Private Information and Currency Returns: A Corporate Investment Connection*

Steven J. Riddiough **Huizhong Zhang**

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Abstract

We uncover a novel source of predictive information, originating from the announcements of cross-border mergers and acquisitions (M&As), that forecasts economic acceleration and currency returns. Consistent with the announcements revealing firms' private expectations about economic fundamentals, we find that a country's economic growth accelerates, and their local currency appreciates, following months in which their announced cross-border M&A net *inflows* are abnormally high; while the opposite outcomes are observed following abnormally high M&A net *outflows*. The predictability captures reversals in economic acceleration and is driven by the acquisition decisions of domestic firms. A currency portfolio that exploits the predictability is found to generate a Sharpe ratio of over 0.70 and to offer large diversification gains to global currency investors.

Keywords: currency returns, private information, cross-border mergers and acquisitions, exchange rate determination, economic acceleration

JEL Classification: F31, G12, G15

*Steven Riddiough is at the University of Toronto (steven.riddiough@rotman.utoronto.ca). Huizhong Zhang is at Queensland University of Technology (huizhong.zhang@qut.edu.au). We would like to thank Pasquale Della Corte, Andrey Golubov, Lukas Menkhoff, Lucio Sarno, Tony Zhang, conference participants at the 2021 MFA Conference, and seminar participants at Deakin University and Queensland University of Technology for helpful comments and suggestions. The paper previously circulated under the title "Cross-Border M&A and Currency Returns." All errors are ours.

1 Introduction

One of the most cherished beliefs of international economists is that foreign exchange (FX) rates are intrinsically linked to current and future macroeconomic fundamentals, a relationship that is precisely captured in the present-value model of exchange rates (e.g., Engel and West, 2005).[1] An implication of the model is that agents with private information about future macroeconomic fundamentals can predict FX returns. But which economic agents, if any, have more precise information about future fundamentals, and how is that information embedded into exchange rates?

A common way to address this question is to study the information contained in FX order flow. Commercial firms' FX order flow is, for example, known to be uninformative about subsequent exchange rate returns, while the order flow of non-bank financial firms (e.g., hedge funds) strongly predicts exchange rate movements (Menkhoff et al., 2016; Ranaldo and Somogyi, 2021). This predictability has been attributed to the aggregated orders of more sophisticated financial customers revealing private information about future macroeconomic fundamentals—information that is subsequently incorporated into market prices (Rime et al., 2010).

There is reason to question, however, whether the study of firms' information sets—relating to economic fundamentals—can be broadened beyond the narrow focus on FX order flow.[2] When making *investment* decisions, for example, all firms—both financial and non-financial—routinely formulate their own private expectations about future macroeconomic conditions that may affect the success or failure of a potential project.[3] The announcements of planned investments could therefore reveal firms' collective expectations about future macroeconomic fundamentals and thus, analogous to FX order flow, the aggregation of firms' investment intentions

[1] While the seminal empirical findings of Meese and Rogoff (1983) cast serious doubt on this relationship in the time series, recent studies have demonstrated a far stronger link when explored in the cross-section (Sarno and Schmeling, 2014; Dahlquist and Hasseltoft, 2020; Colacito et al., 2020) or at the security (Lilley et al., 2021) and firm level (Dernaoui and Verdelhan, 2021).

[2] A lack of predictability arising from commercial FX order flow is not entirely surprising given that the trades are often mechanical—the outcome of routine daily operations, such as transaction hedging or treasury management, which are unlikely to be driven by considerations of future FX movements or macroeconomic fundamentals.

[3] In a recent survey by the Harvard Business Review, the economy was rated as the number one issue for business leaders: Directors factor in expectations about future global growth when deciding upon corporate strategies, M&A activity, and other investment policies. See "The Political Issues Board Directors Care Most About," Harvard Business Review, February 16, 2016. The forward-looking aspect of investment decision making has long-standing theoretical underpinnings: In the model of Nickell (1974), for example, firms adjust investment plans based on their expectations of future demand, such that investment stops before demand reaches a peak and resumes after the trough. See also Arrow (1968) and Bernanke (1983).

may predict FX returns as the information is gradually incorporated into market prices.[4]

We explore this possibility by investigating the announcements of *cross-border* mergers and acquisitions (M&As)—the major component of foreign direct investment (FDI). These announcements may reveal information about expected changes in *relative* economic conditions, since firms worried about weakening domestic conditions may look for opportunities in countries with stronger expected prospects. The logic is consistent with both theoretical and practitioner perspectives. Theoretically, portfolio balance models dictate that the demand for the foreign asset rises with its expected return and falls as the expected return on the domestic asset increases (Kouri, 1976), while divergences in expected economic growth are highlighted as the *main* driver of cross-border M&A activity in a recent report by Deloitte.[5]

To be clear, we do not assume that cross-border M&A decisions are determined *only* by expectations of future macroeconomic conditions. Indeed, no individual M&A deal is necessarily informative.[6] Instead, we assume that future macroeconomic fundamentals reflect a common factor in firms' investment decision making, such that the announcements of cross-border M&As should, in part, reflect firms' heterogeneous beliefs about economic prospects. By aggregating announced cross-border M&A deals, the idiosyncratic components of the decisions are averaged towards zero to reveal a more precise signal of firms' combined expectations about future macroeconomic fundamentals.

In the empirical analysis we take the perspective of an American investor and collect data on all cross-border M&A deals announced for 40 developed and emerging market countries vis-à-vis the United States, from 1994 to 2018. Using this data, we construct monthly measures of cross-border M&A activity for each country, equal to their announced cross-border M&A net inflows (i.e., the sum of inflows minus the sum of outflows). To enable a cross-country comparison and to capture firms' changing expectations, we then standardize the measures by

[4]While information sets are private, indirect attempts to assess the level of private information in currency markets has found asymmetric information to be present and a larger component of trading than in equity markets (see, e.g. Ito et al., 1998; Cespa et al., 2021).

[5]See "M&A Insights: Global M&A Drivers," Deloitte, Spring 2016. Furthermore, the M&A literature documents that low growth firms use M&A to: expand into new sectors with attractive investment opportunities (Gomes and Livdan, 2004), diversify out of declining industries and redeploy assets to serve high-growth markets (Anand and Singh, 1997), and acquire firms to gain access to productive projects (Levine, 2017).

[6]Firms may undertake cross-border M&A for firm-specific reasons. But these reasons are unlikely to explain *systematic* changes in the announced deals. Studies also document that cross-border M&A activity is influenced by country-specific factors such as: accounting standards and investor protection laws (Rossi and Volpin, 2004), geographic distance (Erel et al., 2012), and differences in language, religion, and culture (Ahern et al., 2015). Since these factors are largely unchanging over time, they should have little explanatory power for the time-variation we observe in the announced M&A deals.

their recent medians and standard deviations to obtain country-level measures of "abnormal" M&A activity.

Our first hypothesis is that an abnormally high-or-low number of newly announced cross-border M&A deals, reveals information about subsequent macroeconomic fundamentals. Specifically, an abnormally high M&A net *inflow* reveals a signal about higher expected domestic economic growth. Vice-versa, an unusually high M&A net *outflow* signals weaker domestic growth in the future. This macroeconomic predictability, if it exists, leads to our second hypothesis that abnormal levels of newly announced cross-border M&A deals also predict FX returns. The second prediction follows from a large class of open-economy macroeconomic models, encapsulated within the present-value model of exchange rates, in which exchange rate returns are a direct response to changing expectations about future fundamentals.

We investigate changes in economic growth (i.e., economic acceleration) to explore if the announcements predict turning points in economic activity. In predictive panel regressions, we find that abnormally high M&A net *inflows* are followed, on average, by an economic *acceleration*, while an economic *deceleration* typically follows abnormally high M&A net *outflows*. These changes in economic growth reflect *reversals* in economic conditions—not a simple (and less informative) continuation in a pre-existing growth trend—and continue to be observed after controlling for various leading economic indicators.

Decomposing the main measure between M&A inflows and outflows, we find that the predictability is principally driven by abnormal levels of M&A outflows. Indeed, economic accelerations are found to be strongly related to abnormal M&A outflows at horizons ranging from 12 to 60 months. In contrast, the relationship with abnormal M&A inflows is generally weak and only statistically significant at longer horizons. Thus, the predictive information resides mainly in the investment decisions of domestic firms, which may have superior knowledge about the relative strength of the local economy. Overall, the findings support the hypothesis that information in newly announced cross-border M&A deals can forecast economic fundamentals and may, therefore, provide a source of currency and exchange rate return predictability.

We explore currency return predictability via a portfolio approach in which higher positive (negative) portfolio weight is assigned to countries for which announced M&A net inflows (outflows) are abnormally high. We implement three portfolio weighting schemes to ensure the

results are not driven by one particular choice.[7] The portfolios are rebalanced monthly and have zero net cost. Under the null hypothesis of no predictability, the portfolios should generate zero excess return on average. Instead, we find that all three portfolios generate positive and statistically significant returns—indicating that abnormal levels of newly announced cross-border M&A deals *can* predict currency returns. The average return of each portfolio is above 4% per annum, t-statistics all exceed 3.50, and the Sharpe ratios range from 0.73 to 0.85. The cumulative portfolio returns all increase steadily over time and remain high even following the global financial crisis (GFC).

Crucially, the currency returns are primarily driven by predicting exchange rate returns, rather than from investing in high interest rate currencies—supporting the economic channel through which improving expectations about fundamentals equate to an exchange rate appreciation.[8] Furthermore, we find that the exchange rate return predictability stems *entirely* from abnormal levels of cross-border M&A *outflows*—the main predictor of economic acceleration. Countries for which the announced outflows are unusually *high*, typically experience an annualized exchange rate depreciation of -2.66% over the following month, while an annualized appreciation of 3.94% is observed in the month following an abnormally *low* M&A outflow. In contrast, the exchange rate return is approximately zero in the month following abnormally high or low M&A *inflows* (-0.03% and -0.12%, respectively).

We compare the predictive information contained in abnormal levels of newly announced cross-border M&A deals, with previously identified sources of currency return predictability including: carry (Lustig et al., 2011), value (Asness et al., 2013; Menkhoff et al., 2016), momentum (Menkhoff et al., 2012; Asness et al., 2013), the average forward discount (Lustig et al., 2014), and economic momentum (Dahlquist and Hasseltoft, 2020). We find these alternative signals can all be exploited to generate positive portfolio returns, but the returns are uncorrelated with those of the cross-border M&A portfolio. When regressing the rank-weight cross-border M&A portfolio's returns on all other portfolios' returns, we find the adjusted-R^2 statistic is only 0.023. The unexplained component of the cross-border M&A portfolio's returns

[7] These include "high-minus-low" that assigns weight to countries with the most extreme M&A signals, "linear" that assigns weight in proportion to the M&A signals' values, and "rank" that assigns weight in proportion to the M&A signals' cross-sectional rankings.

[8] The results also support the claim that a source of private information, which can predict currency returns, is revealed outside of FX order flow. Albuquerque et al. (2008) document a different channel, finding that private information in *equity* order flow forecasts currency returns.

is therefore large and highly statistically significant—highlighting the novelty of the predictive information contained in the announcement of cross-border M&As. The results also hint at the possibility of large diversification gains for currency investors, which we confirm in additional empirical tests.[9]

In further analysis, we show that: (i) the cross-border M&A portfolio's returns exhibit a permanent, rather than a transitory, component—supporting the claim that the returns are driven by information relating to fundamentals; (ii) the predictability of currency returns is stronger when forming signals using the *number* rather than the *dollar value* of announced cross-border M&A deals—rejecting an alternative "transaction" hypothesis; (iii) the null hypothesis of no return predictability continues to be rejected in bootstrap tests; and (iv) the economic significance of the return predictability is robust to incorporating transaction costs.

Overall, the study is the first to show that corporate investment activity can predict currency returns. The paper contributes to a growing literature investigating ties between economic fundamentals and FX returns, and provides new insights into how private information may be revealed and incorporated into exchange rates—connecting to the broader study of asymmetric information and the determination of exchange rates. Moving beyond FX order flow, the paper uncovers a novel source of private information originating from the announcements of cross-border M&As. Economic conditions improve and the local currency appreciates following months in which announced M&A net *inflows* are abnormally high, while the opposite outcomes are observed following abnormally high M&A net *outflows*.

The results also have broad practical implications: For policy makers, the findings provide a way to identify informed capital flows that have a permanent exchange rate impact, while for global investors, the predictability can be used to construct a portfolio that has generated impressive investment returns over a 20-year period and offered a source of large diversification gains.

The remainder of the paper is structured as follows: in Section 2 we outline the theoretical channel and related literature, in Section 3 we describe the data and summary statistics, in Section 4 we present the main empirical findings, in Section 5 we discuss the results from further empirical analyses, in Section 6 we make concluding remarks. An Internet Appendix contains additional results and further details on the bootstrap simulations.

[9]Furthermore, only the portfolio weights from the cross-border M&A portfolio are found to be a statistically significant predictor of one-month currency and exchange rate returns.

2 Theoretical Channel and Related Literature

We outline the theoretical framework that motivates the study before turning to highlight related literature on the links between macroeconomic fundamentals, capital flows, and exchange rates. Finally, we provide justification for studying the announcements of cross-border M&A activity rather than foreign direct investment.

2.1 Information in FX markets and the present-value model

Empirical research into the behaviour of FX markets has found considerable indirect evidence of asymmetric information across market participants (e.g., Ito et al., 1998; Ranaldo and Somogyi, 2021), while theoretical contributions show that various currency market phenomena can be explained by assuming agents have asymmetric information about macroeconomic fundamentals (e.g., Bacchetta and Van Wincoop, 2006; Evans and Lyons, 2006, 2007; Cespa et al., 2021).

When investigating FX order flow, studies have found that certain groups of participants—typically non-bank financial firms—reveal private information about macroeconomic fundamentals through their FX trades (Menkhoff et al., 2016). This information is gradually incorporated into market prices by FX dealers, resulting in FX order flow predicting currency returns (Evans and Lyons, 2006; Osler and Vandrovych, 2009; Ranaldo and Somogyi, 2021).[10] In this paper, we approach the topic of private information from a different perspective. Following the theoretical literature in which agents have heterogeneous expectations about future macroeconomic fundamentals, we examine the possibility that firms reveal their private signals through announcements of intended cross-border M&A activity, rather than via FX trading.

Firms regularly revise their assessment of the expected payoff on a proposed deal based on their private signals. Such information may lead to heterogeneous beliefs across firms as a result of: differential access to local information (Brennan and Cao, 1997), private research conducted by in-house M&A teams and external M&A advisors (Bao and Edmans, 2011), directors' connections in foreign countries (Giannetti et al., 2015), global trade networks (Ahmad et al., 2020), or learning from prior acquisitions (Francis et al., 2014). The present-value model of exchange rates provides a general framework for understanding why the revelation of this

[10]Froot and Ramadorai (2005) find that institutional FX order flow is primarily correlated with transitory currency returns, while the permanent component of currency returns varies with future macroeconomic fundamentals. Later, we show that the announcement of an abnormally high number of cross-border M&A net inflows forecasts a permanent exchange rate impact, while also predicting subsequent macroeconomic fundamentals.

information could predict subsequent exchange rate movements.

