See Column	0.080	-0.044		0.132	0.039		0.040	-0.034		0.208	-0.401	0.102	677,886
	Headers	(1.39)	(-1.02)		(3.23)	(1.20)		(1.13)	(-0.81)		(1.63)	(-2.23)	(0.54)	0.026
(3)	See Column	0.079	-0.041	-0.035	0.134	0.038	-0.014	0.037	-0.036	0.009	0.209	-0.404	0.102	677,886
	Headers	(1.39)	(-0.96)	(-1.34)	(3.30)	(1.17)	(-0.51)	(1.06)	(-0.86)	(0.36)	(1.63)	(-2.24)	(0.54)	0.027

Panel B: U.S. Stock Market Risk

		High Risk Nation OffShoring			Medium Risk Nation OffShoring			Low Risk Nation OffShoring						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.075			0.161			0.018			0.206	-0.403	0.098	677,886
	Headers	(1.25)			(1.73)			(0.62)			(1.56)	(-2.19)	(0.52)	0.026
(2)	See Column	0.074	-0.004		0.164	0.018		0.017	-0.067		0.208	-0.393	0.097	677,886
	Headers	(1.21)	(-0.09)		(1.73)	(0.48)		(0.59)	(-1.75)		(1.65)	(-2.20)	(0.52)	0.027
(3)	See Column	0.072	-0.006	-0.029	0.163	0.019	-0.062	0.019	-0.065	0.052	0.209	-0.397	0.099	677,886
	Headers	(1.20)	(-0.14)	(-1.33)	(1.73)	(0.53)	(-2.03)	(0.65)	(-1.70)	(1.80)	(1.66)	(-2.22)	(0.53)	0.028

Table 7: Offshoring Activities and Stock Returns vs Political Instability and Openness

Fama-MacBeth regressions with own-firm excess monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word "abnormal" in each variable's label. To contrast contributions from nations with different levels of political instability (Panel A) and export/import openness (Panel B), we construct these variables separately for the set of nations in the highest, middle, and lowest tercile of political instability and export/import openness, respectively. Political instability in Panel A is based on 1996 values of the political stability index from the World Bank (we invert the sign of this variable to measure "political instability" rather than "political stability" as the former indicates a form of risk). We use 1996 levels of the ratio (Exports+Imports)/GDP for sorting nations in Panel B, which are also from the World Bank. Openness is thus higher for nations where either import or export is a large fraction of their GDP. We thus include nine variables: three offshoring variables for each tercile as noted in the column headers. We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Panel A: Political Instability Risk

		High Risk Nation OffShoring			Medium Risk Nation OffShoring			Low Risk Nation OffShoring						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	-0.002		.	-0.001		.	0.222		.	0.211	-0.398	0.101	677,886
	Headers	(-0.06)			(-0.01)			(3.46)			(1.60)	(-2.17)	(0.54)	0.025
(2)	See Column	-0.004	-0.028		0.002	-0.022		0.221	0.014		0.212	-0.395	0.100	677,886
	Headers	(-0.11)	(-0.83)		(0.04)	(-0.58)		(3.54)	(0.33)		(1.67)	(-2.22)	(0.53)	0.026
(3)	See Column	-0.004	-0.029	0.068	0.004	-0.020	-0.054	0.220	0.011	-0.048	0.213	-0.398	0.100	677,886
	Headers	(-0.10)	(-0.85)	(2.31)	(0.10)	(-0.53)	(-1.92)	(3.51)	(0.28)	(-1.70)	(1.69)	(-2.22)	(0.53)	0.027

Panel B: Openness

		High Openness Nations			Medium Openness Nations			Low Openness Nations						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.089			0.056			0.112			0.202	-0.403	0.104	677,886
	Headers	(2.02)			(1.13)			(1.86)			(1.51)	(-2.19)	(0.55)	0.025
(2)	See Column	0.095	0.034		0.055	-0.002		0.106	-0.082		0.205	-0.394	0.104	677,886
	Headers	(2.10)	(1.23)		(1.10)	(-0.06)		(1.77)	(-1.77)		(1.60)	(-2.20)	(0.55)	0.027
(3)	See Column	0.094	0.033	0.007	0.057	-0.005	-0.009	0.108	-0.079	-0.045	0.206	-0.397	0.103	677,886
	Headers	(2.08)	(1.21)	(0.28)	(1.15)	(-0.13)	(-0.37)	(1.79)	(-1.73)	(-1.44)	(1.62)	(-2.21)	(0.55)	0.028

