Private Information and Currency Returns: A Corporate Investment Connection*

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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

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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 present-value model is that agents with information about future macroeconomic fundamentals—beyond publicly available signals—can predict FX returns. But which economic agents, if any, have more precise information about macroeconomic fundamentals, and how is that information embedded into exchange rates?

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

There is reason to question, however, whether the study of firms' information sets 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 announcement of a planned investment could therefore reveal a firm-level signal about expected macroeconomic fundamentals. Thus, analogous to FX order flow, the aggregation of firms' announced investment intentions may predict FX returns as the

[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).

information is gradually incorporated into 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 demand for foreign assets rises as expected returns on those assets increase and falls when the expected returns on domestic assets increase (Kouri, 1976), while divergences in expected economic growth across countries is highlighted as the *main* driver of cross-border M&As in a recent industry 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 in the local and foreign economies—no individual deal is necessarily informative.[6] Instead, we assume that macroeconomic fundamentals reflect a common factor in firms' investment decision making, such that the announcement of cross-border M&As should, in part, reflect firms' heterogeneous beliefs about future macroeconomic fundamentals. The aggregation of announced cross-border M&A deals "diversifies" the noise from the idiosyncratic determinants, therefore revealing a more precise signal of firms' expectations about country-level economic conditions.[7]

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

[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). Indeed, international finance theory frequently models FX market agents as having symmetric information about future macroeconomic fundamentals (see, e.g. Bacchetta and Van Wincoop, 2006; Evans and Lyons, 2006, 2007).

[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.

[7]Firms' heterogeneous beliefs may arise because of differential access to information due to: private research conducted by their in-house M&A teams or external M&A advisors (Bao and Edmans, 2011), directors' connections in foreign countries (Giannetti et al., 2015), their global trade network (Ahmad et al., 2020), and learning from their prior acquisitions (Francis et al., 2014). No individual M&A deal is necessarily informative in the same way that no individual FX trade is necessarily informative—even if the trade is initiated by a more "informed" market participant. Instead, *aggregated* trades contain information about future macroeconomic fundamentals and FX returns.

vis-à-vis the US, from 1994 to 2018. We construct a time-varying, country-level, measure of abnormal cross-border M&A activity each month, defined as the deviation of a country's cross-border M&A net inflows (i.e., the sum of inflows *minus* the sum of outflows) announced during the month from its recent trend.

Our first hypothesis is that, if the announcements of cross-border M&As do contain information about subsequent macroeconomic fundamentals, then abnormally high M&A net inflows should reveal a signal about stronger future economic fundamentals. Vice-versa, the announcements of large M&A net outflows equate to a signal about weakening prospects in the home economy. This macroeconomic predictability, if it exists, leads to our second hypothesis that the announcements also predict FX returns. This second prediction follows from a large class of open-economy macroeconomic models, encapsulated within the present-value model, in which exchange rate returns are a direct response to changing expectations about future fundamentals.

We investigate how macroeconomic fundamentals evolve, following abnormal cross-border M&A activity, by studying changes in economic growth. The change in economic growth, often labelled as economic *acceleration*, is chosen because it naturally captures turning points in economic activity, as an economy transitions from one growth path to another (Hausmann et al., 2005). In predictive panel regressions, we find that abnormally high M&A net *inflows* are followed, on average, by economic *accelerations*, while economic *decelerations* follow abnormally high M&A net *outflows*. We find these changes in economic growth reflect reversals in economic conditions and not simple continuations in pre-existing growth trends: An economic acceleration (deceleration) precedes unusually large net outflows (inflows), which is then immediately followed by an economic deceleration (acceleration). These relationships also continue to be observed after controlling for various leading economic indicators.

Decomposing the M&A net inflows into inflows and outflows, we further show that the predictability of economic acceleration is principally an M&A outflow phenomenon: Economic acceleration is strongly related to the announcements of abnormal M&A outflows at horizons ranging from 12-months to 60-months. In contrast, the predictive relationship with abnormal M&A inflows is generally weak and only statistically significant at longer horizons. Thus, the predictive information appears to reside mainly in the cross-border acquisition decisions of local firms that presumably have superior knowledge about the relative strength of the domestic economy. Overall, the findings provide a necessary and encouraging indication that

information contained in the announcements of cross-border M&A deals may also provide a source of currency return predictability.