The present-value model of exchange rates. Equivalent to a standard asset-pricing framework in which the current market price is a function of the discounted expected future price, the present-value model of exchange rates expresses, in its most general form, the log exchange rate (s_t) as a weighted average of current fundamentals and the expected future exchange rate (see, *inter alia*, Engel and West, 2005; Engel et al., 2007; Sarno and Schmeling, 2014; Bekaert and Hodrick, 2018):

$$s_t = (1 - \beta) f_t + \beta E_t s_{t+1}, \tag{1}$$

where f_t reflects the value of market fundamentals at time t, β is a discount factor that is less than one, and E_t are market expectations. Iterating Eq (**1**) forward (and imposing the standard no bubbles condition, $\lim_{q\to\infty} \beta^q E_t s_{t+q} = 0$), the exchange rate equals an infinite sum of discounted fundamentals:

$$s_t = (1 - \beta) \sum_{q=0}^{\infty} \beta^q E_t f_{t+q}. \tag{2}$$

Hence the exchange rate return is a function of changes in current fundamentals and expectations of future fundamentals:

$$\Delta s_{t+1} = (1 - \beta) \sum_{q=0}^{\infty} \beta^q (E_{t+1} f_{t+q+1} - E_t f_{t+q+1}). \tag{3}$$

In this paper, we study the hypothesis that information arriving through newly announced cross-border M&A deals can predict exchange rate returns. To see how this hypothesis relates to the present value model, assume there are two rounds of trading when exchange rates are formed, denoted as times t and t+1. At time t, exchange rates are formed based on publicly available information about future fundamentals (Eq. (**2**)). An instant after the exchange rate is formed (say, time t'), cross-border M&A deals are announced to the market.

The information contained in the M&A announcements is then gradually learned by FX market participants prior to the next round of trading and thus, at time t+1, the exchange rate updates to reflect that information and all other newly released publicly available information

(Eq. (**3**)).[11] It is possible that the M&A announcements merely reflect firms' reaction to public signals, e.g., changes in exchange rates, stock prices, or public information about future fundamentals available at time t. If so, an abnormal level of newly announced M&A deals is unlikely to have predictive power for future exchange rate movements.

However, if the announcements of cross-border M&A deals *do* contain information about future fundamentals, which is not otherwise extractable from public information at t, then that information can be used to help predict exchange rate movements. In the empirical analysis we therefore begin by confirming that an abnormal level of newly announced cross-border M&A deals *can* forecast future economic fundamentals, before moving to explore and document the predictability of exchange rate and currency returns.

2.2 Fundamentals, capitals flows, and exchange rates

Dahlquist and Hasseltoft (2020) show that sorting currencies each month by economic momentum generates a large cross-sectional spread in currency returns, supporting the link between macroeconomic fundamentals and exchange rates, as implied by the present-value model of exchange rates. While our analysis appeals to the present-value framework, we find that sorting countries by abnormal M&A activity is orthogonal to sorting by economic momentum because abnormal M&A activity captures a *reversal*, not a continuation, in the level of economic growth. The currency portfolios we construct that exploit exchange rate predictability are also unrelated, both conceptually and empirically, to other sources of currency return predictability and have yielded large economic gains following the GFC. The findings thus support a novel source of return predictability, which can further be exploited to diversify a broad currency portfolio.

The paper also relates to the literature studying the relationship between exchange rates and capital flows. Early models, such as the portfolio balance model, predict that a current account surplus (deficit) should be related to an exchange rate appreciation (depreciation), although empirical tests have typically found a weak relationship (e.g., Frankel, 1984). More recently, Gyntelberg et al. (2018) find that a subcomponent of capital flows—*informed* international equity flows—do predict exchange rate returns. Indeed, policy makers are interested in

[11] The assumption about the timing of M&A announcements could be replaced by similar mechanisms, such as a slow diffusion of information, infrequent portfolio rebalancing, and rational inattention. In these cases, the M&A announcements could take place at time t but the information is not immediately incorporated into market prices. If prices instantaneously update to reflect the information, then M&A announcements would be unlikely to predict FX returns.

understanding the information content of capital flows, since it can help in forecasting whether the flows will have a permanent or transitory impact on the local exchange rate. The results in this paper help shed light on this issue, since they highlight capital flows that contain information about fundamentals, and thus are likely to have a permanent impact on the exchange rate. We confirm this permanent exchange rate impact in further empirical analyses.[12]

2.3 Foreign direct investment

A natural question is why we focus on the announcements of cross-border M&As and not directly on FDI. We do so for four reasons. First, FDI consists of equity investment, inter-company debt, and reinvested earnings; the equity component, which reflects new investment flows such as cross-border M&A and greenfield investment, is most likely to carry meaningful information about expected future economic conditions.[13] Second, cross-border M&A accounts for more than half of all FDI, significantly more than greenfield investment, and thus provides a close approximation to total FDI dynamics (see, e.g. Baker et al., 2009). Third, FDI flows are typically backward looking and recorded infrequently—either on a quarterly or yearly basis—with the definition and measurement of the non-M&A components of FDI varying across countries. Finally, only a small handful of countries report the geographic breakdown of their inward and outward FDI flows—limiting the potential scope of the analysis.[14]

In comparison, comprehensive data on globally announced M&A deals can be obtained on a day-to-day basis, featuring a large set of deal-level details. The richness of the data allows us to more timely capture the revelation of corporate investment activity to the market and how it relates to subsequent changes in economic growth and exchange rate movements. In the next section, we provide details of the cross-border M&A data used in this study.

[12]Other studies have focussed on the stock position of countries' international accounts. Della Corte et al. (2016) empirically investigate the theoretical model of Gabaix and Maggiori (2015) and find that a cross-sectional spread in currency returns emerges when sorting currencies by their net foreign assets. Gourinchas and Rey (2007) find that the US net international investment position predicts movements in the trade-weighted dollar index, while Della Corte et al. (2012) extend the analysis of Gourinchas and Rey (2007) to forecast bilateral currency pairs.

[13]Reinvested earnings are the parent company's claim on their affiliates' undistributed after-tax earnings, while inter-company loans are often used for tax planning purposes. Indeed, it is common for an affiliate in a high-tax jurisdiction to borrow significantly from other parts of the multinational corporation, using the debt to increase their interest expense and reduce their tax liability.

[14]See Erel et al. (2012) for further details.

3 Data

We collect data on cross-border M&A deals involving the US, announced between December 1973 and December 2018, from the Securities Data Company (SDC) Platinum database.[15] For each deal we obtain the nationality of the acquiror and target firms, the date of the announcement, the form of payment, and the US dollar value of the deal. We exclude deals with missing dollar values to enable a later comparison between the total number and dollar value of the announced transactions. We limit the analysis to major developed and emerging market currencies covering 41 countries, including 20 developed and 21 emerging markets. The countries include (developed countries are denoted in bold): Argentina, **Australia**, **Austria**, **Belgium**, Brazil, Chile, Colombia, Czech Republic, **Denmark**, Estonia, **Eurozone**, **Finland**, **France**, **Germany**, Greece, Hungary, Iceland, India, Indonesia, **Ireland**, **Israel**, **Italy**, **Japan**, Latvia, Lithuania, **Netherlands**, **New Zealand**, **Norway**, Poland, Portugal, Russia, Slovak Republic, Slovenia, South Africa, South Korea, **Spain**, **Sweden**, **Switzerland**, Turkey, the **United Kingdom**, and the **United States**.[16]

We commence our study when cross-border M&A activity becomes relatively frequent. In Fig. A.1 of the Internet Appendix, we plot the number of days between cross-border M&A deals for the average developed and emerging market country over a three-year rolling window (each point captures the prior three-year average). The frequency of deals was low in the 1970s and 1980s. Only from the mid 1990s was activity sufficiently high to obtain useful signals of firm-level expectations across both developed and emerging market countries. We therefore restrict the sample to the 25-years (300-months) period beginning in January 1994 and ending in December 2018.

[15] Over this period, 142,829 cross-border M&As were announced, totalling $32.27 trillion in value. We focus on deals involving the US because it had by far the most active cross-border M&A market. Specifically, the US had: (i) cross-border deals to and from 75% of all other countries; (ii) the largest share of global cross-border M&As, accounting for 31% (38%) of aggregated deals (transaction values); and (iii) the lowest average number of days between two consecutive deals (less than 0.34).

[16] The categorization of countries as developed or emerging is based on the MSCI's classification. China is not included because, while the announced deals are potentially informative, the managed exchange rate makes the currency return less informative. We also do not include Canada and Mexico whose economies are significantly integrated with the US economy (all are members of NAFTA), increasing the commonality of macroeconomic shocks and reducing the informativeness of announced cross-border M&A deals.

3.1 Descriptive analysis

In Fig. 1, we plot yearly time series of the total number and aggregate dollar value ($ billions) of the cross-border M&As in our dataset. Since the mid-1990's, the total number of cross-border M&As has ranged from a yearly low of around 600 in 1994 to a high of over 1,600 in 2000. In general, the aggregate number of deals has typically averaged around 1,000 per year. The dollar value of the deals has drifted upwards over time, beginning the sample at less than $100 billion before peaking at over $600 billion in 2014.

In Table 1, we present country-level summary statistics. The total number of deals ranges from 12, between the US and Slovenia, to over 5,500 between the US and Eurozone. In total, more than 86% of deals involve firms from other developed market countries, in which the US firm is the target in around 45% of the deals. US firms are mainly acquirors of emerging market firms, although are targets in 40% of deals involving firms from Israel, South Africa, and South Korea. Consistent with the large cross-sectional variation we observe in M&A activity, we find the average number of days between two announced deals varies substantially across countries—ranging from less than ten to over 200.

3.2 Standardizing merger and acquisition activity

We construct a bilateral monthly measure of cross-border M&A activity between the US and country $i = 1, 2, ..., N-1$ (where country N denotes the US). The measure equals the net inflow of cross-border M&A deals, defined as the sum of announced inflows ($In_{i,t}$) *minus* the sum of announced outflows ($Out_{i,t}$) in month t:

$$MA_{i,t} = In_{i,t} - Out_{i,t}. \tag{4}$$

A negative value therefore reflects, for example, that firms in country i announced more acquisitions of US firms during the month than vice versa.[17] We construct an equivalent measure for the United States, aggregated across all other countries, i.e.,

[17]The measure helps to capture *relative* differences in economic conditions. We hypothesize that if firms in country A acquire an unusual high number of firms in country B, then *ceteris paribus* country A will grow at a slower future rate, while country B's growth will accelerate. Aggregating across all deals involving country B would confound the measure. For example, an unusually large net inflow *in aggregate* to country B may mask an unusually *low* net inflow from country A, and thus generate a source of measurement error that we avoid.

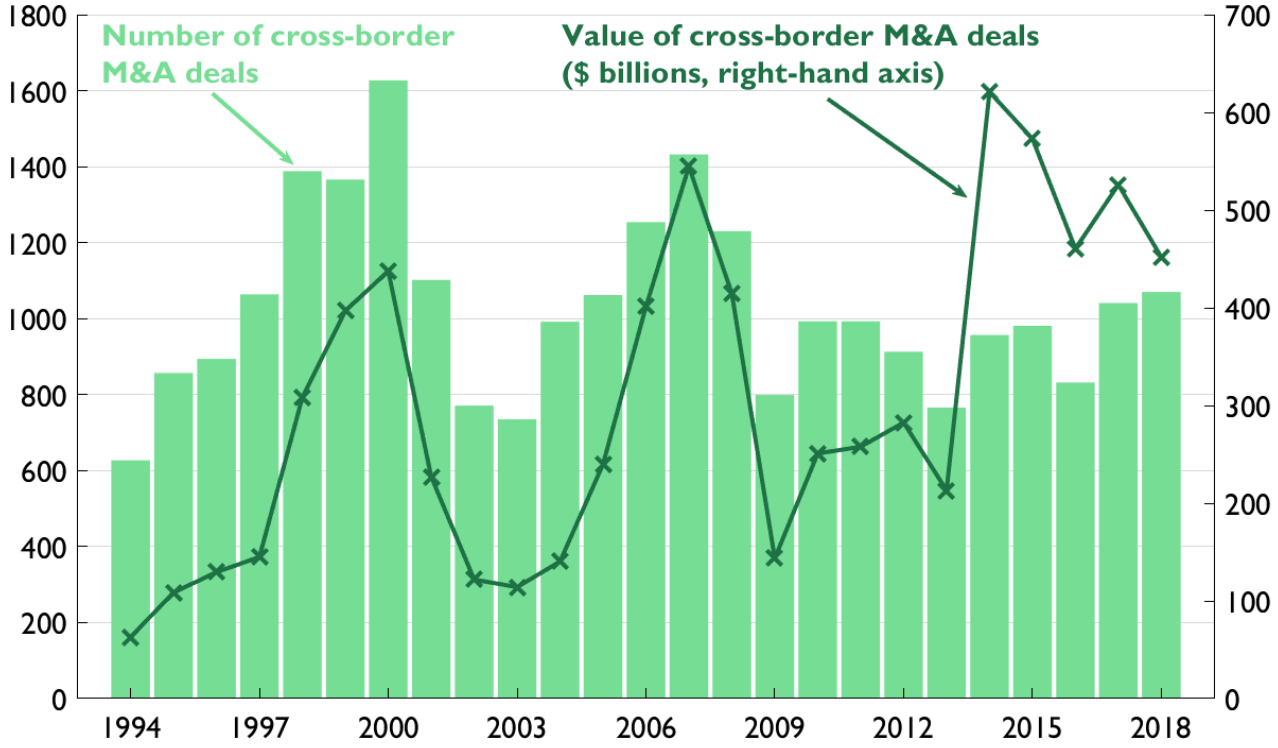

Fig 1. Number and Value of Announced Cross-Border M&As. The figure plots the time series of the total number of cross-border M&A deals in the sample (left-hand axis, bar plot) and the total value of those deals in US dollar billions (right-hand axis, line plot).

$$MA_{US,t} = \sum_{i=1}^{N-1} In_{i,t} - \sum_{i=1}^{N-1} Out_{i,t}. \tag{5}$$

To prevent countries with high raw values from dominating the later analysis, we standardize M&A by its median ($\overline{MA}_{i,t}$) and its standard deviation ($\sigma_{i,t}$), calculated over the prior 36 months. Specifically, our measure of "abnormal" M&A activity is given by,

$$\widetilde{MA}_{i,t} = \frac{MA_{i,t} - \overline{MA}_{i,t}}{\sigma_{i,t}}, \tag{6}$$

which we use to predict economic acceleration and exchange rate returns. Since the standardization requires a prior 36-months history of deals, the first values of $\widetilde{MA}_{i,t}$ are obtained in December 1996, which we use to predict the FX returns in the new month. Thus, while we use data from 1994 onwards, we typically report results as beginning in January 1997 and ending in December 2018.

We view time periods in which cross-border M&A activity deviates from its recent trend as particularly informative. In some countries there are long periods in which no cross-border

M&A deals are announced, and thus $\widetilde{MA}_{i,t} = 0$ because both $MA_{i,t}$ and $\overline{MA}_{i,t}$ are zero. Cross-border M&As also occur in waves (Xu, 2017; Ahmad et al., 2020). A continuation of high M&A activity is thus less informative if the information about future economic fundamentals has been impounded into exchange rates at an earlier stage. We therefore consider M&A activity to be *uninformative* when equal to its usual level—even if that usual level is high—as no incremental information is revealed through the M&A announcements. In contrast, it *is* informative if $MA_{i,t} = 0$ when $\overline{MA}_{i,t} \neq 0$, because it signals a decline in M&A net inflows relative to their recent trend and thus may reflect changing expectations. To ensure that we capture predictive information contained in the announcements of cross-border M&A deals, we define non-informative zeros as missing observations. Moreover, at least two M&A deals must have been announced during the prior three-year period to calculate the standard deviation.

3.3 Macroeconomic fundamentals

We investigate if economic conditions change following M&A deal announcements by studying changes in economic growth (i.e., economic *acceleration*). Economic acceleration is a natural measure to choose since it captures turning points, i.e., economic transitions, as an economy shifts from one growth path to another (see, e.g. Hausmann et al., 2005). We measure economic growth following Dahlquist and Hasseltoft (2020). The approach is particularly attractive because it captures different aspects of an economy, providing a more comprehensive picture of economic conditions. Specifically, economic growth is defined as the average (log) growth rate across three macroeconomic series that capture: output (industrial production, IP); consumption (retail sales, RS); and the labor market (*inverse* of unemployment, UE). A higher value therefore indicates stronger economic growth.