Table 8: Offshoring Activities and Stock Returns vs Exchange Rate Risk and GDP

Fama-MacBeth regressions with own-firm excess monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word "abnormal" in each variable's label. Panel A replicates our primary test in Panel A of Table 5 with 40 additional control variables based on exchange rate exposures. We consider exchange rates for 40 large nations with adequate exchange rate data (from Datastream). We compute each firm's exposure to each currency using five year regressions in which the dependent variable is a firm's excess return and the RHS variable is a given nation's exchange rate changes. We use up to five years of ex-ante monthly data to fit these regressions on a rolling basis, and require at least 12 months of available data. In Panel B, we construct our offshoring variables separately for the set of nations in the highest, middle, and lowest tercile of GDP, respectively. We use 1996 GDP levels for sorting nations in Panel B. Because nations with higher GDP, for mechanistic reasons, have more offshoring activity, GDP terciles are formed using cumulative GDP weights instead of less-meaningful nation-by-nation counts. In both panels, we include nine variables: three offshoring variables for each tercile as noted in the column headers. We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Panel A: World Consumption Risk (with Exchange Rate Exposure Controls)

		High Risk Nation OffShoring			Medium Risk Nation OffShoring			Low Risk Nation OffShoring						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.148			0.052			-0.012			0.042	-0.424	0.013	656,834
	Headers	(2.50)			(1.61)			(-0.27)			(0.48)	(-2.74)	(0.08)	0.064
(2)	See Column	0.147	0.048		0.053	-0.068		-0.015	-0.082		0.049	-0.407	0.009	656,834
	Headers	(2.50)	(1.59)		(1.67)	(-1.82)		(-0.33)	(-2.16)		(0.57)	(-2.65)	(0.05)	0.066
(3)	See Column	0.147	0.048	-0.080	0.056	-0.067	0.057	-0.015	-0.081	-0.024	0.051	-0.409	0.008	656,834
	Headers	(2.50)	(1.61)	(-2.94)	(1.78)	(-1.76)	(2.31)	(-0.34)	(-2.15)	(-1.10)	(0.59)	(-2.66)	(0.05)	0.066

Panel B: Gross Domestic Product

		High GDP Nations			Medium GDP Nations			Low GDP Nations						
Row	Nations Used to Construct Offshoring Variables	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Offshore Output	Abnormal Offshore Input	Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
(1)	See Column	0.178			0.004			0.092			0.209	-0.400	0.101	677,886
	Headers	(2.12)			(0.09)			(2.41)			(1.60)	(-2.18)	(0.54)	0.025
(2)	See Column	0.177	0.003		0.004	-0.016		0.091	-0.034		0.212	-0.392	0.101	677,886
	Headers	(2.14)	(0.11)		(0.08)	(-0.43)		(2.42)	(-0.81)		(1.69)	(-2.19)	(0.54)	0.027
(3)	See Column	0.176	0.002	-0.032	0.007	-0.013	-0.047	0.087	-0.036	0.022	0.212	-0.396	0.101	677,886
	Headers	(2.14)	(0.07)	(-1.44)	(0.14)	(-0.35)	(-1.58)	(2.35)	(-0.86)	(0.87)	(1.70)	(-2.20)	(0.54)	0.028