We turn to explore currency return predictability via a portfolio approach in which higher positive (negative) portfolio weight is assigned to countries experiencing abnormally high M&A net inflows (outflows) announced in a month. We implement three portfolio weighting schemes to ensure the results are not driven by one particular choice.[8] 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 strong investment performance, indicating that information contained in the announcements of cross-border M&As predicts currency returns. The average currency excess returns are all 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 increase steadily over time and remain resilient following the global financial crisis (GFC). Importantly, we find the 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 equates to an exchange rate appreciation.[9]

Furthermore, we find that the exchange rate return predictability stems *entirely* from abnormal cross-border M&A *outflows*—the primary predictor of future changes in economic growth. Countries in which announced outflows are unusually high, experience a subsequent annualized exchange rate depreciation of -2.66% per annum, while unusually low outflows are followed by an annualized FX appreciation of 3.94%. In contrast, abnormally high or low M&A inflows are followed by approximately zero subsequent FX returns (-0.03% and -0.12%, respectively).

Finally, we compare the predictive information contained in the announcements of cross-border M&A deals, with previously identified sources of cross-sectional 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 portfolios all generate positive returns in our sample but are uncorrelated with the

[8]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.

[9]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.

cross-border M&A portfolios. Regressing the cross-border M&A portfolio's returns on all other portfolios' returns, produces an adjusted-R^2 statistic of only 0.023. The unexplained component of the average return is thus large and highly statistically significant, highlighting the novelty of the predictive information contained in the announcement of M&A deals and hinting at the possibility of large diversification gains, which we confirm in additional empirical tests.[10]

In further analysis, we show that: (i) cross-border M&A portfolio 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 is 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 firm-level investment activity predicts 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 my 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 information originating from the announcements of cross-border M&As. Economic conditions improve and the local currency appreciates following months of abnormally high M&A net inflows, and vice-versa for abnormally high M&A net outflows. The predictability is not subsumed by publicly available predictors, suggesting firms' private information about future macroeconomic fundamentals is revealed outside of FX order flow.

The results have broad practical implications: For policy makers, the findings provide a way to identify informed capital flows that have a permanent exchange rate impact. 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.

[10]Furthermore, only the portfolio weights from the M&A portfolio are found to be a statistically significant predictor of both one-month currency returns 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 funds—reveal their private information about macroeconomic fundamentals through their FX trades (Menkhoff et al., 2016). This information is then gradually incorporated into prices by market dealers, resulting in order flow predicting FX returns (Evans and Lyons, 2006; Osler and Vandrovych, 2009; Ranaldo and Somogyi, 2021).[11]

In this paper, we approach the topic of 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 investment activity, rather than via FX trading. The most natural way to see this relationship is via the present-value model of exchange rates.

Present-value model of exchange rates. Equivalent to a standard asset-pricing framework in which the current price is a function of the discounted expected future spot price, the present-value model of exchange rates, in its most general format, expresses 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):

[11] 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.

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

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 generated by changes in both current fundamentals and the 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 contained in the announcements of cross-border M&A deals can predict currency returns. To see more clearly how this hypothesis relates to the present value model, assume that 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.[12]

The information contained in the M&A announcements is learned by FX market participants and thus, at time t+1, the exchange rate updates to reflect that information and all other newly released publicly available information (Eq. (**3**)). If the announcements of cross-border M&A deals contain information about future fundamentals, which is not otherwise extractable from public information at t, then the announcements of cross-border M&A activity can be used to help predict the foreign exchange return. In the empirical analysis, we thus first confirm that the announcements of cross-border M&A deals predict future economic fundamentals—beyond publicly available signals—before moving to explore and document foreign exchange and currency return predictability.

[12]The assumption could be replaced by other 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 would not be immediately incorporated into prices. If prices instantaneously update to reflect the information, then M&A announcements would be unlikely to predict FX returns.