We obtain macroeconomic series for each country from the *Organization of Economic Co-operation and Development* (OECD), and calculate the one-year economic growth for country i ($i = 1, ..., N$) in month t as:[18]

$$g_{i,t} = \frac{1}{3}\left[log\left(\frac{IP_{i,t}}{IP_{i,t-12}}\right) + log\left(\frac{RS_{i,t}}{RS_{i,t-12}}\right) + log\left(\frac{UE_{i,t}}{UE_{i,t-12}}\right)\right]. \tag{7}$$

Economic acceleration is then defined as:

[18]To mitigate against outliers unduly influencing the findings, we winsorize the one-year growth in IP, RS, and UE at the 5th and 95th percentiles.

$$\Delta g_{i,t+s} = g_{i,t+s} - g_{i,t}, \tag{8}$$

which is the difference between one-year growth rates at times $t+s$ and t. In the empirical analysis, we study economic acceleration following the announcements of abnormally high or low M&A net inflows, to determine whether $\widetilde{MA}_{i,t}$ has forecasting power.

3.4 Exchange rates

We collect daily spot and one-month forward foreign exchange rates from WM/Reuters via *Datastream*, spanning from January 1997 to December 2018. The exchange rates are recorded as the US dollar price of one unit of foreign currency. We sample exchange rates on the last trading day of each month to calculate monthly currency excess returns. The returns are from the perspective of a US investor entering a long forward position at time t to buy the equivalent of one US dollar of country i's currency at time $t+1$. Specifically, we calculate currency excess returns as:

$$R_{i,t+1} = \frac{S_{i,t+1} - F^1_{i,t}}{S_{i,t}}, \tag{9}$$

where $S_{i,t}$ and $F^1_{i,t}$ are the spot and one-month forward exchange rates recorded at time t for country i.[19] In addition, the euro was launched in January 1999 and 16 countries in our sample have joined the currency zone since its inception. These currencies drop out of the main analysis upon entry into the Eurozone, but we continue to include their cross-border M&As within our measure of *Eurozone* cross-border M&A activity.

4 Empirical Analysis

In this section we report results from the main empirical analysis. We begin by investigating if abnormal levels of newly announced M&A deals can forecast economic accelerations. We then study the predictability of exchange rates and currency returns, and assess the novelty of the return predictability relative to other, previously documented, predictors of currency returns. Finally, we explore the potential diversification benefits stemming from a cross-border M&A currency portfolio.

[19]The availability of foreign exchange rate data varies by country. In Internet Appendix Table A.1, we report the start and end dates of the data for each currency in the sample.

4.1 Cross-border M&A and economic fundamentals

According to standard corporate finance theory, market forces should compel managers to maximize firm value. If so, only M&A opportunities that are expected to generate a positive net present value (NPV) will be pursued.[20] An M&A's NPV can be expressed as the discounted sum of the target firm's future cash flows and synergistic gains *minus* its acquisition cost. Earnings, incremental cash flows, and the discount rate are all a function of macroeconomic fundamentals. Therefore, fluctuations in aggregate cross-border M&A activity may reveal a common factor in acquirors' revised expectations about the relative future economic outlook across countries. For instance, a relatively pessimistic (optimistic) outlook for future economic growth in the home country may increase the relative attractiveness of foreign (domestic) investments, leading to a higher (lower) than usual outflow. The logic is consistent with international portfolio balance models in which capital flows to countries with higher expected returns (Kouri, 1976) and with practitioner perspectives on the main drivers of cross-border M&A activity (Deloitte, 2016).

Cross-border M&A activity may also take place for idiosyncratic reasons. For instance, managers may undertake M&As that are inconsistent with maximizing firm value because of managerial hubris (Roll, 1986; Aktas et al., 2009) or agency problems (Jensen, 1986). To be clear, we do not hypothesize that every M&A deal is informative about future economic conditions—only that a predictive signal emerges from the aggregation of the deals. Indeed, the relative influence of the idiosyncratic component is mechanically reduced through aggregating deals. An alternative perspective, however, is that cross-border M&A activity is principally driven by the *acquisition cost*, due to transitory fluctuations in exchange rates (Erel et al., 2012) or stock market movements (e.g. Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). If these alternative motives are the primary driver of cross-border M&A activity, then abnormally high-or-low levels of newly announced cross-border M&As are not expected to provide a useful guide to subsequent economic acceleration.

4.2 Forecasting economic acceleration

We study how economic accelerations fluctuate following the announcements of M&A deals in two ways. First, we explore the average level of economic accelerations in the five-years before and after M&A announcements, for countries with unusually high or low levels of an-

[20] See, e.g. Fama and Jensen (1985), McConnell and Muscarella (1985), and Berkovitch and Narayanan (1993).

nounced M&A net inflows. This test allows us to assess the evolution of economic acceleration, month-by-month, following the M&A announcements—providing a first glimpse at the predictive relationship. By studying economic growth *prior* to the deals being announced, we also simultaneously address the potential concern that the post-announcement trend is a simple continuation of a pre-existing trend. Our second test places the microscope at various points during the post-announcement period, to formally investigate the predictive relationship while controlling for a broad set of publicly available leading economic indicators.

We begin by grouping countries into one of three baskets based on their level of abnormal M&A activity, defined in Equation (**3**). We denote these baskets as "high", "medium", and "low". We test how economic growth changes, on average, for countries within these baskets by estimating panel regressions in which we regress countries' economic acceleration, $\Delta g_{i,t+s} = g_{i,t+s} - g_{i,t}$, on a dummy variable ($D_{ik,t}$) that is equal to one if country i is in basket k (where $k = \{high, medium, low\}$) at time t, and zero otherwise:

$$\Delta g_{i,t+s} = \alpha + \beta D_{ik,t} + \kappa_i + \lambda_{t+s} + \varepsilon_{i,t+s}, \tag{10}$$

where $s = -60, -59, ..., 0, ...59, 60$. Thus, when s takes a negative value, we investigate the trend in economic acceleration *prior* to M&A announcements. The coefficient κ_i denotes country fixed effects, which are included to capture time-invariant determinants of cross-border M&As, such as geographic distance, market size, and cultural differences. Time fixed effects (λ_{t+s}) control for factors varying in time, but not in the cross-section, such as common trends in cross-border M&A activity and global economic conditions.

The coefficient of interest is β. According to our hypothesis, the announcements of abnormally *high* M&A net inflows should precede stronger future economic growth, and vice-versa following abnormally *low* M&A net inflows. When $s > 0$, we therefore expect $\beta > 0$ if $k = high$ and $\beta < 0$ if $k = low$. When $s < 0$, the level of β provides guidance as to whether the post-announcement trend continues a pre-existing trend, in which a continuation is reflected by a linear relationship between β and s.

In Fig. 2 we plot the estimated β coefficients in relation to s, for $k = high$ and $k = low$. Two standard error bounds are denoted by the shaded region. A striking V-shape pattern emerges for countries with high values of $\widetilde{MA}_{it}$, while the mirror image is observed for countries with low values of $\widetilde{MA}_{it}$. Concentrating on the $s > 0$ region, the β coefficients clearly support the

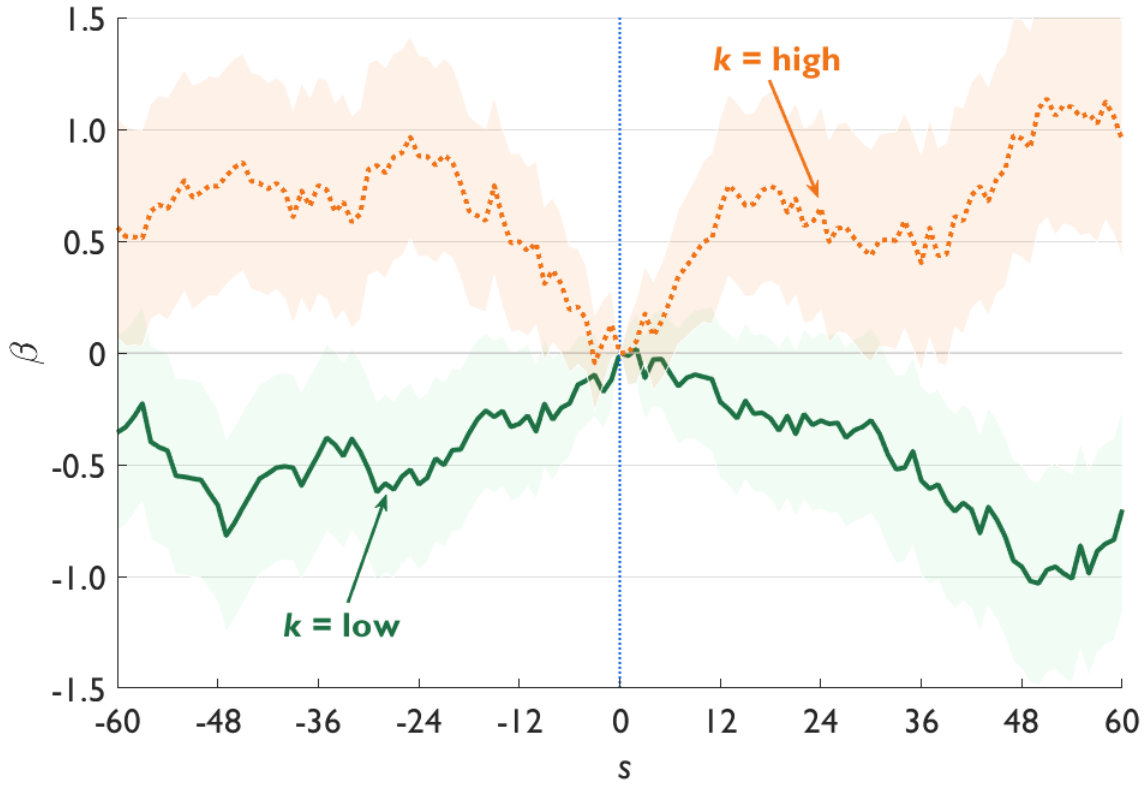

Fig 2. Macroeconomic Acceleration. The figure plots β coefficients from Equation (10), estimated across different values of s for $k = high$ and $k = low$. Two standard error bounds are denoted by the shaded region.

hypothesis that economic growth accelerates (decelerates) following months in which announced cross-border M&A net inflows are abnormally high (low). Indeed, 48-months following the announcements, both groups of countries are seen to experience growth rates that are around 1% different (higher and lower) than when the M&A deals were announced.

Turning to $s < 0$, the patterns reveal strong *reversal* effects—not simple continuations—in which countries with high (low) values of $\widetilde{MA}_{it}$ decelerate (accelerate) prior to the announcements before accelerating (decelerating) thereafter. The month in which the deals are announced also appears to, almost perfectly, capture the point of economic reversion—providing early evidence that the predictive information may extend beyond that contained in other leading economic indicators.[21]

Controlling for leading economic indicators. We test if leading economic indicators subsume the information contained in abnormal levels of newly announced M&A deals, via a

[21] The two series mechanically converge at zero when $s = 0$ but it is *not* mechanical that the point of inflection would occur when $s = 0$ nor that the series would be non-linear.

series of predictive panel regressions. The regressions take a similar form to Eq. (**10**), but replace the dummy variables with the standardized measure of M&A activity ($\widetilde{MA}_{it}$):

$$\Delta g_{i,t+s} = \alpha + \beta \widetilde{MA}_{i,t} + \gamma' X_{i,t} + \kappa_i + \lambda_{t+s} + \varepsilon_{i,t+s}. \tag{11}$$

where $X_{i,t}$ represents a set of leading economic indicators. In these regressions we focus on the post-announcement period and report results for $s = 12, 24, 36, 48$ and 60. Given our earlier results, the coefficient β is expected to be positive, since abnormally high (low) M&A activity is associated with subsequent economic accelerations (decelerations). The question is whether β *remains* statistically significant after controlling for publicly available information contained in leading economic indicators.

Specifically, we control for (i) the OECD's composite leading indicators (CLIs), which are a set of monthly indices designed to provide early signals of economic turning points;[22] (ii) the term spread, defined as the difference between long-term government bonds and short-term T-bills (Harvey, 1988; Estrella and Hardouvelis, 1991; Hamilton and Kim, 2002); (iii) short-term interest rates measured by the yield on the T-bill (Bernanke and Blinder, 1992); (iv) monthly local stock market returns (Fama, 1981); and (v) dividend yields (Fama and French, 1989). We control for country and time fixed effects, while robust standard errors are double clustered at the country-month level.

We estimate two models for each value of s. The first model controls only for CLIs, since these indices contain all leading information and therefore offer a standardized and comprehensive measure of future economic conditions. The CLIs can be viewed as a mean-reverting index, centered around 100, in which a high value today predicts weaker economic conditions in the future. In the second model, we replace the CLIs with the individual predictor variables to ascertain their relative influence.

Results are reported in Table 2. In the first models, the coefficients on the CLIs are negative and statistically significant at the 1% significance level. In the second models, only the interest rate variables display evidence of predictive content. In particular, a steeper Treasury yield curve predicts an economic acceleration over horizons ranging from 24 to 60 months. Lower

[22]The indices are compiled by combining a comprehensive set of time series components that are, individually, known to predict short-term economic movements. These include expected changes in employment and demand, housing permits, term spreads, consumer confidence, and stock market returns. We use a 2-month lag of the CLIs to account for the publication delay (see Colacito et al., 2020, for further details).

short-term interest rates forecast an economic deceleration over 12-months but an economic acceleration over 48 and 60 months—essentially capturing business cycle variation.

Pertinently, we find the coefficients on $\widetilde{MA}_{it}$ remain statistically significant at the 5% significance level when $s = 24$, and at the 1% significance level when $s = 36, 48$, and 60. Consistent with Fig. 2, we find a positive, but not statistically significant, coefficient when $s = 12$. The magnitudes of the coefficients are economically significant. A one-standard deviation move above the median value of $MA_{i,t}$, is associated with an economic growth rate that is between 0.24% and 0.45% higher over the following 36 to 60 months. These values are of the same order of magnitude as the average level of economic acceleration over the same period (0.21% and 0.30%). Given these findings, we *reject* the null hypothesis that abnormal levels of newly announced cross-border M&As contain no incremental predictability beyond public signals.

Decomposing abnormal M&A activity. When the standardized measure of M&A activity is positive ($\widetilde{MA}_{i,t} > 0$), it could be because there are *more* inflows than usual or *less* outflows. Likewise if $\widetilde{MA}_{i,t} < 0$, while it is likely driven by *more* outflows than normal, it could be due to *less* inflows. The economics behind these distinctions is, in one sense, minor: higher *net* inflows suggest, for example, that expectations of domestic economic conditions are improving—no matter whether foreign firms are acquiring more local firms or local firms are acquiring fewer foreign firms (that is, assuming domestic firms' activity has moved onshore). A similar conclusion can be drawn when M&A net inflows are abnormally low, which indicates a weakening domestic economic outlook.

On the other hand, the distinction *is* revealing. Low M&A net inflows that are driven by *more outflows* than normal, could reflect that domestic firms have observed their local economic conditions and expect future weakness. Equally, high M&A net inflows that are driven by *less outflows*, could reveal domestic firms are expecting a stronger local economy in the future. Indeed, an extant literature has documented differences in information endowments across domestic and foreign agents, in which domestic agents have a more precise signal about local economic outcomes, such as asset market payoffs.[23] Frankel and Schmukler (1996), for example, investigate investors' divergent expectations using three Mexican country funds. They show that during the peso crisis in 1994, domestic investors were the first to sell Mexican assets, indi-

[23]See, e.g. Kang and Stulz (1997); Coval and Moskowitz (2001); Dvořák (2005); Ivković and Weisbenner (2005); Van Nieuwerburgh and Veldkamp (2009).

cating that domestic investors, who are "closer to information", form more accurate expectation about local economic events. Similarly, Brennan and Cao (1997) present a theoretical model in which domestic investors possess an information advantage over foreign investors due to closer observation of the domestic economy. These findings suggest that, despite instantaneous global communications, geographic location can matter when forming expectations.