Table 9: Offshoring Activities and Implied Global Consumption Betas

Fama-MacBeth regressions with own-firm monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include global consumption growth betas implied by three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word "abnormal" in each variable's label. Panels A and B show results based on constructing the offshoring variables using overseas sales data from both Datastream and Compustat segment tapes (Panel A), and overseas sales and assets data also from both Datastream and Compustat segment tapes (Panel B). We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). Panels C and D replicate Panels A and B, respectively, but additionally include controls for the 40 large-nation exchange risk exposures. We compute each firm's exposure to each of the 40 currencies using five year regressions in which the dependent variable is a firm's excess return and the RHS variable is a given nation's exchange rate changes. We use up to five years of ex-ante monthly data to fit these regressions on a rolling basis, and require at least 12 months of available data. All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Row	Nations Used to Construct Offshoring Variables	Consum Beta Due to Offshore Output	Consum Beta Due to Abnormal Offshore Input	Consum Beta Due to Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
	Panel A: Consumption beta estimates include data on international sales only							
(1)	Entire Sample	0.150			0.185	-0.390	0.107	677,886
		(3.04)			(1.38)	(-2.13)	(0.56)	0.024
(2)	Entire Sample	0.149	0.031		0.185	-0.392	0.108	677,886
		(2.98)	(1.28)		(1.38)	(-2.14)	(0.57)	0.024
(3)	Entire Sample	0.148	0.031	-0.046	0.187	-0.391	0.108	677,886
		(2.96)	(1.25)	(-1.85)	(1.39)	(-2.14)	(0.57)	0.024
	Panel B: Consumption beta estimates include data on both international sales and assets							
(4)	Entire Sample	0.150			0.185	-0.390	0.107	677,886
		(3.04)			(1.38)	(-2.13)	(0.56)	0.024
(5)	Entire Sample	0.151	0.052		0.184	-0.394	0.106	677,886
		(3.10)	(1.15)		(1.38)	(-2.16)	(0.56)	0.024
(6)	Entire Sample	0.148	0.048	-0.051	0.185	-0.395	0.106	677,886
		(3.05)	(1.07)	(-2.32)	(1.39)	(-2.17)	(0.56)	0.025
	Panel C: Same as Panel A, but now add 40 Foreign Exchange Risk Controls							
(7)	Entire Sample	0.106			0.026	-0.416	0.013	656,834
		(2.70)			(0.28)	(-2.67)	(0.08)	0.063
(8)	Entire Sample	0.105	0.018		0.026	-0.417	0.014	656,834
		(2.66)	(0.81)		(0.28)	(-2.68)	(0.08)	0.064
(9)	Entire Sample	0.104	0.017	-0.053	0.027	-0.416	0.014	656,834
		(2.64)	(0.78)	(-2.15)	(0.30)	(-2.68)	(0.09)	0.064
	Panel D: Same as Panel B, but now add 40 Foreign Exchange Risk Controls							
(10)	Entire Sample	0.106			0.026	-0.416	0.013	656,834
		(2.70)			(0.28)	(-2.67)	(0.08)	0.063
(11)	Entire Sample	0.106	0.046		0.027	-0.419	0.012	656,834
		(2.69)	(1.50)		(0.29)	(-2.69)	(0.08)	0.064
(12)	Entire Sample	0.102	0.042	-0.051	0.028	-0.419	0.012	656,834
		(2.63)	(1.37)	(-2.31)	(0.30)	(-2.70)	(0.07)	0.064

Table 10: Offshoring Activities and Implied U.S. Consumption Betas

Fama-MacBeth regressions with own-firm monthly stock return as the dependent variable. One observation is one firm month from July 1998 to June 2012. The independent variables include U.S. consumption growth betas implied by three types of offshoring activities: (1) the sale of output in foreign nations (Offshore Output), (2) the procurement of input in foreign nations (Offshore Input), and (3) the extent to which foreign input is bought directly from an external party rather than produced by own-firm foreign assets (Offshore External Input). The latter two measures are constructed in a fashion to reduce their correlation with Offshore Output, and hence we include the word "abnormal" in each variable's label. Panels A and B show results based on constructing the offshoring variables using overseas sales data from both Datastream and the Compustat segment tapes (Panel A), and overseas sales and assets data also from both Datastream and the Compustat segment tapes (Panel B). We also include controls for the Fama and French (1992) variables (log book to market ratio and log size), a dummy for negative book to market ratio stocks (the dummy is not displayed to conserve space and is not significant), and a control for momentum (defined as the own-firm 11 month lagged return from month $t-12$ to $t-2$). Panels C and D replicate Panels A and B, respectively, but additionally include controls for the 40 large-nation exchange risk exposures. We compute each firm's exposure to each of the 40 currencies using five year regressions in which the dependent variable is a firm's excess return and the RHS variable is a given nation's exchange rate changes. We use up to five years of ex-ante monthly data to fit these regressions on a rolling basis, and require at least 12 months of available data. All independent variables are standardized to have a standard deviation of one for ease of comparison and interpretation.