2.2 Fundamentals, capitals flows, and exchange rates

In related work, 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 implied by the present-value model. While our paper also appeals to the present-value framework, we find that sorting countries by their abnormal M&A activity is orthogonal to sorting by economic momentum. This finding is due to the abnormal M&A activity capturing a subsequent *reversal* in the level of economic growth. The currency portfolio we construct that exploits this predictability is also unrelated, both conceptually and empirically, to other popular currency strategies and has yielded large economic gains following the GFC, in contrast to many other currency strategies that have delivered weak performance over the same period (Ranaldo and Somogyi, 2021). The findings thus provide a novel source of currency return predictability, which we also show can be exploited to diversify a broader 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) is associated with 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 keen to understand the information content of capital flows, since it can help in understanding whether those flows will have a permanent or transitory impact on the local exchange rate. The results in this paper help shed light on this question, since they focus on intended capital flows that reveal information about future fundamentals and thus generate a permanent exchange rate response following their announcement, which we confirm in our further analyses.[13]

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-

[13]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.

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.[14] 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.[15]

In comparison, comprehensive data on globally announced M&A deals can be obtained on a day-to-day basis, featuring deal-level details such as the announcement date, transaction value, the acquiror's country of origin, and the destination country. The richness of the data allows us to more timely capture the revelation of information to the market and the subsequent changes in economic conditions and exchange rates. In the next section, we describe more precisely the cross-border M&A data used in this study.

3 Data

We collect data on all announced cross-border M&A deals involving the US from the Securities Data Company (SDC) Platinum database spanning the period December 1973 to December 2018.[16] 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.

For comparability with recent studies that investigate the relationship between macroeconomic fundamentals and currency returns, we focus on countries for which macroeconomic data are available from the OECD (see, e.g. Colacito et al., 2020; Dahlquist and Hasseltoft, 2020).

[14] 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.

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

[16] 142,829 cross-border M&As have been announced in 229 unique countries over the period between December 1973 and December 2018, totalling $32.27 trillion in value. We focus on deals involving the US because it has: (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) by far the most active cross-border M&A market, with the average number of days between two consecutive deals being less than 0.34.

In total we obtain data on 41 countries, including 20 developed and 21 emerging market countries. 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**.[17]

Furthermore, we commence our study when cross-border M&A activity becomes relatively frequent to obtain more precise signals of firm-level expectations. In Fig. A.1 of the Internet Appendix, we plot the average number of days between announced cross-border M&A deals across developed and emerging market countries 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 did activity reach a more informative level for 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.

3.1 Descriptive analysis

In Fig. 1, we present the time-series of both the number and dollar value ($ billions) of announced cross-border M&A deals in the sample. Since the mid-1990's, the total number of deals has ranged from a low of around 600 deals in 1994 to a high of over 1,600 deals in 2000. In general, the number of deals has typically averaged around 1,000 per year. The dollar value of the deals has drifted upwards over the same time period, beginning the sample at less than $100 billion in 1994, before peaking at over $600 billion in 2014.[18] In Table 1, we present country-level summary statistics for our sample of cross-border M&A data. The total number of deals ranges from just 12, between the US and Slovenia, to over 5,500 between the US and Eurozone. In total, more than 86% of deals involving the US are with other developed market firms, in which the US firm is the target company in around 45% of deals. US firms are mainly acquirors of emerging market firms, although were targets in 40% of announced

[17]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.

[18]The level of announced cross-border M&A activity also displays the well-known "wave" pattern observed in domestic M&A deals (see Xu, 2017, for further details).