We therefore explore this split between inflows and outflows to see if domestic firms' acquisition decisions are a principal contributor to the prior results. To do so, we estimate equivalent models to Eq. (**11**), but in which we replace $\widetilde{MA}_{i,t}$ with measures constructed using only outflows ($\widetilde{MA}^{out}_{i,t}$) or inflows ($\widetilde{MA}^{in}_{i,t}$):

$$\Delta g_{i,t+s} = \alpha_i + \beta_1 \widetilde{MA}^{in}_{i,t} + \beta_2 \widetilde{MA}^{out}_{i,t} + \gamma' X_{i,t} + \kappa_i + \lambda_{t+s} + \varepsilon_{i,t+s},$$

We report results in Table 3. We find a clear asymmetric pattern: across all horizons, the outflow-based signal (β_2) is consistently negative and statistical significant, indicating that abnormally high (low) outflows translate to lower (higher) future growth. In contrast, the coefficients on the inflow-based signal (β_1) are not statistically different from zero over horizons ranging up to 36-months, although become significant thereafter. Thus, the predictability of economic acceleration that was documented in Table 2 is, at least in the short-to-medium term, driven entirely by outflows and hence by the acquisition decisions of domestic firms. In Internet Appendix Table A.2, we present estimates of β_1 and β_2 across values of s ranging from -60 to $+60$.[24] The relative importance of the outflow-based measure is clearly observed. Countries with relative high outflows at $s = 0$ exhibit a clear reversal in economic acceleration around that point (as evidenced by the inverted V-shape pattern): accelerating prior to the outflows and subsequently decelerating thereafter. Countries with abnormally high inflows at $s = 0$ continue to decelerate in the following months—only after 48 months do they exhibit economic growth that is statistically significantly higher than observed at $s = 0$.

The results in Tables 2 and 3 therefore establish that a predictive relationship exits between abnormal levels of newly announced cross-border M&A deals and changes in economic growth. If currency markets gradually incorporate this information into their expectations of future economic fundamentals, then the announcements may provide a source of predictability for exchange rate and currency returns, which we turn to explore next.

[24] As in Fig. 2, the estimates are obtained without controlling for other publicly available predictors.

4.3 Exchange rate and currency return predictability

We explore exchange rate and currency return predictability using a portfolio approach, in which weights are assigned to countries based on their abnormal M&A activity ($\widetilde{MA}_{i,t}$).[25] We adopt three approaches to assigning portfolio weights, denoted as "HML", "linear", and "rank", which we describe below. The portfolios are rebalanced monthly, their weights sum to zero, and they are all long and short one dollar.

Methods. To obtain HML weights, we sort countries from low to high values of $\widetilde{MA}_{i,t}$, and then group the countries into three equally sized, and equally weighted, portfolios (P_1, P_2, and P_3). HML weights equal P_3 weights and the negative of P_1 weights (countries in P_2 thus receive zero weight in the HML portfolio):

$$w_{i,t}^{hml} = \begin{cases} -1/N_{P_1,t} & \text{if country } i \text{ is in } P_1 \text{ at time } t, \\ 1/N_{P_3,t} & \text{if country } i \text{ is in } P_3 \text{ at time } t, \\ 0 & \text{if country } i \text{ is in } P_2 \text{ at time } t, \end{cases}$$

where $N_{P_1,t}$ and $N_{P_3,t}$ are the number of countries in P_1 and P_3 in month t. The approach therefore assigns weight to the extremes of the distribution but does not allocate higher or lower weights *within* a portfolio. The linear approach, in contrast, assigns weights to all eligible countries in direct proportion to $\widetilde{MA}_{i,t}$:

$$w_{i,t}^{lin} = c_t^{lin} \left(\widetilde{MA}_{i,t} - \mu_t^{lin} \right),$$

where $\mu_t^{lin} = N_t^{-1} \Sigma_{i=1}^{N_t} \widetilde{MA}_{i,t}$ denotes the cross-sectional average of the signal (across all countries, N_t) and c_t^{lin} is a scaling factor that ensures the absolute sum of weights equals two (i.e., $c_t^{lin} = 2/\sum_i |MA_{i,t} - \mu_t^{lin}|$), since the portfolio is long and short one dollar. Signals above the cross-sectional mean receive positive portfolio weights, while signals below the mean receive negative weights. The rank approach is similar, with weight assigned to countries in direct proportion to their cross-sectional *ranking* when sorted by $\widetilde{MA}_{i,t}$, such that:

$$w_{i,t}^{rnk} = c_t^{rnk} \left(\text{rank}(\widetilde{MA}_{i,t}) - \mu_t^{rnk} \right),$$

[25] Forming portfolios to explore return predictability is a common approach in recent international finance studies. See, *inter alia*, Lustig and Verdelhan (2007), Lustig et al. (2011), Verdelhan (2018), and Colacito et al. (2020).

where $\mu_t^{rnk} = N_t^{-1} \sum_{i=1}^{N_t} \text{rank}(\widetilde{MA}_{i,t})$ denotes the cross-sectional average of the signal and the scaling factor c_t^{rnk} is analogous to that in the linear approach.

Empirical results. Portfolio returns and associated summary statistics are reported in Table 4. In the first three columns we report statistics for the tercile portfolios (P_1, P_2, and P_3). Under the null hypothesis of no return predictability, the average returns equal zero. Instead, we observe a monotonically increasing pattern in the average returns that is consistent with the prediction that improving (deteriorating) fundamentals translate into a currency appreciation (depreciation). Countries experiencing the lowest values of $\widetilde{MA}_{i,t}$ (i.e., P_1 currencies) generate, on average, a negative annualized currency excess return over the following month of -0.89% while, in contrast, P_3 countries earn a positive and highly statistically significant annualized currency return of 3.71%.[26]

The next three columns report statistics for the portfolios constructed using HML, linear, and rank weights. The HML portfolio has a positive average annualized return of 4.59% and a Sharpe ratio of 0.85. We find similar results for the linear and rank portfolios. In both cases the currency excess returns are positive, t-statistics are over 3.50, and the associated Sharpe ratios are 0.73 and 0.76, respectively.[27] In Fig. 3, we plot the cumulative returns of the three portfolios. The returns increase steadily over time, are not driven by outliers, and have remained high following the GFC—in contrast to currency carry, value, and momentum signals, which have lost predictive power post-2008 (see, e.g. Ranaldo and Somogyi, 2021).

In the final two rows of Table 4, we report the decomposition of the average returns between the foreign exchange rate (fx) and forward premium (fp) components. Crucially, we find the HML, linear, and rank portfolios all generate positive exchange rate returns, which account for around two-thirds of their total average return. The M&A signals can therefore be viewed, consistent with the present-value model of exchange rates, as providing a source of exchange rate return predictability. Turning to the tercile portfolios, we find that P_1 currencies *depreciate*, on average, by 2.44% over the following month (annualized), while P_3 currencies *appreciate*, on average, by 0.84% over the following month (annualized). We probe this exchange rate return predictability further in the next section.

[26] All three portfolios exhibit similar levels of volatility, skewness, and kurtosis, suggesting that the differences in returns are unlikely to be driven by compensation for exposure to higher levels of volatility, downside risk, or excess kurtosis.

[27] The average correlation among the returns of the three cross-border M&A portfolios is 93%.

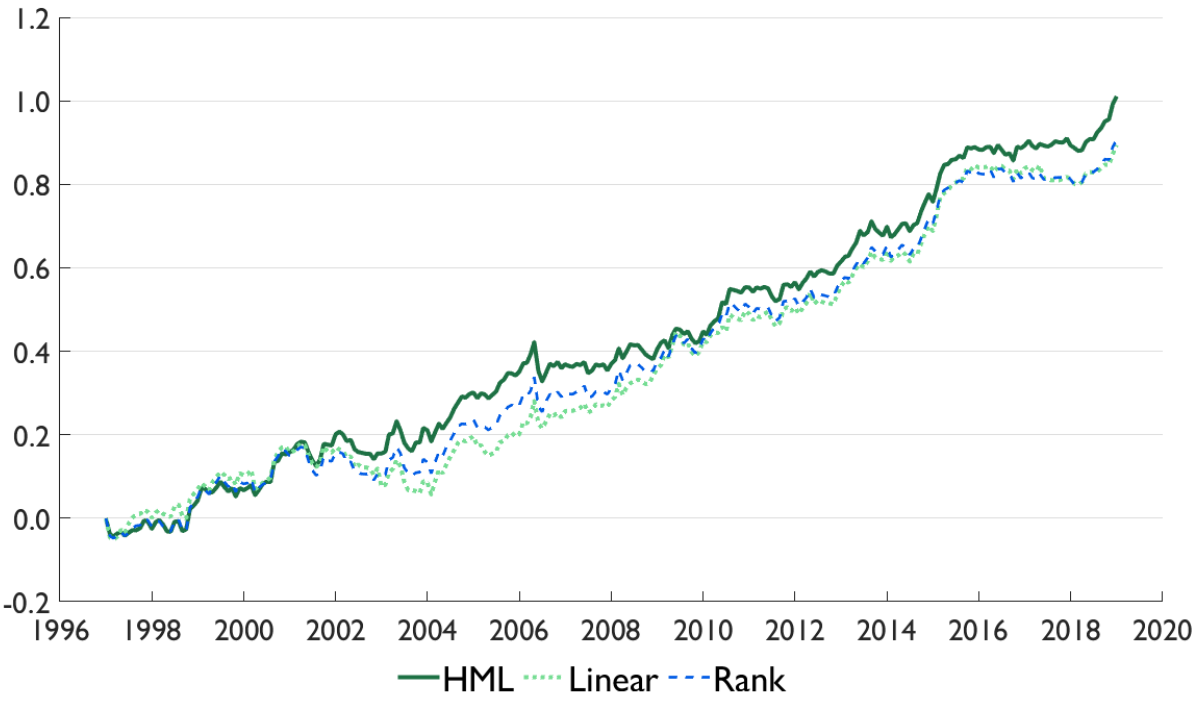

Fig 3. Cumulative Returns of Cross-Border M&A Portfolios. The figure plots the cumulative monthly returns of the three cross-border M&A currency portfolios. The three portfolios include HML (solid line), linear (dotted line), and rank (dashed line). The returns begin in January 1997 and end in December 2018.

In the final two columns, we report the performance of the rank portfolio when limiting the sample to only developed market (Rank_{DM}) or emerging market (Rank_{EM}) currencies.[28] Though more than 85% of the announced cross-border M&A deals in our sample are with developed market firms, our finding is not limited to developed-market currencies. In both cases the average currency excess return and exchange rate return are positive and the Sharpe ratios remain high, albeit slightly lower than those observed in the full sample.

4.4 The source of exchange rate return predictability

Previously, we saw that the predictability of economic accelerations was driven by M&A outflows. This raises a natural question: is exchange rate predictability also principally linked to outflows, and thus to the acquisition decisions of *domestic* firms? To address the question, we first reclassify countries within the P_1 and P_3 portfolios by determining whether a P_1 (P_3) country has unusually "more" ("less") outflows.

[28] We find similar performance for developed and emerging market currencies for the HML and linear portfolios (see Internet Appendix Table A.2).

To be precise, if country i is allocated to P_1 at time t, we denote it as "more" if $|Out_{i,t} - \mu_{Out_{i,t}}| - |In_{i,t} - \mu_{In_{i,t}}| > 0$ and as "less" otherwise. The variables $\mu_{Out_{i,t}}$ and $\mu_{In_{i,t}}$ denote the average number of cross-border M&A outflows and inflows for country i over the prior 36-months. A positive value indicates prevalence of abnormally "more" foreign acquisitions by domestic firms in country i, while a negative value indicates that "less" than usual acquisitions by foreign firms dominate. Likewise, if country i is allocated to P_3 at time t, we define it as "more" if $|In_{i,t} - \mu_{In_{i,t}}| - |Out_{i,t} - \mu_{Out_{i,t}}| > 0$ and as "less" otherwise. Across the 264 months, the average percentage of P_1 and P_3 currencies being classified as "more" is 60% and 82%, respectively, compared to the percentage of "less" averaging 29% and 13%. This result essentially confirms that a high $\widetilde{MA}_{i,t}$ (a P_3 country) is typically driven by high inflows, while a low $\widetilde{MA}_{i,t}$ (a P_1 country) is usually driven by high outflows.

In Table 5, we report the returns and summary statistics for the "more" and "less" portfolios. We find the mean return is high (4.38%) and statistically significant at the 1% level for the "more" portfolio but is lower and statistical insignificant for the "less" portfolio (2.07%). The lack of statistical significance for the "less" portfolio is, in part, because of reduced power from fewer observations. As we only keep months for which at least one country enters both P_1 and P_3, 189 of the 264 monthly returns are dropped for the "less" portfolio, but only 11 returns are dropped for the "more" portfolio.

Interestingly, and reinforcing the insights obtained from Table 3, we find that the exchange rate return predictability is driven *entirely* by the acquisition decisions of *domestic* firms. The annualized monthly foreign exchange return of P_1 countries in the "more" portfolio (i.e., countries whose domestic firms are making *more* foreign acquisitions than normal) is -2.66%, while the equivalent return for countries entering P_3 in the "less" portfolio (i.e., countries whose domestic firms are acquiring *less* foreign firms than usual) is 3.94%. In contrast, the analogous results for P_1 of the "less" portfolio and P_3 of the "more" portfolio, in which acquisition decisions are driven by foreign firms, are only -0.12% and -0.03%. The results therefore support the conclusion that information in abnormal cross-border M&A *outflows* is the principal driver of the predictability we observe for both economic acceleration and exchange rate returns.

4.5 A novel source of currency return predictability?

A key question is whether the predictive information we uncover mimics previously identified sources of return predictability. There is reason to believe this may be true. For example, Erel et al. (2012) show that an exchange rate depreciation attracts foreign cross-border M&A inflows, since it makes domestic firms relatively cheaper. Similarly, acquiring firms may be thought to be reacting to currently strong economic conditions and thus buying within an already fast growing economy. These motives would be captured by other, previously identified, sources of currency return predictability including currency value (Asness et al., 2013; Menkhoff et al., 2017), currency momentum (Menkhoff et al., 2012; Asness et al., 2013), and economic momentum (Dahlquist and Hasseltoft, 2020).

However, if the returns of the cross-border M&A portfolios are uncorrelated with the returns of other portfolios that exploit these alternative sources of return predictability, then it would suggest that the announcements of cross-border M&A deals *do* provide a novel source of return predictability. In the interest of space, we restrict attention to the cross-border M&A portfolio constructed using rank weights given their conceptually appealing features (see Dahlquist and Hasseltoft, 2020), but find qualitatively identical results when using the portfolios constructed using either HML or linear weights. We begin by describing the other sources of currency return predictability, before investigating their relationship with the cross-border M&A portfolio.

4.5.1 Other sources of currency return predictability

We construct portfolios, following recent studies, that exploit novel signals of currency return predictability. The start and end dates are aligned with the cross-border M&A portfolio to begin in January 1997 and end in December 2018. The portfolios are rebalanced monthly and have zero net cost. Except where noted otherwise, currencies are assigned rank weights for comparability with the cross-border M&A portfolio. The portfolios include:

1. **Dollar.** Equally weighted long position in all currencies against the US dollar. The portfolio has been shown to offer a small positive return, on average, that could account for the special role of the US dollar in the international monetary system (Maggiori, 2017). It is also the main currency factor (i.e., the market factor) explaining bilateral foreign exchange returns (Verdelhan, 2018).