Row	Nations Used to Construct Offshoring Variables	Consum Beta Due to Offshore Output	Consum Beta Due to Abnormal Offshore Input	Consum Beta Due to Abnormal Offshore External Input	Log B/M Ratio	Log Size	Past 11 Mon. Return	Obs. / RSQ
	Panel A: Consumption beta estimates include data on international sales only							
(1)	Entire Sample	-0.009			0.172	-0.367	0.102	677,886
		(-0.18)			(1.27)	(-2.03)	(0.54)	0.024
(2)	Entire Sample	-0.009	-0.012		0.171	-0.369	0.102	677,886
		(-0.18)	(-0.45)		(1.27)	(-2.04)	(0.54)	0.024
(3)	Entire Sample	-0.011	-0.012	0.003	0.171	-0.369	0.102	677,886
		(-0.22)	(-0.44)	(0.14)	(1.27)	(-2.04)	(0.54)	0.024
	Panel B: Consumption beta estimates include data on both international sales and assets							
(4)	Entire Sample	-0.009			0.172	-0.367	0.102	677,886
		(-0.18)			(1.27)	(-2.03)	(0.54)	0.024
(5)	Entire Sample	-0.006	-0.011		0.171	-0.369	0.101	677,886
		(-0.13)	(-0.36)		(1.27)	(-2.05)	(0.53)	0.024
(6)	Entire Sample	-0.009	-0.014	0.022	0.172	-0.369	0.101	677,886
		(-0.18)	(-0.46)	(1.01)	(1.27)	(-2.05)	(0.53)	0.024
	Panel C: Same as Panel A, but now add 40 Foreign Exchange Risk Controls							
(7)	Entire Sample	-0.014			0.017	-0.399	0.008	656,834
		(-0.36)			(0.18)	(-2.60)	(0.05)	0.063
(8)	Entire Sample	-0.014	-0.010		0.016	-0.401	0.008	656,834
		(-0.37)	(-0.41)		(0.17)	(-2.60)	(0.05)	0.064
(9)	Entire Sample	-0.016	-0.010	-0.012	0.016	-0.401	0.008	656,834
		(-0.43)	(-0.42)	(-0.54)	(0.17)	(-2.60)	(0.05)	0.064
	Panel D: Same as Panel B, but now add 40 Foreign Exchange Risk Controls							
(10)	Entire Sample	-0.014			0.017	-0.399	0.008	656,834
		(-0.36)			(0.18)	(-2.60)	(0.05)	0.063
(11)	Entire Sample	-0.008	-0.010		0.016	-0.400	0.008	656,834
		(-0.22)	(-0.36)		(0.17)	(-2.60)	(0.05)	0.064
(12)	Entire Sample	-0.012	-0.014	0.008	0.016	-0.400	0.008	656,834
		(-0.31)	(-0.51)	(0.38)	(0.18)	(-2.60)	(0.05)	0.064

Table 11: Estimated Country Risk Premia (Page 1 of 2)

The table lists the nations and the national groups tracked by the World Bank regarding their aggregate consumption. For each nation, we report both its world ranking (ranks closer to one indicate higher estimated risk premia) regarding world consumption risk exposure, and also its estimated country risk premium computed through the aggregate consumption risk channel. We note that although these estimates well summarize potential exposures to consumption risk in terms of orderings, a couple precautions are also worth noting. First, these estimates likely serve as upper bounds on country risk premia given that actual U.S. firm exposures to other nations today is likely lower than it will be in the future due to expected growth, and the fact that our estimates rely on current exposures from Datastream or Compustat foreign sales data. Second, other risks might exist beyond consumption risk, or other factors might mitigate consumption risk for some projects, indicating that these estimates only pertain to risk that might be due to consumption risk. All estimates are computed as the product of each country's estimated consumption beta (the covariance between each country's own consumption and world consumption using World Bank consumption data) from 1962 to 1995, and the average consumption beta risk premium from the regressions estimated in Table 9.