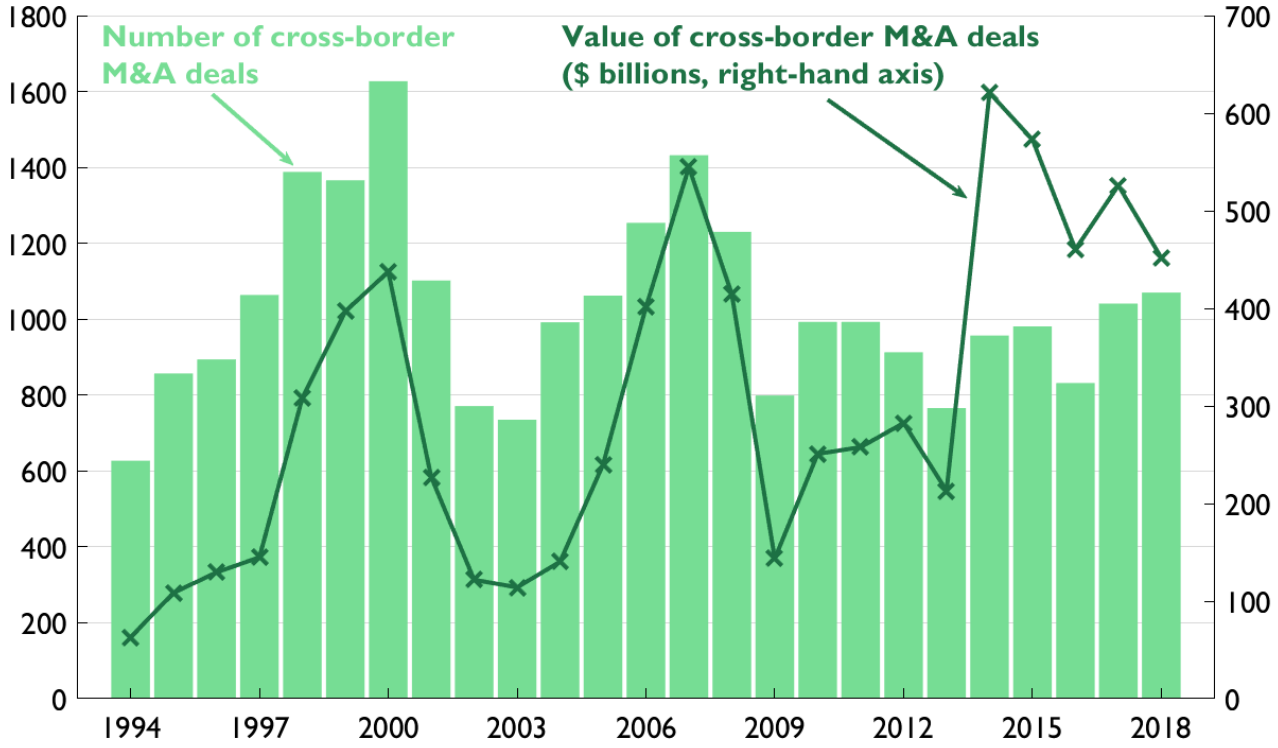

Fig 1. Number and Value of Announced Cross-Border M&As. The figure plots the time series of the total number of cross-border M&A deals in the sample (left-hand axis, bar plot) and the total value of those deals in US dollar billions (right-hand axis, line plot).

M&A 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 announced deals also varies substantially—ranging from less than ten to over 200.

3.2 Standardizing merger and acquisition activity

To directly test if announced cross-border M&A deals reveal information about future macroeconomic fundamentals and currency returns, we construct a bilateral monthly measure of cross-border M&A activity between the US and country $i = 1, 2, ..., N-1$ (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.[19] We construct an equivalent measure for the United States, as the aggregated inflows and outflows across all other countries, i.e.,

[19]The measure helps to capture *relative* differences in economic conditions. An unusually high announced cross-border M&A net inflow—from country A to country B—is hypothesized to indicate that country A will

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

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

$$\widetilde{MA}_{i,t} = \frac{MA_{i,t} - \overline{MA}_{i,t}}{\sigma_{i,t}}, \ \sigma_{i,t} > 0 \tag{6}$$

which we use to predict changes in economic conditions and future currency returns. Since the normalization requires a prior history of deals, the first values of $\widetilde{MA}_{i,t}$ are obtained in January 1997 and thus, while we use data from 1994 onwards, we typically report results as covering the period from January 1997 to December 2018. We view time periods in which the cross-border M&A activity deviates from its recent trend as 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. The absence of both current and historical M&A activity is considered uninformative, as no incremental information is revealed through M&A announcements. In contrast, $MA_{i,t} = 0$ *is* informative if $\overline{MA}_{i,t} \neq 0$ because it signals a decline in M&A net inflow relative to the recent trend, which may reflect firms' changing expectations about the future states of the domestic and foreign macroeconomies.