2. **Carry.** Buys currencies that are trading at the largest forward discount (i.e., highest interest rate) and sells currencies trading at a forward premium (Lustig et al., 2011).

3. **Momentum.** Buys "winner" currencies and sells "loser" currencies. We follow the approach of Asness et al. (2013), and calculate momentum over a 12-month period, implementing the portfolio using a 1-month formation period.

4. **Value.** Buys "undervalued" currencies and sells "overvalued" currencies. We follow Asness et al. (2013) and calculate currency value as the difference between the 60-month inflation differential and the FX return over the same period.

5. **Dollar-Carry.** Either entirely long or short the US dollar against other currencies, conditional on the average forward discount against the US dollar (Lustig et al., 2014).

6/7. **Macroeconomic and inflation growth momentum.** Buys (sells) currencies issued by countries with the strongest (weakest) macroeconomic growth and inflation momentum. The two strategies are constructed following Dahlquist and Hasseltoft (2020).

The investment performance of the portfolios is presented in Internet Appendix Table A.3. We find that each portfolio generates a positive return, with associated Sharpe ratios ranging from 0.16 (dollar) to 0.83 (carry). Unlike the cross-border M&A portfolio, we find that the currency portfolios are rarely driven by exchange rate return predictability: only dollar-carry and macroeconomic momentum generate positive FX returns, the other portfolios generate positive returns because of investing in higher interest-rate currencies than used to fund the long positions.

4.5.2 Comparing sources of currency return predictability

We test if the return predictability that we previously documented is subsumed by the other sources of currency return predictability in two ways. First, we estimate ordinary-least-squares regressions in which we regress the cross-border M&A portfolio's returns, $R^p_{M\&A,t} = \sum_{t=1}^{T}(w^{rnk}_{i,t-1})' R_{i,t}$, on a constant and the returns of all newly constructed portfolios:

$$R^p_{M\&A,t} = \alpha + \sum_k \beta_k R^p_{k,t} + \varepsilon_t, \tag{12}$$

where k indexes the newly constructed portfolios and α reflects the component of the returns that is not explained by the model. The results are presented in Table 6. In the first column

we report results for all currencies, while equivalent results for developed- and emerging-market currencies are reported in the second and third columns. The key finding is that the estimates of α are positive and highly statistically significant (at the 1% significance level). For the portfolio constructed using all currencies, the constant equals 3.71% and is thus similar to the total return of 4.12% reported in Table 4—indicating that virtually none of the variation in the M&A portfolio's returns is explained by the other sources of return predictability. The low adjusted-R^2 statistics, between 2% and 4%, further reinforce this finding.

Our second test investigates more directly, via predictive panel regressions, whether the rank weights of the M&A portfolio predict exchange rate and currency returns after controlling for the other sources of currency return predictability. Specifically, we regress one-month currency and foreign exchange returns on the rank weights of the cross-border M&A portfolio and all newly constructed portfolios:[29]

$$\begin{aligned} R_{i,t+1} &= \alpha + \beta w^{rnk}_{M\&A,i,t} + \sum_k \gamma_k w^{rnk}_{k,i,t} + \tau_{t+1} + \varepsilon_{t+1} \\ R^{fx}_{i,t+1} &= \alpha + \beta w^{rnk}_{M\&A,i,t} + \sum_k \gamma_k w^{rnk}_{k,i,t} + \tau_{t+1} + \varepsilon_{t+1}, \end{aligned} \tag{13}$$

where $R_{i,t+1}$ is the currency return defined in Equation (**9**) and $R^{fx}_{i,t+1}$ is the exchange rate return, equal to $(S_{i,t+1} - S_{i,t})/S_{i,t}$. We anticipate that the β coefficient is positive in both cases, since higher $\widetilde{MA}_{i,t}$ implies higher exchange rate and currency returns. The key question is whether the coefficient continues to be statistically different from zero after controlling for the other sources of return predictability.

We report results in Table 7. The coefficients reflect monthly returns (in percentage points) following a rank weight of unity. We find the coefficients on the cross-border M&A portfolio are positive and statistically significant at the 1% level in both cases. Moreover, the coefficient estimates (0.64% and 0.66%) are similar, consistent with the return predictability stemming from the exchange rate component. This contrasts with the carry portfolio that displays a positive relationship with currency returns but a negative relationship with exchange rate returns. Surprisingly, of the newly constructed portfolios, only the carry rank weights display a statistically significant relationship with either exchange rate or currency returns.

[29] We do not obtain rank weights for dollar or dollar-carry but include time fixed effects (τ_t) to control for common dollar movements. The economic and inflation trend portfolios are calculated as in Dahlquist and Hasseltoft (2020). In doing so, rank weights for these portfolios are obtained across all lookback horizons (ranging from one to 60 months), but for the purposes of this test we use the 12-month rank weights.

We conclude that information contained in the announcements of cross-border M&A deals provides a novel source of predictability of exchange rate and currency returns. The results also suggest that the announcements may provide a beneficial source of diversification gains to currency investors, which we now investigate.

4.5.3 Diversification gains

We investigate diversification gains by analyzing the performance of currency portfolios that incrementally introduce the different sources of currency return predictability. We view diversification gains as arising from information contained in the announcements of cross-border M&A deals, if the addition of the cross-border M&A portfolio increases the broader portfolio's Sharpe ratio. Results from diversification tests are presented in Table 8.

Broad currency portfolios. In Panel A, we present the Sharpe ratios of optimal mean-variance portfolios that exclude the cross-border M&A portfolio. The portfolios are optimized by minimizing the variance at target expected returns varying between 3.50% and 5.50% (increasing in 25 basis points increments). We consider three broad portfolios (BP_1, BP_2, and BP_3) that differ by their investment universe. The first portfolio is limited to only dollar and carry, which are widely viewed as the main return-based factors determining currency returns (see, e.g. Verdelhan, 2018). Sharpe ratios vary between 0.71 and 0.84, increasing as weight is shifted towards carry. The second portfolio expands the investment universe to include value and momentum. At higher target returns, carry is allocated an increasingly higher weight, but at lower returns the diversification gains from including value and momentum are larger—increasing the Sharpe ratio to over 0.90. The third portfolio further expands the investment universe to include dollar-carry, macroeconomic growth, and inflation momentum. Further investment gains are achieved and the Sharpe ratio increases to 1.17, although the Sharpe ratios of BP_3 are only statistically higher than those of BP_2 at lower target returns.[30]

Inclusion of the cross-border M&A portfolio. In Panel B, we present the equivalent results when the cross-border M&A portfolio is added to the investment universe (BP_1^+, BP_2^+, and BP_3^+). In Panel C, we report the corresponding optimal weights allocated to the M&A

[30]The p-values in the table are based on the Ledoit and Wolf (2008) test for the difference between two Sharpe ratios. The null hypothesis is that the Sharpe ratios are the same. We thank Michael Wolf for making code available on his website.

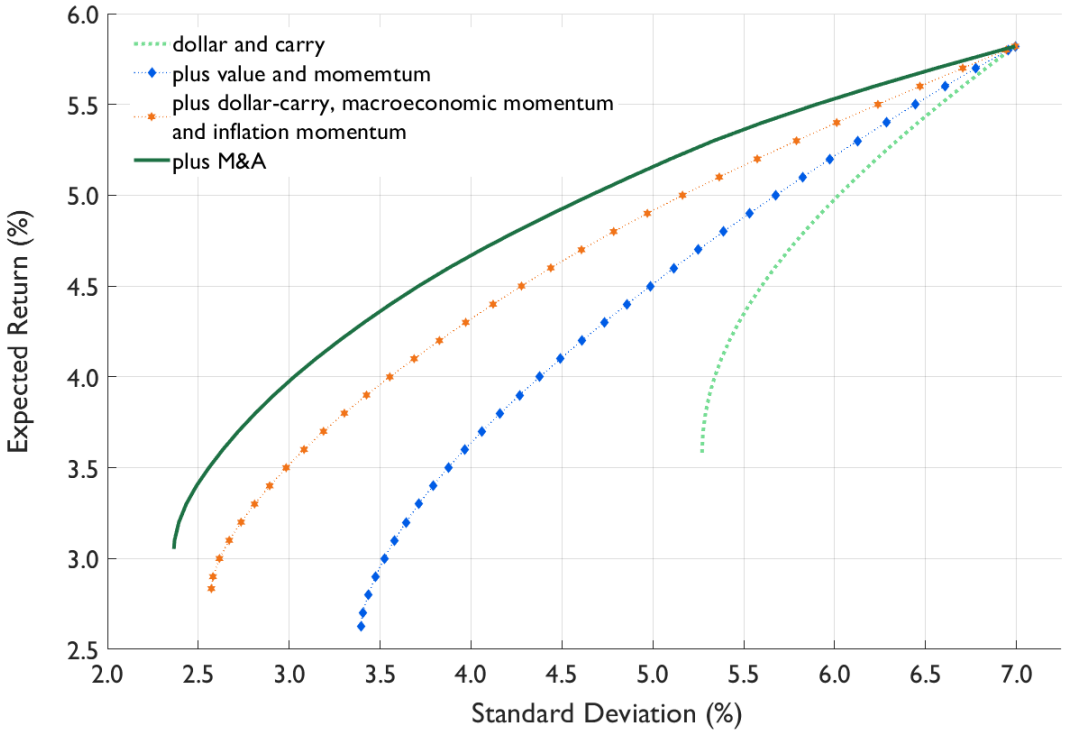

Fig 4. Efficient Frontiers. The figure plots a series of efficient frontiers for various sets of currency portfolios. The dotted line is the efficient frontier when limiting the investment space to only dollar and carry. We add value and momentum (dotted line with diamond markers, four portfolios), dollar-carry, macroeconomic momentum, and inflation momentum (dashed line with star markers, seven portfolios), and the cross-border M&A portfolio (solid line, eight portfolios). The average return vector and covariance matrix are estimated using the full sample of returns from January 1997 to December 2018.

portfolio ($\omega_{BP_1^+}$, $\omega_{BP_2^+}$, and $\omega_{BP_3^+}$). We find that the addition of the cross-border M&A portfolio leads to economically large increases in the Sharpe ratio, ranging between 14% and 28%, while the third portfolio (BP_3^+) *always* generates a statistically higher Sharpe ratio than the second (BP_2), increasing to over 1.30 for target returns between 3.5% and 4.0%. To achieve these sizeable diversification gains, an economically large portfolio weight is allocated to the cross-border M&A portfolio of around 33%. Fig. 4 plots the evolution of the efficient frontiers as the investment universe is expanded from the dollar and carry portfolios to include all source of currency return predictability. The figure shows that the cross-border M&A portfolio expands the efficient frontier, even after all other sources of return predictability are available for investment—reaffirming the conclusion that information contained in the announcements of cross-border M&A deals can provide a beneficial source of diversification gains.

5 Further Analyses

In this section we address various ancillary questions. The questions either help to reveal new insights into the core results or serve as robustness against alternative hypotheses. We start by studying the persistence of the currency returns before discussing and investigating an alternative "transaction" hypothesis. We then explore if our core findings could have occurred by chance and test whether transaction costs eliminate the economic benefits from currency return predictability.

5.1 Permanent or transitory shocks?

Central to our interpretation of return predictability is that it is driven by changing expectations of macroeconomic fundamentals. If true, the subsequent returns should be permanent, rather than a transitory (e.g., liquidity) shock.[31] To study the permanence of the returns, we calculate the average cumulative returns of the rank-weight M&A portfolio in the 24-months following portfolio formation (rather than only during the first month, as reported in Table 4).

In Fig. 5, we plot the average cumulative returns, plus one- and two-standard-error bounds. The returns can be seen to increase steadily during the first 18-months following portfolio formation. After which, the returns diminish and the curve flattens. The result supports the claim that information relating to economic fundamentals, rather than liquidity needs, drives the return predictability. The finding has implications for policy makers interested in understanding whether capital flows are likely to have a permanent or short-lived impact on the currency. Moreover, we see a pronounced currency return *drift* following the announcements. While we cannot rule out alternative explanations, the return drift is consistent with stronger (weaker) macroeconomic fundamentals leading to contractionary (expansionary) monetary policy and a prolonged exchange rate appreciation (depreciation) as is predicted by a Taylor (1993) rule reaction function. This type of exchange rate reaction is also inherent within models of delayed overshooting, such as Eichenbaum and Evans (1995) and Bacchetta and van Wincoop (2010).[32]

[31] Analogous is the study of order flow, when assessing whether customer orders contain fundamental information (see, e.g. Hasbrouck, 1991a,b; Menkhoff et al., 2016; Ranaldo and Somogyi, 2021).

[32] Molodtsova et al. (2008) and Molodtsova and Papell (2009) find evidence of time-series forecastability arising from Taylor-rule variables. Indeed, Rossi (2013) summarizes that Taylor-rule variables, along with net foreign assets, have the most success in predicting exchange rate returns.

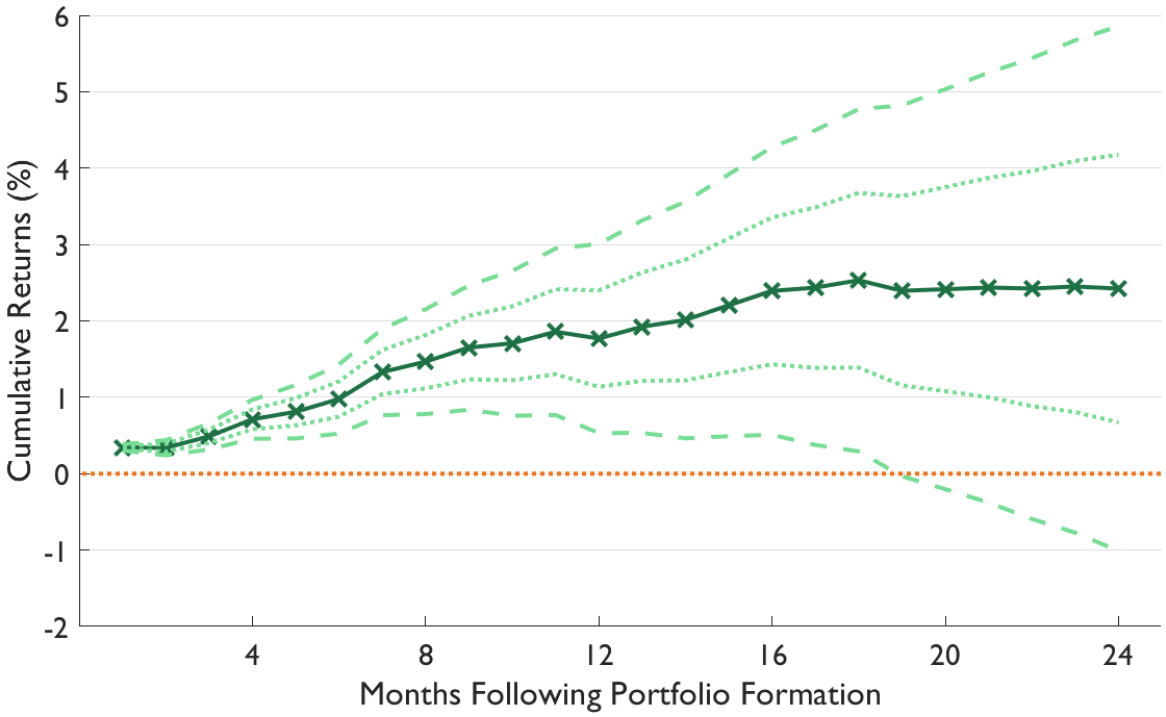

Fig 5. Persistence of the Cross-Border M&A Portfolio Returns. The figure plots the average cumulative returns to the rank-weight M&A portfolio in the months following portfolio formation. One and two standard error bounds are plotted as dotted and dashed lines, respectively. The sample includes the US and 40 developed and emerging market countries. The average returns are calculated using realized monthly M&A portfolio returns from January 1997 to December 2018.