Word Rank	Nation or Group	Risk Premium (Upper Bound)	Word Rank	Nation or Group	Risk Premium (Upper Bound)
1	Gabon	2.3% - 9.0%	39	Tunisia	1.5% - 6.1%
2	Spain	2.2% - 8.8%	40	Malta	1.5% - 5.8%
3	Cote d'Ivoire	2.2% - 8.6%	41	Kiribati	1.4% - 5.8%
4	Belgium	2.1% - 8.6%	42	Cape Verde	1.4% - 5.7%
5	Netherlands	2.0% - 8.2%	43	Kenya	1.4% - 5.6%
6	Switzerland	2.0% - 8.2%	44	Togo	1.4% - 5.5%
7	Comoros	2.0% - 8.1%	45	Congo, Dem. Rep.	1.4% - 5.5%
8	France	2.0% - 8.0%	46	Turkey	1.4% - 5.4%
9	Euro area	2.0% - 7.9%	47	Argentina	1.3% - 5.3%
10	Germany	2.0% - 7.9%	48	Sub Saharan Africa	1.3% - 5.3%
11	Luxembourg	2.0% - 7.8%	49	South Africa	1.3% - 5.3%
12	Austria	1.9% - 7.8%	50	Swaziland	1.3% - 5.3%
13	Europe Central Asia	1.9% - 7.8%	51	Burundi	1.3% - 5.2%
14	European Union	1.9% - 7.7%	52	Mauritania	1.3% - 5.2%
15	Cyprus	1.9% - 7.6%	53	Chad	1.3% - 5.1%
16	Botswana	1.9% - 7.5%	54	Rwanda	1.3% - 5.1%
17	Denmark	1.9% - 7.4%	55	Madagascar	1.3% - 5.1%
18	Iceland	1.8% - 7.3%	56	Venezuela	1.3% - 5.1%
19	Niger	1.8% - 7.3%	57	Cameroon	1.3% - 5.1%
20	Italy	1.8% - 7.2%	58	Cuba	1.3% - 5.0%
21	Ireland	1.8% - 7.0%	59	Mongolia	1.3% - 5.0%
22	Finland	1.8% - 7.0%	60	Pacific island states	1.3% - 5.0%
23	Lesotho	1.8% - 7.0%	61	Equatorial Guinea	1.2% - 5.0%
24	Sweden	1.7% - 6.9%	62	Hungary	1.2% - 5.0%
25	Morocco	1.7% - 6.8%	63	New Zealand	1.2% - 5.0%
26	United Kingdom	1.7% - 6.8%	64	Bulgaria	1.2% - 5.0%
27	Portugal	1.7% - 6.7%	65	Saudi Arabia	1.2% - 4.9%
28	Mauritius	1.7% - 6.7%	66	Fiji	1.2% - 4.9%
29	Burkina Faso	1.7% - 6.7%	67	Brunei Darussalam	1.2% - 4.9%
30	Uruguay	1.6% - 6.6%	68	Uganda	1.2% - 4.9%
31	Benin	1.6% - 6.5%	69	Slovak Republic	1.2% - 4.8%
32	Central African Republic	1.6% - 6.5%	70	Algeria	1.2% - 4.7%
33	Mali	1.6% - 6.4%	71	Brazil	1.2% - 4.7%
34	Senegal	1.6% - 6.4%	72	Israel	1.1% - 4.6%
35	Greece	1.6% - 6.3%	73	Nicaragua	1.1% - 4.6%
36	Other small states	1.5% - 6.2%	74	Suriname	1.1% - 4.4%
37	Japan	1.5% - 6.1%	75	Chile	1.1% - 4.4%
38	Norway	1.5% - 6.1%	76	East Asia Pacific	1.1% - 4.4%