To ensure that we capture the predictive information from abnormal cross-border M&A activity, we define non-informative zeros as missing observations. Moreover, there must be at least two M&A deals announced during the prior three-year period, to enable the calculation of the standard deviation.

3.3 Macroeconomic fundamentals

We investigate how economic conditions change following abnormal M&A net inflows by studying changes in economic growth (i.e., economic acceleration). Economic acceleration is a natural measure since it captures turning points, or economic transitions, as an economy shifts from one growth path to another (see, e.g. Hausmann et al., 2005).

We define economic growth following Dahlquist and Hasseltoft (2020). The measure is particularly attractive because it captures different aspects of an economy, providing a more

become economically weaker relative to country B. Aggregating across all announced deals involving country B would confound the measure. For example, an unusually large net inflow announced *in aggregate* to country B may mask an unusually *low* announced net inflow from country A, and thus generate a source of measurement error that we avoid.

comprehensive understanding of economic conditions. Specifically, economic growth is defined as the average log growth rate across three macroeconomic series relating to: output (industrial production, IP); consumption (retail sales, RS); and the labor market (*inverse* of unemployment, UE). Higher values therefore indicate stronger economic conditions. We obtain the 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:[20]

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

Economic acceleration is then defined as the change in economic growth rates:

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

which is the difference between one-year growth rates at times $t+s$ and t. In the empirical analysis we study the behaviour of economic acceleration following the announcements of abnormally high M&A net inflows or outflows, to determine whether $\widetilde{MA}_{i,t}$ predicts economic acceleration once controlling for other leading economic indicators.

3.4 Exchange rates

We collect daily spot and one-month forward foreign exchange rates from WM/Reuters via *Datastream*. 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.[21] Furthermore, the euro was launched in January 1999 and 16 countries in our

[20] 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.

[21] 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.

sample have joined the currency zone since its inception. While these currencies drop out of the main analysis upon entry into the Eurozone, we continue to include their cross-border M&A deals 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 the standardized announcements of M&A deals can forecast economic acceleration. We then turn to study the predictability of currency and foreign exchange returns and assess the novelty of the return predictability relative to other predictors of currency returns. Finally, we explore the potential diversification benefits to a broad currency portfolio from incorporating information contained in the announcements of cross-border M&As.

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.[22] 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. Since the earnings prospects, incremental cash flows from the merger, and discount rate are a function of macroeconomic fundamentals, fluctuations in aggregate M&A activity may reveal a common factor in acquirors' revised expectations about relative future macroeconomic conditions. For instance, a relatively pessimistic (optimistic) outlook for future economic growth in the home country may increase the relative attractiveness of foreign (domestic) investments through M&As, leading to higher (lower) than usual outflows. The logic is also 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 other 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 deals. Indeed, the

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

relative influence of information stemming from idiosyncratic components is mechanically reduced through the aggregation process.

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 announcements of 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 conditions change following abnormal cross-border M&A activity by analyzing the change in economic growth (i.e., economic acceleration, see Eg. (**8**)). We undertake the analysis in two ways. First, we explore the average level of economic acceleration in the five-years before and after the M&A announcements, for countries with either particularly high or low levels of announced net inflows. This test allows us to clearly assess the evolution of economic growth, month-by-month, following the M&A announcements to provide a first look at the predictive relationship and, by also studying economic acceleration *prior* to the deals being announced, we simultaneously address the potential concern that growth acceleration (or deceleration) observed post-announcement is a continuation of a pre-existing trend that offers limited *novel* predictive information. Our second test puts the microscope on various points during the post-announcement period, to formally investigate the predictive relationship while, at the same time, 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, $\widetilde{MA}_{it}$, defined in Equation (**3**). We denote these baskets as having "high", "medium", and "low" M&A activity. 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 ($k = \{high, medium, low\}$) 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 are investigating the trend in economic acceleration *prior* to the M&A announcements. The coefficient κ_i denotes