5.2 The "transaction" hypothesis

The announcement of cross-border M&A deals can plausibly contain information about future FX order flow, providing the transactions will be: (i) completed, and (ii) paid for (at least in part) using cash. M&A deals with large dollar values may therefore impact foreign exchange rates because market participants front-run these FX transactions. There are, at least, four reasons this explanation is unlikely to drive our results. First, the announcement dates do not provide precise guidance to the *completion* date, and thus the timing of the future FX transaction is unknown. Second, cross-border M&A is subject to stringent regulations and government interventions—it is thus uncertain whether an M&A deal will ultimately be completed, presenting large risks to perspective front-runners. Third, announced deals do not necessarily result in an FX transaction if it is financed using stock and, in many cases, the payment type is unknown. Fourth, the spot price impact is unlikely to be permanent, as documented in Section 5.1, since the return would reflect a transitory shock.

If the transaction hypothesis does, however, account for the currency return predictability we observe, then we expect the results of our analysis to be *stronger* when forming signals using the *dollar value*, rather than the *number* of announced cross-border M&A deals. Moreover, the predictability should disappear if the analysis is conducted using only deals *without* information about the payment type (around one-third of the deals). We test both hypotheses using the prior portfolio approach and present results in Table 9. When forming portfolios using dollar values (Panel A), the total return drops from 4.12% to 2.66% and the Sharpe ratio falls to 0.54, indicating that a predictive signal is still observed, but it is *not* stronger.

On the second test (Panel B), we find the returns continue to remain statistically significant and the Sharpe ratio is over 0.50, rejecting the hypothesis of no return predictability for deals with missing information about the payment type. In sum, neither conceptually nor after the additional empirical tests do we view the alternative "transaction" hypothesis as a likely driver of the main empirical findings.

5.3 Bootstrap simulations of M&A portfolio returns

A potential concern is that the literature may have been *too* successful in its pursuit of currency return predictability, given the growing number of signals found to predict currency returns in cross-sectional studies. Indeed, standard statistical tests may over-reject the null hypothesis of no predictability (see, e.g. Harvey et al., 2016). We address this concern by conducting a bootstrap simulation, in which we randomly assign cross-border M&A signals to countries, drawn with replacement from their own vector of observed signals. We generate 10,000 samples and calculate bootstrapped statistics for the rank-weight cross-border M&A portfolio. If the average return of the rank-weight portfolio, documented in Table 4, is *not* different from the average return of the bootstrapped portfolios, then we cannot confidently claim to have uncovered a new source of return predictability. We provide full details of the bootstrap procedure in Internet Appendix Section B.

In Fig. 6, we plot the distributions of the average returns, t-statistics, and Sharpe ratios of the bootstrapped portfolios, overlaid with a normal distribution fit. We find the statistics for the observed rank-weight portfolio are always clear outliers—only a small handful of randomly assigned weights generate equivalent currency return predictability. The p-values are therefore low (below 0.001 in each case), and the average annualized return and Sharpe ratio of the

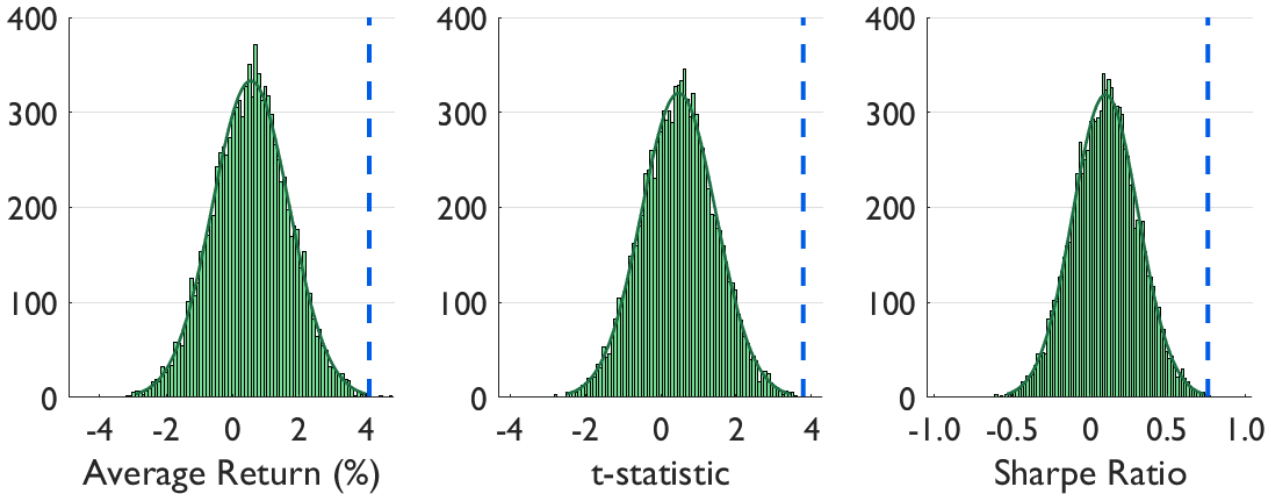

Fig 6. Bootstrapped Distributions with Normal Distribution Fit. The figure plots the histograms of average returns, t-statistics, and Sharpe ratios, calculated using 10,000 bootstrapped samples. The corresponding values for the observed rank-weight M&A portfolio are plotted as dashed lines. A normal distribution fit is overlaid in each sub-figure.

simulated portfolios are only 0.55% and 0.10, compared with 4.12% and 0.76 documented in Table 4. In sum, the announcements of cross-border M&A deals continue to display an economically and statistically informative signal about future currency returns.

5.4 Transaction costs

It is important to ask if the economic benefits from return predictability survive the inclusion of transaction costs. Incorporating transaction costs in currency market studies involves certain complications. The spreads on foreign exchange rates obtained from WM/Reuters are, for example, widely viewed as being larger than the actual spreads paid in financial markets—especially on smaller sized trades (see, e.g. Gilmore and Hayashi, 2011; Melvin et al., 2020). It has thus become common practice to adopt a scaling of spreads, with a 50% rule being adopted in multiple studies (e.g. Menkhoff et al., 2012; Colacito et al., 2020). Even this rule has been found to be too conservative in recent years, during which a 25% scaling has been found to be more appropriate (Cespa et al., 2021). We apply the more conservative 50% scaling and present the results from incorporating transaction costs in Internet Appendix Table A.4. The Sharpe ratios of the cross-border M&A portfolios decline from 0.85, 0.73, and 0.76 for the HML, linear, and rank portfolios, to 0.67, 0.56, and 0.59, respectively. We view this performance as still highly attractive and in line with the performance of leading currency strategies, including the currency carry trade. Therefore, the inclusion of transaction costs—especially for smaller sized

trades—does not change the conclusion that information contained in the announcements of cross-border M&A deals provides an economically, as well as statistically, valuable source of currency return predictability.

6 Conclusions

We uncover a novel source of predictive information, originating from the announcements of cross-border M&As, that forecasts economic acceleration and currency returns. Consistent with the announcements revealing firms' private expectations about economic fundamentals, we find that a country's economic growth accelerates, and their local currency appreciates, following months in which their announced cross-border M&A net *inflows* are abnormally high; while the opposite outcomes are observed following abnormally high M&A net *outflows*. The predictability captures reversals in economic acceleration, is driven by the acquisition decisions of domestic firms, and is not subsumed by publicly available predictors. The results suggest that firms reveal private information about future macroeconomic fundamentals outside of their FX trading.

The paper contributes to a growing literature investigating ties between economic fundamentals and FX returns, and provides new insights into how private information may be revealed and incorporated into exchange rates—connecting to the broader study of asymmetric information and the determination of exchange rates. The results also have broad practical implications: For policy makers, the findings provide a way to identify informed capital flows that have a permanent exchange rate impact, while for global investors, the predictability can be used to construct a portfolio that has generated impressive investment returns over a 20-year period and offered a source of large diversification gains.

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Table 1: Summary Statistics

Country	N	%Acq	%Tar	#Days	Country	N	%Acq	%Tar	#Days
Argentina	264	6	94	35	Israel	688	44	56	13
Australia	1,813	44	56	5	Italy	471	29	71	19
Austria	78	36	64	116	Japan	1,175	66	34	8
Belgium	241	39	61	40	Latvia	15	0	100	515
Brazil	504	11	89	18	Lithuania	18	0	100	299
Chile	168	9	91	54	Netherlands	661	44	56	14
Colombia	92	16	84	107	New Zealand	190	28	72	49
Czech Republic	67	0	100	133	Norway	286	37	63	32
Denmark	194	41	59	47	Poland	120	11	89	74
Estonia	16	0	100	558	Portugal	37	19	81	246
Euro Area	5,518	40	60	2	Russian Fed	141	36	64	63
Finland	160	53	48	57	Slovak Rep	13	0	100	361
France	1,265	40	60	7	Slovenia	12	0	100	601
Germany	1,367	37	63	7	South Africa	153	39	61	59
Greece	50	36	64	190	South Korea	634	44	56	14
Hungary	59	12	88	154	Spain	545	32	68	17
Iceland	19	74	26	348	Sweden	488	48	52	19
India	1,127	28	72	8	Switzerland	539	62	38	17
Indonesia	67	7	93	136	Turkey	75	19	81	124
Ireland	501	54	46	18	United Kingdom	5,489	51	49	2
Developed	21,669	45	55	8	Emerging	3,651	24	76	48

The table presents summary statistics on cross-border M&A deals announced between January 1994 and November 2018, across 40 developed and emerging market countries vis-à-vis the United States. For each country, we report the aggregate number of deals (N), the percentage of deals in which the country is the acquiror (%Acq), the percentage of deals in which the country is the target (%Tar), and the average number of days between two consecutive deals being announced (#Days).

Table 2: Forecasting Economic Acceleration

	Dep: $\Delta g_{i,t+12}$		**Dep:** $\Delta g_{i,t+24}$		**Dep:** $\Delta g_{i,t+36}$		**Dep:** $\Delta g_{i,t+48}$		**Dep:** $\Delta g_{i,t+60}$	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
$\widetilde{MA}$	0.082	0.111	0.147**	0.179**	0.238***	0.273***	0.335***	0.409***	0.396***	0.451***
	(0.066)	(0.068)	(0.075)	(0.079)	(0.079)	(0.086)	(0.088)	(0.095)	(0.090)	(0.089)
CLI	–0.893***		–1.575***		–1.715***		–2.002***		–1.585***	
	(0.098)		(0.104)		(0.105)		(0.122)		(0.124)	
Dividend yield		0.139		0.098		–0.022		0.021		0.349
		(0.213)		(0.221)		(0.238)		(0.250)		(0.256)
Stock return		0.031		0.015		0.021		0.009		0.000
		(0.031)		(0.032)		(0.034)		(0.037)		(0.033)
Term spread		0.023		0.465**		0.584***		0.530***		1.271***
		(0.195)		(0.195)		(0.221)		(0.222)		(0.210)
Short rate		–0.438***		–0.173		0.205		0.452***		0.986***
		(0.140)		(0.144)		(0.182)		(0.174)		(0.165)
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	2,693	2,386	2,571	2,278	2,439	2,161	2,313	2,055	2,185	1,947
Adj. R^2	0.45	0.47	0.52	0.53	0.49	0.47	0.49	0.46	0.52	0.54

The table presents coefficient estimates from panel regressions of changes in economic growth (i.e., economic acceleration), $\Delta g_{i,t+s}$, for $s = 12, 24, 36, 48$ and 60, on the level of abnormal cross-border M&A activity ($\widetilde{MA}_{i,t}$):

$$\Delta g_{i,t+s} = \alpha_i + \beta \widetilde{MA}_{i,t} + \gamma' X_{i,t} + \kappa_i + \lambda_{t+s} + \varepsilon_{i,t+s},$$

where $X_{i,t}$ denotes control variables that include composite leading indicators (*CLIs*), dividend yields, local stock market returns, term spreads, and short-term interest rates. Country and time fixed effects (κ_i and λ_{t+s}) are included in all regressions. Robust standard errors are double clustered at the country-month level and reported in parentheses. The number of observations (*Obs*) and adjusted R-square statistics (*Adj.* R^2) are reported in the final two rows. Superscripts ***, ** and * denote significance of the coefficients at the 1%, 5% and 10% level, respectively. The sample includes the United States and 40 developed and emerging market countries. The data is monthly, beginning in December 1996 and ending in November 2018.

Table 3: Forecasting Economic Acceleration: Inflows and Outflows

	Dep: $\Delta g_{i,t+12}$		**Dep:** $\Delta g_{i,t+24}$		**Dep:** $\Delta g_{i,t+36}$		**Dep:** $\Delta g_{i,t+48}$		**Dep:** $\Delta g_{i,t+60}$	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
$\widetilde{MA}^{in}$	–0.135	-0.164	–0.143	–0.100	0.036	0.019	0.295**	0.335**	0.530***	0.655***
	(0.099)	(0.104)	(0.107)	(0.113)	(0.113)	(0.127)	(0.122)	(0.132)	(0.127)	(0.130)
$\widetilde{MA}^{out}$	–0.264***	–0.294***	–0.499***	–0.454***	–0.532***	–0.588***	–0.434***	–0.522***	–0.267*	–0.234*
	(0.098)	(0.099)	(0.119)	(0.124)	(0.127)	(0.134)	(0.141)	(0.150)	(0.142)	(0.141)
CLI	–0.885***		–1.557***		–1.700***		–2.002***		–1.598***	
	(0.099)		(0.104)		(0.106)		(0.122)		(0.124)	
Dividend yield		0.132		0.090		–0.030		0.015		0.340
		(0.212)		(0.220)		(0.237)		(0.250)		(0.257)
Stock return		0.031		0.014		0.021		0.009		0.001
		(0.031)		(0.032)		(0.034)		(0.037)		(0.034)
Term spread		–0.005		0.432**		0.552**		0.520**		1.301***
		(0.192)		(0.194)		(0.219)		(0.222)		(0.212)
Short rate		–0.433***		–0.164		0.215		0.453***		0.973***
		(0.138)		(0.143)		(0.180)		(0.174)		(0.165)
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	2,693	2,386	2,571	2,278	2,439	2,161	2,313	2,055	2,185	1,947
Adj. R^2	0.45	0.47	0.52	0.53	0.50	0.48	0.49	0.46	0.52	0.54

The table presents coefficient estimates from panel regressions of changes in economic growth (i.e., economic acceleration), $\Delta g_{i,t+s}$, for $s = 12, 24, 36, 48$ and 60, on the level of abnormal cross-border M&A activity constructed using either inflows ($\widetilde{MA}^{in}_{i,t}$) or outflows ($\widetilde{MA}^{out}_{i,t}$):

$$\Delta g_{i,t+s} = \alpha_i + \beta_1 \widetilde{MA}^{in}_{i,t} + \beta_2 \widetilde{MA}^{out}_{i,t} + \gamma' X_{i,t} + \kappa_i + \lambda_{t+s} + \varepsilon_{i,t+s},$$

where $X_{i,t}$ denotes control variables that include composite leading indicators (*CLIs*), dividend yields, local stock market returns, term spreads, and short-term interest rates. Country and time fixed effects (κ_i and λ_{t+s}) are included in all regressions. Robust standard errors are double clustered at the country-month level and reported in parentheses. The number of observations (*Obs*) and adjusted R-square statistics (*Adj.* R^2) are reported in the final two rows. Superscripts ***, ** and * denote significance of the coefficients at the 1%, 5% and 10% level, respectively. The sample includes the United States and 40 developed and emerging market countries. The data is monthly, beginning in December 1996 and ending in November 2018.