Table 11: Estimated Country Risk Premia (Page 2 of 2)

Word Rank	Nation or Group	Risk Premium (Upper Bound)	Word Rank	Nation or Group	Risk Premium (Upper Bound)
77	Namibia	1.1% - 4.3%	115	Dominica	0.6% - 2.5%
78	OECD members	1.1% - 4.3%	116	Low income	0.6% - 2.5%
79	Oman	1.1% - 4.2%	117	Kuwait	0.6% - 2.5%
80	Tonga	1.0% - 4.1%	118	Colombia	0.6% - 2.5%
81	Ghana	1.0% - 4.1%	119	Albania	0.6% - 2.5%
82	Jordan	1.0% - 4.1%	120	Ecuador	0.6% - 2.4%
83	Hong Kong	1.0% - 4.0%	121	Dominican Republic	0.6% - 2.4%
84	Zambia	1.0% - 3.9%	122	Sierra Leone	0.6% - 2.4%
85	Latin America Carib.	1.0% - 3.9%	123	Least developed (UN)	0.6% - 2.4%
86	Zimbabwe	1.0% - 3.9%	124	Peru	0.6% - 2.4%
87	Sudan	1.0% - 3.8%	125	Nepal	0.6% - 2.3%
88	Costa Rica	0.9% - 3.7%	126	Somalia	0.6% - 2.2%
89	Guinea	0.9% - 3.7%	127	Mozambique	0.6% - 2.2%
90	Barbados	0.9% - 3.6%	128	Vanuatu	0.6% - 2.2%
91	India	0.9% - 3.6%	129	St. Vincent	0.5% - 2.2%
92	St. Lucia	0.9% - 3.6%	130	Honduras	0.5% - 2.1%
93	Congo, Rep.	0.9% - 3.4%	131	Macao	0.5% - 2.0%
94	Papua New Guinea	0.8% - 3.4%	132	Jamaica	0.5% - 2.0%
95	Bahamas	0.8% - 3.3%	133	Bangladesh	0.5% - 2.0%
96	Mexico	0.8% - 3.3%	134	Canada	0.5% - 1.8%
97	Middle East N Africa	0.8% - 3.3%	135	Ethiopia	0.5% - 1.8%
98	Syria	0.8% - 3.2%	136	Bahrain	0.4% - 1.7%
99	Gambia	0.8% - 3.2%	137	Singapore	0.4% - 1.7%
100	Thailand	0.8% - 3.1%	138	Bolivia	0.4% - 1.6%
101	South Asia	0.8% - 3.0%	139	Grenada	0.4% - 1.5%
102	Middle income	0.7% - 2.9%	140	Guyana	0.3% - 1.3%
103	Philippines	0.7% - 2.9%	141	Egypt	0.3% - 1.1%
104	Malawi	0.7% - 2.9%	142	Puerto Rico	0.2% - 0.8%
105	South Korea	0.7% - 2.9%	143	North America	0.2% - 0.8%
106	St. Kitts and Nevis	0.7% - 2.9%	144	Pakistan	0.2% - 0.7%
107	Liberia	0.7% - 2.8%	145	United States	0.2% - 0.7%
108	Belize	0.7% - 2.8%	146	Caribbean small states	0.2% - 0.7%
109	Trinidad Tobago	0.7% - 2.7%	147	Guatemala	0.1% - 0.6%
110	Indonesia	0.7% - 2.7%	148	Guinea Bissau	0.0% - 0.1%
111	Iran	0.7% - 2.7%	149	China	-0.0% - -0.1%
112	Small states	0.7% - 2.6%	150	Arab World	-0.2% - -0.7%
113	Australia	0.7% - 2.6%	151	Panama	-0.9% - -3.5%
114	Malaysia	0.6% - 2.6%			