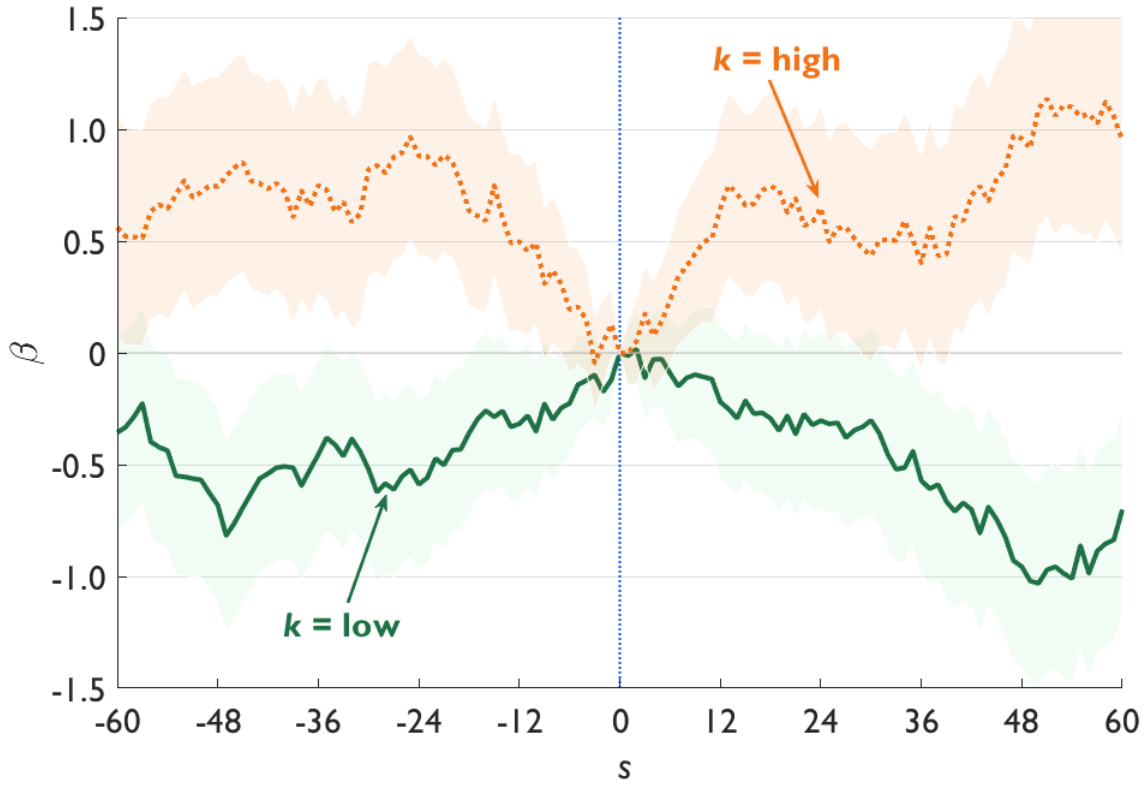

Fig 2. Macroeconomic Acceleration. The figure plots β coefficients from Equation (10), estimated across different values of s for $k = high$ and $k = low$. Two standard error bounds are denoted by the shaded region.

country fixed effects, which are included to capture time-invariant determinants of M&As across countries—such as the 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 lead to stronger future economic conditions, while the opposite is expected 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 we observe is continuing a pre-existing trend. A continuation is reflected by a linear relationship between β and s, since it would indicate that the growth at announcement ($g_{i,t}$) is higher than the pre-announcement level but below that observed post-announcement.

In Fig. 2 we plot the estimated β coefficients in relation to s, for $k = high$ and $k = low$, along with their respective two standard error regions. 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 results are seen to clearly support the 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 experience growth rates that are around 1% different to when the M&A deals were announced.