Table 4: Cross-Border M&A Portfolios and Currency Return Predictability

	$\mathbf{P_1}$	$\mathbf{P_2}$	$\mathbf{P_3}$	**HML**	**Linear**	**Rank**	$\mathbf{Rank_{DM}}$	$\mathbf{Rank_{EM}}$
mean (%)	–0.89	0.58	3.71	4.59	4.06	4.12	3.01	5.53
t-stat	–0.45	0.33	2.03	4.17	3.61	3.79	2.48	3.24
std (%)	8.07	7.64	8.14	5.43	5.59	5.44	5.65	8.30
SR	–0.11	0.08	0.46	0.85	0.73	0.76	0.53	0.67
skew	–0.22	–0.16	–0.14	–0.19	–0.28	–0.31	0.35	–0.12
kurt	4.32	4.42	4.18	4.34	3.82	4.74	3.92	4.43
ar(1)	0.10	0.04	0.08	0.05	0.02	0.02	0.09	–0.05
mdd (%)	37.1	29.4	15.2	6.62	10.4	6.79	9.34	11.2
fx (%)	–2.44	–0.60	0.84	3.27	2.60	2.88	2.67	4.54
fp (%)	1.55	1.18	2.87	1.32	1.46	1.24	0.34	0.99

The table presents statistics on cross-border merger and acquisition portfolios. Statistics include the average annualized (*mean*) return and associated t-statistic, calculated using Newey and West (1987) standard errors; annualized standard deviation (*std*); Sharpe ratio (*SR*); skewness (*skew*); kurtosis (*kurt*); first-order autocorrelation coefficient (*ar(1)*); and maximum drawdown (*mdd*). The final two rows record the decomposition of the average return between the spot (*fx*) and forward premium (*fp*) components. P_1, P_2, and P_3 denote three portfolios sorted each month from low to high values of $\widetilde{MA}_{i,t}$. HML, *Linear*, and *Rank* denote three zero-cost cross-sectional portfolios. Further details on the portfolio weights can be found in Section 4.3. The sample includes the US and 40 developed and emerging market countries. In the final two columns are statistics for *Rank* portfolios constructed using only developed market ($Rank_{DM}$) and emerging market ($Rank_{DM}$) countries. All statistics are calculated using monthly returns from January 1997 to December 2018.

Table 5: The Sources of Currency Return Predictability

	"More" Outflows and Inflows			"Less" Inflows and Outflows		
	P_1	**P_3**	**HML**	**P_1**	**P_3**	**HML**
mean (%)	-1.14	3.24	4.38	1.99	4.06	2.07
t-stat	-0.59	1.65	2.84	0.37	1.11	0.40
SR	-0.13	0.36	0.62	0.15	0.44	0.16
fx (%)	-2.66	-0.03	2.63	-0.12	3.94	4.06
fp (%)	1.53	3.27	1.74	2.11	0.12	-1.99
$\mu_{\widetilde{MA}_{i,t}}$	-1.30	1.86		-0.96	1.25	

The table presents statistics on cross-border merger and acquisition portfolios. Statistics include the average annualized (*mean*) return and associated t-statistic, calculated using Newey and West (1987) standard errors; and the Sharpe ratio (*SR*). The final three rows record the decomposition of the average return between the spot (*fx*) and forward premium (*fp*) components and the average M&A signal of countries in P_1 and P_3 ($\mu_{\widetilde{MA}_{i,t}}$). P_1 and P_3 denote portfolios sorted each month from low to high values of $\widetilde{MA}_{i,t}$. In the left-hand panel ("More"), countries entering P_1 (P_3) experience abnormal M&A activity principally driven by unusually "more" outflows (inflows). In the right-hand panel ("Less"), countries entering P_1 (P_3) experience abnormal M&A activity principally driven by unusually "less" inflows (outflows). HML is a zero-cost cross-sectional portfolio equal to $P_3 - P_1$. Further details on the portfolio weights can be found in Sections 4.3 and 4.4. The sample includes the US and 40 developed and emerging market countries. All statistics are calculated using monthly returns from January 1997 to December 2018.

Table 6: Explaining Cross-Border M&A Portfolio Returns

	All	**DM**	**EM**
α	3.71***	3.56***	5.34***
	(1.24)	(1.29)	(2.02)
Dollar	–0.01	–0.09	0.11
	(0.06)	(0.06)	(0.13)
Carry	0.22**	0.15*	0.18
	(0.11)	(0.09)	(0.15)
Momentum	0.09	0.01	0.13**
	(0.06)	(0.07)	(0.06)
Value	0.16	0.11	–0.16
	(0.14)	(0.09)	(0.16)
$Carry_{USD}$	–0.01	0.01	–0.00
	(0.06)	(0.05)	(0.14)
$Trend_{EC}$	–0.09	–0.17	–0.18
	(0.09)	(0.11)	(0.12)
$Trend_{IN}$	–0.31	–0.32***	–0.07
	(0.20)	(0.14)	(0.23)
Obs.	264	264	264
Adj. R^2	0.023	0.031	0.034

The table presents coefficient estimates from ordinary-least-square regressions of M&A rank portfolio returns on a constant and the returns of other currency portfolios:

$$R^p_{M\&A,t} = \alpha + \sum_k \beta_k R^p_{k,t} + \varepsilon_t,$$

where k indexes the other currency portfolios, k = *Dollar*, *Carry*, ..., and α (the constant) reflects the component of the M&A portfolio returns that is not explained by variation in the other portfolios' returns. Newey and West (1987) standard errors are presented in parentheses. In the first column, the portfolios are constructed using all 40 developed and emerging market countries (*All*). In the second and third columns the portfolios are constructed using only developed market (*DM*) and emerging market (*EM*) countries. All returns are annualized prior to estimation. The number of observations (*Obs*) and adjusted R-square statistics (*Adj.* R^2) are reported in the final two rows. Superscripts ***, ** and * denote significance of the coefficients at the 1%, 5% and 10% level, respectively. The data is monthly, beginning in January 1997 and ending in December 2018.

Table 7: Currency and Exchange Rate Predictability

	Currency Return	FX Return
$w^{rnk}_{M\&A,i,t}$	0.644***	0.662***
	(0.245)	(0.247)
$w^{rnk}_{car,i,t}$	1.672**	–0.672
	(0.717)	(0.716)
$w^{rnk}_{mom,i,t}$	0.510	0.443
	(0.529)	(0.529)
$w^{rnk}_{val,i,t}$	0.921	0.735
	(0.656)	(0.657)
$w^{rnk}_{Trend_{EC},i,t}$	–0.066	0.043
	(0.455)	(0.457)
$w^{rnk}_{Trend_{IN},i,t}$	–0.790	–0.956
	(0.697)	(0.695)
Time FE	YES	YES
Obs.	2,568	2,568
Adj. R^2	0.45	0.45

The table presents coefficient estimates from predictive panel regressions of one-month currency returns (column 1) and exchange rate returns (column 2) at time t+1 on the time-t rank weights from the cross-border M&A portfolio and other currency portfolios (see Section 4.5.2 for details):

$$\begin{aligned} R_{i,t+1} &= \alpha + \beta w^{rnk}_{M\&A,i,t} + \sum_k \gamma_k w^{rnk}_{k,i,t} + \tau_{t+1} + \varepsilon_{t+1} \\ R^{fx}_{i,t+1} &= \alpha + \beta w^{rnk}_{M\&A,i,t} + \sum_k \gamma_k w^{rnk}_{k,i,t} + \tau_{t+1} + \varepsilon_{t+1}, \end{aligned} \tag{14}$$

where $R_{i,t+1}$ is defined in Equation (**9**) and $R^{fx}_{i,t+1} = (S_{i,t+1} - S_{i,t})/S_{i,t}$. Both regressions include time fixed-effects. The number of observations (*Obs*) and adjusted R-square statistics (*Adj.* R^2) are reported in the final two rows. Superscripts ***, ** and * denote significance of the coefficients at the 1%, 5% and 10% level, respectively. The data is monthly, beginning in January 1997 and ending in December 2018.

Table 8: Diversification Gains from the Cross-Border M&A Portfolio

	Expected Return (%)								
	3.50	**3.75**	**4.00**	**4.25**	**4.50**	**4.75**	**5.00**	**5.25**	**5.50**
	Panel A: Sharpe Ratios of Broad Currency Portfolios								
BP_1	–	0.71	0.75	0.78	0.80	0.82	0.83	0.84	0.84
BP_2	0.90	0.91	0.91	0.91	0.90	0.89	0.88	0.87	0.85
BP_3	1.17	1.16	1.13	1.09	1.05	1.01	0.97	0.92	0.88
p-val	[0.06]	[0.07]	[0.10]	[0.15]	[0.19]	[0.20]	[0.18]	[0.18]	[0.25]
	Panel B: Sharpe Ratios after including the M&A Portfolio								
BP_1^+	–	1.01	1.04	1.06	1.06	1.05	1.01	0.93	0.93
BP_2^+	1.08	1.10	1.11	1.10	1.09	1.08	1.05	1.01	0.93
BP_3^+	1.37	1.36	1.32	1.27	1.21	1.14	1.07	1.01	0.93
p-val	[0.02]	[0.02]	[0.02]	[0.02]	[0.03]	[0.03]	[0.04]	[0.08]	[0.06]
	Panel C: Weights Assigned to the M&A Portfolio								
$\omega_{BP_1^+}$	–	0.49	0.50	0.50	0.51	0.48	0.34	0.19	0.19
$\omega_{BP_2^+}$	0.33	0.35	0.38	0.41	0.43	0.46	0.47	0.34	0.19
$\omega_{BP_3^+}$	0.25	0.27	0.30	0.32	0.33	0.34	0.34	0.34	0.19

The table presents portfolio statistics from mean-variance optimized currency portfolios. Panel A reports the optimal Sharpe ratios for three broad portfolios with target returns ranging from 3.5% to 5.5% (BP_1, BP_2, and BP_3). BP_1 contains dollar and carry (2 portfolios). BP_2 adds value and momentum (4 portfolios). BP_3 adds dollar-carry, macroeconomic momentum and inflation momentum (7 portfolios). *p-val* is the *p*-value from the test that the Sharpe ratio of BP_3 is different to BP_2. Panel B reports the optimal Sharpe ratios once the M&A rank portfolio is included as a potential investment. The *p-val* in Panel B reflects the test that the Sharpe ratio of BP_3^+ is different to the Sharpe ratio of BP_2. Panel C reports optimal weights assigned to the M&A portfolio ($\omega_{BP_1^+}$, $\omega_{BP_2^+}$, and $\omega_{BP_3^+}$). The portfolio weights are restricted to be positive and sum to one. The average return vector and covariance matrix are estimated using the full sample of returns from January 1997 to December 2018.

Table 9: Alternative Cross-Border M&A Signals

	P1	P2	P3	HML	Linear	Rank
Panel A: Dollar Value of M&A Deals						
Mean (%)	–0.21	1.82	2.49	2.70	4.03	2.66
t-stat	–0.13	1.02	1.47	2.43	2.32	2.55
SR	–0.03	0.22	0.31	0.52	0.49	0.54
Panel B: Missing Payment Information						
	P1	**P2**	**P3**	**HML**	**Linear**	**Rank**
Mean (%)	–1.37	2.93	2.12	3.49	3.14	3.46
t-stat	–0.84	1.85	1.10	2.27	2.16	2.41
SR	–0.18	0.40	0.23	0.49	0.46	0.51

The table presents statistics for currency portfolios sorted by $\widehat{MA}_{i,t}$. The signal is constructed using either the dollar value of M&A deals (Panel A) or using deal without payment information (Panel B). Statistics include the average annualized (*mean*) return and associated t-statistic calculated using Newey and West (1987) standard errors; and the Sharpe ratio (*SR*). P_1, P_2, and P_3 denote three portfolios sorted each month from low to high values of $\widehat{MA}_{i,t}$. HML, *Linear*, and *Rank* denote three zero-cost cross-sectional portfolios. Further details on the portfolio weights can be found in Section 4.3. The sample includes the US and 40 developed and emerging market countries. All statistics are calculated using monthly returns from January 1997 to December 2018.

Internet Appendix
Private Information and Currency Returns: A Corporate Investment Connection

Not for publication

Contents

Section A: Additional Results and Further Analyses

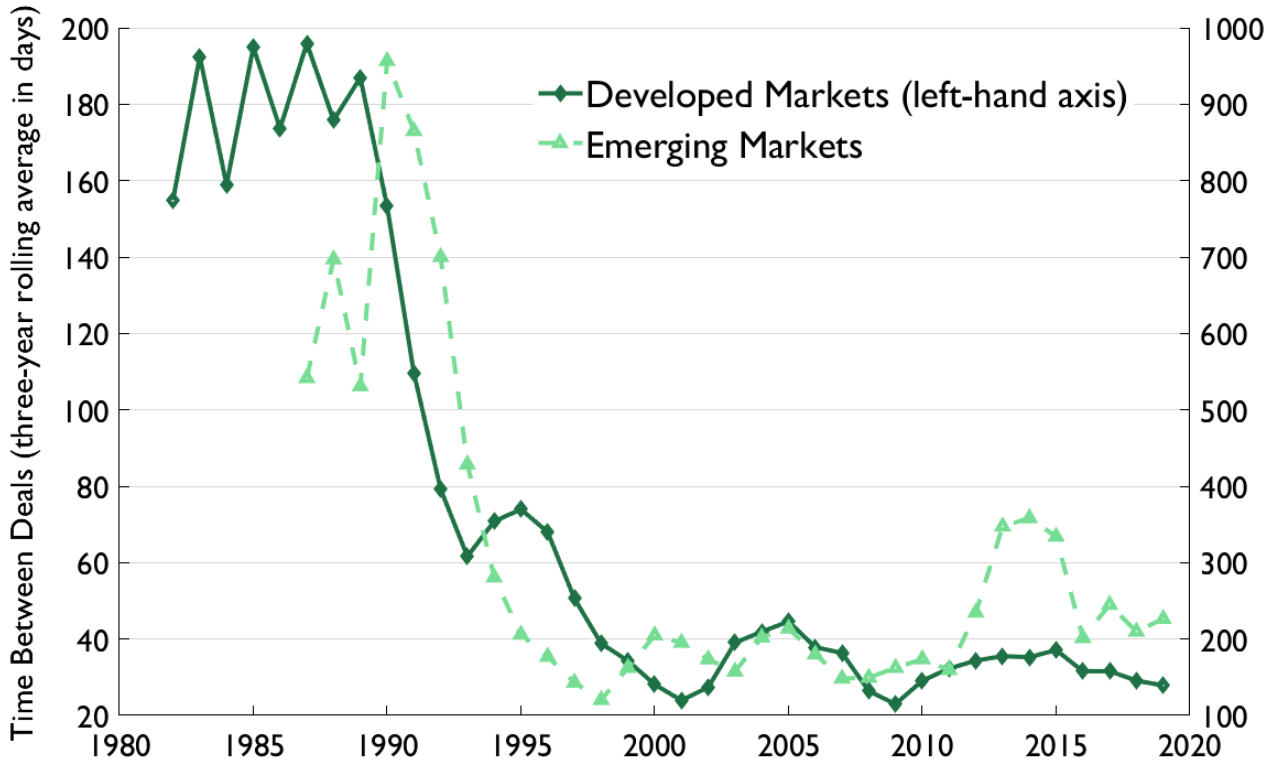

Fig A.1: Frequency of Announced Cross-Border M&As. The figure plots the average number of days between announcements of cross-border M&A deals involving the United States and either developed-market (solid line) or emerging-market (dashed line) countries over the prior 36 months. The 1995 data point, for example, records the average number of days between cross-border M&A deals announced between 1992 and 1994.

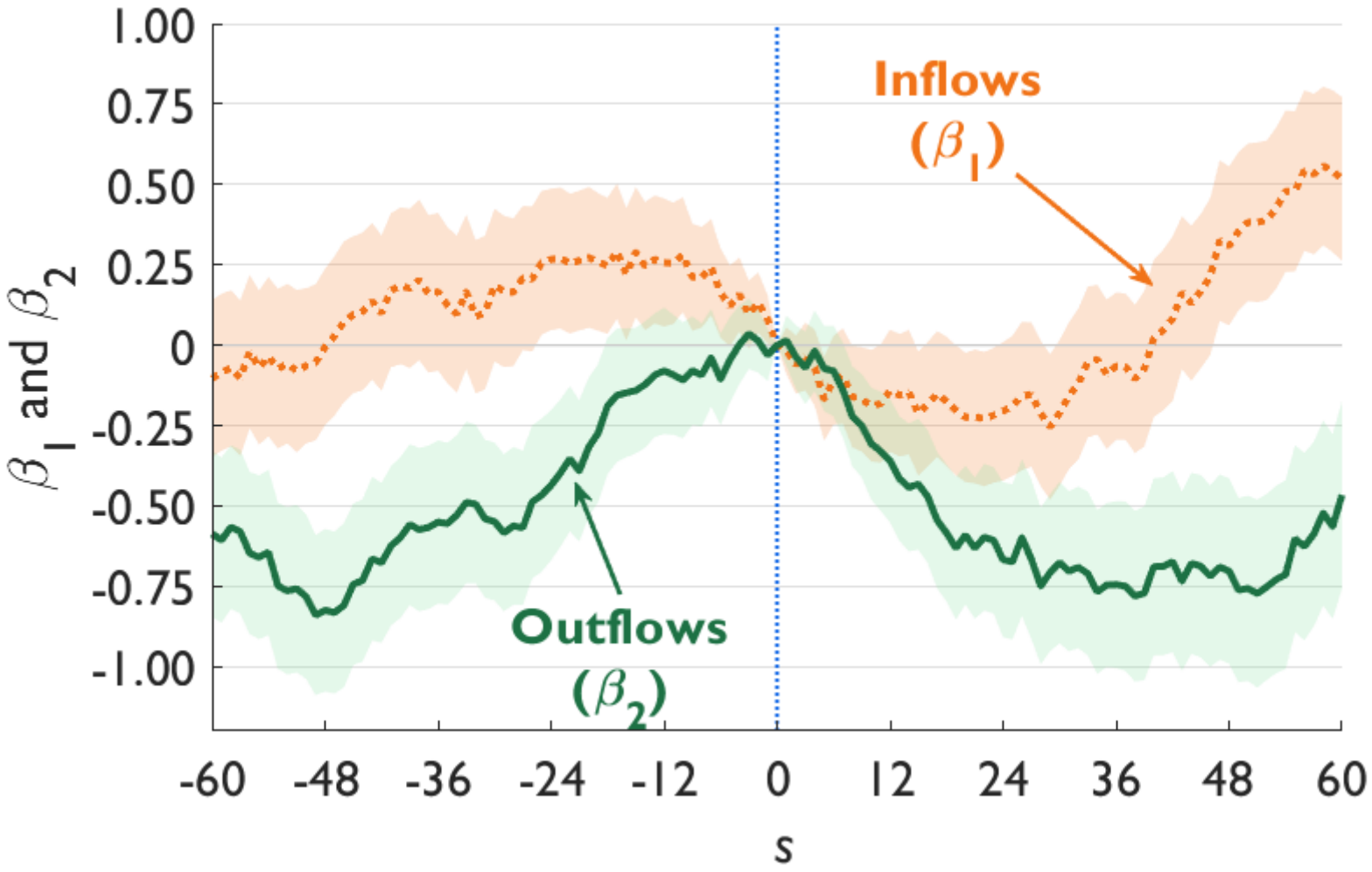

Fig A.2: Macroeconomic Acceleration With Inflows and Outflows. The figure plots β coefficients from panel regressions of changes in economic growth (i.e., economic acceleration), $\Delta g_{i,t+s}$, on the level of abnormal cross-border M&A activity constructed using either inflows ($\widetilde{MA}^{in}_{i,t}$) or outflows ($\widetilde{MA}^{out}_{i,t}$):

$$\Delta g_{i,t+s} = \alpha_i + \beta_1 \widetilde{MA}^{in}_{i,t} + \beta_2 \widetilde{MA}^{out}_{i,t} + \kappa_i + \lambda_{t+s} + \varepsilon_{i,t+s}.$$

Country and time fixed effects (κ_i and λ_{t+s}) are included in all regressions. Robust standard errors are double clustered at the country-month level. Two standard error bounds are denoted by the shaded region. The data is monthly, beginning in December 1996 and ending in November 2018.

Table A.1: Foreign Exchange Data Sources

			DataStream Codes			
Country	**Code**	**Currency**	**Spot**	**1M Forward**	**Start Date**	**End Date**
Argentina	ARS	Peso	ARGPES$	USARS1F	2004-03-31	2018-12-31
Australia	AUD	Dollar	AUSTDOI	USAUD1F	1997-01-31	2018-12-31
Austria	ATS	Schilling	AUSTSC$	USATS1F	1997-01-31	1998-12-31
Belgium	BEF	Franc	BELGLU$	USBEF1F	1997-01-31	1998-12-31
Brazil	BRL	Brazilian real	BRACRU$	USBRL1F	2004-03-31	2018-12-31
Chile	CLP	Peso	CHILPE$	USCLP1F	2004-03-31	2018-12-31
Colombia	COP	Peso	COLUPE$	USCOP1F	2004-03-31	2018-12-31
Czech Republic	CZK	Koruna	CZECHC$	USCZK1F	1997-01-31	2018-12-31
Denmark	DKK	Krone	DANISH$	USDKK1F	1997-01-31	2018-12-31
Estonia	EEK	Kroon	ESTOKR$	USEEK1F	2004-03-31	2010-12-31
Euro Area	EUR	Euro	EUDOLLR	EUDOL1F	1999-01-31	2018-12-31
Finland	FIM	Markka	FINMAR$	USFIM1F	1997-01-31	1998-12-31
France	FRF	Franc	FRENFR$	USFRF1F	1997-01-31	1998-12-31
Germany	DEM	Mark	DMARKE$	USDEM1F	1997-01-31	1998-12-31
Greece	GRD	Drachma	GREDRA$	USGRD1F	1997-01-31	2000-12-31
Hungary	HUF	Forint	HUNFOR$	USHUF1F	1997-10-30	2018-12-31
Iceland	ISK	Krona	ICEKRO$	USISK1F	2004-03-31	2018-12-31
India	INR	Rupee	INDRUP$	USINR1F	1997-10-30	2018-12-31
Indonesia	IDR	Rupiah	INDORU$	USIDR1F	2007-06-30	2018-12-31
Ireland	IEP	Punt	IPUNTEI	USIEP1F	1997-01-31	1998-12-31
Israel	ILS	Shekel	ISRSHE$	USILS1F	2004-03-31	2018-12-31
Italy	ITL	Lira	ITALIR$	USITL1F	1997-01-31	1998-12-31
Japan	JPY	Yen	JAPAYE$	USJPY1F	1997-01-31	2018-12-31
Latvia	LVL	Lats	LATVLA$	USLVL1F	2004-03-31	2013-12-31
Lithuania	LTL	Litas	LITITA$	USLTL1F	2004-03-31	2014-12-31

(Continued overleaf)

	DataStream Codes					
Country	**Code**	**Currency**	**Spot**	**1M Forward**	**Start Date**	**End Date**
Netherlands	NLG	Guilders	GUILDE$	USNLG1F	1997-01-31	1998-12-31
New Zealand	NZD	Dollar	NZDOLLI	USNZD1F	1997-01-31	2018-12-31
Norway	NOK	Krone	NORKRO$	USNOK1F	1997-01-31	2018-12-31
Poland	PLN	Zloty	POLZLO$	USPLN1F	2002-02-28	2018-12-31
Portugal	PTE	Escudo	PORTES$	USPTE1F	1997-01-31	1998-12-31
Russia	RUB	Rouble	CISRUB$	USRUB1F	2004-03-31	2018-12-31
Slovakia	SKK	Koruna	SLOVKO$	USSKK1F	2002-02-28	2008-12-31
Slovenia	SIT	Tolar	SLOVTO$	USSIT1F	2004-03-31	2006-12-31
South Africa	ZAR	Rand	COMRAN$	USZAR1F	1997-01-31	2018-12-31
South Korea	KRW	Won	KORSWO$	USKRW1F	2002-02-28	2018-12-31
Spain	ESP	Preseta	SPANPE$	USESP1F	1997-01-31	1998-12-31
Sweden	SEK	Krona	SWEKRO$	USSEK1F	1997-01-31	2018-12-31
Switzerland	CHF	Franc	SWISSF$	USCHF1F	1997-01-31	2018-12-31
Turkey	TRY	Lira	TURKLI$	USTRY1F	2001-12-31	2018-12-31
United Kingdom	GBP	Pound	UKDOLLR	UKUSD1F	1997-01-31	2018-12-31

The table presents *Datastream* codes and the time periods during which the data are available. Currencies in the Eurozone are included until December 1998, after which they are replaced by the euro.

Table A.2: Cross-Border M&A Portfolios: Developed and Emerging Markets

	Developed Market Countries					Emerging Market Countries				
	P_1	**P_2**	**P_3**	**HML**	**Linear**	**P_1**	**P_2**	**P_3**	**HML**	**Linear**
mean (%)	-0.74	-0.57	2.52	3.26	3.42	0.07	2.74	5.10	5.14	5.05
t-stat	-0.35	-0.34	1.34	2.55	2.78	0.04	1.26	2.85	2.77	3.05
std (%)	8.60	7.68	8.02	5.99	5.86	8.34	9.09	9.22	8.88	8.28
SR	-0.09	-0.07	0.31	0.54	0.58	0.01	0.30	0.55	0.58	0.61
skew	0.08	-0.16	0.27	0.32	0.44	-0.07	-1.00	0.14	0.03	-0.16
kurt	3.80	6.47	3.65	3.98	4.50	7.84	8.79	4.78	4.53	3.80
ar(1)	0.12	-0.01	0.08	0.10	0.11	0.02	0.11	-0.03	-0.04	-0.06
mdd (%)	40.0	26.5	24.1	13.4	10.3	28.0	19.3	9.31	11.18	12.4
fx (%)	-0.81	-0.79	2.15	2.96	3.05	-4.23	-1.42	-0.24	4.06	3.95
fp (%)	0.06	0.21	0.36	0.30	0.37	4.29	4.16	5.34	1.08	1.11

The table presents statistics on cross-border merger and acquisition portfolios. Statistics include the average annualized (*mean*) return and associated t-statistic, calculated using Newey and West (1987) standard errors; annualized standard deviation (*std*); Sharpe ratio (*SR*); skewness (*skew*); kurtosis (*kurt*); first-order autocorrelation coefficient (*ar(1)*); and maximum drawdown (*mdd*). The final two rows record the decomposition of the average return between the spot (*fx*) and forward premium (*fp*) components. P_1, P_2, and P_3 denote three portfolios sorted each month from low to high values of $\widetilde{MA}_{i,t}$. HML and *Linear* denote two zero-cost cross-sectional portfolios. Further details on the portfolio weights can be found in Section 4.3. Results for developed (emerging) market countries are presented in the left (right) panel. All statistics are calculated using monthly returns from January 1997 to December 2018.

Table A.3: Other Sources of Currency Return Predictability

	Dollar	**Carry**	**Momentum**	**Value**	**Carry$_{\mathbf{USD}}$**	**Trend$_{\mathbf{EC}}$**	**Trend$_{\mathbf{IN}}$**
mean (%)	1.13	5.82	2.23	3.67	2.67	2.88	4.45
t-stat	0.66	3.82	1.44	3.01	1.77	2.89	3.68
std (%)	7.29	6.99	7.05	5.78	7.25	4.47	5.61
SR	0.16	0.83	0.32	0.64	0.37	0.64	0.79
skew	–0.15	–0.67	–0.32	–0.57	0.09	–0.20	–0.35
kurt	4.52	6.04	4.08	5.92	4.48	4.53	6.14
ar(1)	0.08	0.12	0.05	0.10	–0.03	0.08	0.12
mdd (%)	25.3	7.23	15.2	6.60	19.7	5.78	6.14
fx (%)	–0.73	–4.28	–0.86	–2.21	1.62	2.13	–3.10
fp (%)	1.86	10.1	3.09	5.89	1.05	0.74	7.55

The table presents statistics on the performance of alternative currency portfolios constructed using rank weights. Statistics include the average annualized (*mean*) return and associated t-statistic, calculated using Newey and West (1987) standard errors; annualized standard deviation (*std*); Sharpe ratio (*SR*); skewness (*skew*); kurtosis (*kurt*); first-order autocorrelation coefficient (*ar(1)*); and maximum drawdown (*mdd*). The final two rows record the decomposition of the average return between the spot (*fx*) and forward premium (*fp*) components. The sample includes the US and 40 developed and emerging market countries. All statistics are calculated using monthly returns from January 1997 to December 2018.

Table A.4: Transaction Costs

	$\mathbf{P_1}$	$\mathbf{P_2}$	$\mathbf{P_3}$	**HML**	**Linear**	**Rank**
mean (%)	–0.47	0.21	3.18	3.64	3.13	3.20
t-stat	–0.27	0.13	1.83	3.15	2.63	2.77
std (%)	8.07	7.64	8.12	5.42	5.59	5.43
SR	–0.06	0.03	0.39	0.67	0.56	0.59
skew	–0.22	–0.17	–0.14	–0.20	–0.30	–0.32
kurt	4.31	4.45	4.19	4.39	3.87	4.77
ar(1)	0.10	0.04	0.06	0.00	–0.02	–0.03
fx (%)	–1.89	–0.64	0.58	2.46	1.84	2.12
fp (%)	1.42	0.86	2.62	1.18	1.29	1.09

The table presents statistics on the performance of cross-border merger and acquisition strategies after incorporating transaction costs. Statistics include the average annualized (*mean*) return and associated t-statistic, calculated using Newey and West (1987) standard errors; annualized standard deviation (*std*); Sharpe ratio (*SR*); skewness (*skew*); kurtosis (*kurt*); first-order autocorrelation coefficient (*ar(1)*); and maximum drawdown (*mdd*). The final two rows record the decomposition of the average return between the spot (*fx*) and forward premium (*fp*) components. P_1, P_2, and P_3 denote three portfolios sorted each month from low to high values of $\widetilde{MA}_{i,t}$. HML, *Linear*, and *Rank* denote three zero-cost cross-sectional portfolios. Further details on the portfolio weights can be found in Section 4.3. The sample includes the US and 40 developed and emerging market countries. All statistics are calculated using monthly returns from January 1997 to December 2018.

Section B: Bootstrap Procedure

We begin with a balanced panel, consisting of $N = 41$ countries and $T = 264$ months (i.e., $T \times N = 10,824$ observations). Each country contains one M&A signal ($\widetilde{MA}_{i,t}$) per month from December 1996 to November 2018. *Uninformative* signals, i.e., $MA_{i,t} = \overline{MA}_{i,t} = 0$, are set to missing but are included within the panel. Uninformative signals from a forecasting perspective *are* informative for the simulation, since countries with relatively little M&A activity have a higher probability of randomly drawing a non-informative signal.

We form bootstrap samples independently across countries. The procedure is as follows:

1. For country i in month t, randomly draw with replacement an M&A signal $\widetilde{MA}^*_{i,t}$, from the vector of observed signals $\widetilde{MA}_i$.
2. Repeat Step **1**, for each month $t = 1, 2, ..., T$.
3. Repeat Steps **1** and **2**, across all countries $i = 1, 2, ..., N$.
4. Form rank-weight cross-border M&A portfolios as described in Section 4.3 using the $T \times N$ bootstrapped dataset.
5. Compute the average annualized currency return, t-statistic, and Sharpe ratio of the rank-weight portfolio.
6. Repeat Steps **1**-**5**, 10,000 times to form a distribution of the portfolios' average returns, t-statistics and Sharpe ratios.