Turning to $s < 0$, the patterns reveal strong *reversal* effects—and not a simple continuation—in which countries with high (low) values of $\widetilde{MA}_{it}$ are seen to decelerate (accelerate) prior to the announcements. Indeed, the month in which the M&A activity takes place, appears to almost perfectly capture the point of the economic reversion—supporting the claim that predictive information contained in the announcements of cross-border M&A deals could extend beyond other leading economic indicators.[23]

Controlling for public information. We test if publicly available signals subsume the information contained in the announcements of cross-border M&A activity via a series of predictive panel regressions. The regressions take a similar form to those expressed in Eq. (**10**). On this occasion, however, we replace the dummy variables with our measure of standardized M&A activity, $\widetilde{MA}_{it}$, and add a set of publicly available control variables ($X_{i,t}$):

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

In these regressions we focus on the post-announcement period and report results for $s = 12, 24, 36, 48$ and 60. Given our previous results, the coefficient β should be positive, since abnormally high (low) M&A activity is found to be associated with a subsequent economic acceleration (deceleration). Our central question is whether the β coefficient *remains* statistically significant once controlling for variables known to forecast economic growth ($X_{i,t}$).

In the regressions, 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;[24] (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-

[23]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 than an inflection would even be observed.

[24]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).

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.

Results are reported in Table 2. For each future period ($s = 12, 24, ..., 60$), we estimate two models. The first model controls only for CLIs, since these indices already contain all leading information consistently across countries, therefore providing a standardized and comprehensive account of future economic conditions. In the second model, we replace the CLIs with the individual predictor variables to ascertain the relative influence of each variable and to ensure comparability with the first model.

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. Unsurprisingly, therefore, we find that in each model including CLIs, the associated coefficient is negative and statistically significant at the 1% significance level. In the second models, only the interest rate variables display evidence of predictive information. In particular, and in line with previous findings, a steeper Treasury yield curve is found to predict an economic acceleration over horizons ranging 24 to 60 months. A lower short-term interest rate is indicative of lower near-term growth but higher growth over 48 and 60 months—essentially capturing business cycle variation.

Crucially, we see that the coefficients on $\widetilde{MA}_{it}$ remain statistically significant at the 5% significance level when $s = 24$, and at the 1% significance level for $s = 36, 48$ and 60, across both models. Consistent with Fig. 2, we find the coefficient is positive when $s = 12$, but not statistically different from zero at the 5% significance level. The magnitude of the coefficients is also economically significant. A one-standard deviation move above the median in $MA_{i,t}$, is associated with an economic growth rate that is between 0.24% and 0.45% higher—over 36- to 60-months following the announcements. These values are the same order of magnitude as the average economic acceleration of over the same periods (0.21% and 0.30%). Given these findings we reject the null hypothesis of no *incremental* predictability stemming from the announcements of cross-border M&A activity.

Decomposing abnormal M&A activity. When the standardized measure of cross-border M&A net inflows is positive ($\widetilde{MA}_{i,t} > 0$), it indicates that M&A net inflows are above their recent trend. That could be because there are *more* inflows than typical or because there are

less outflows. Likewise, when $\widetilde{MA}_{i,t} < 0$ it is likely driven by *more* outflows but could also be due to *less* inflows. The economics of 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 (assuming their activity has moved onshore). A similar conclusion can be drawn for lower M&A net inflows, which are indicative of weakening domestic economic prospects. On the other hand, the distinction *is* revealing. Low M&A net inflows, driven by more outflows than normal, could reflect domestic firms learning about their local economic conditions and observing relative weakness. Equally, high M&A net inflows—driven by less outflows, could reveal that domestic firms view the local market as relatively more attractive.

In Table 3 we present equivalent results to Table 2, but in which we replace $\widetilde{MA}_{i,t}$ with equivalent measures constructed using only outflows ($\widetilde{MA}^{out}_{i,t}$) or inflows ($\widetilde{MA}^{in}_{i,t}$). We find a clear asymmetric pattern—across all horizons, the outflow-based signal is always negative and statistical significant at the 10% significance level, indicating that abnormally high (low) outflows translate into lower (higher) future economic growth. In contrast, the coefficient on the inflow-based signal is not statistically different from zero over horizons up to 36-months, although becomes so thereafter. Thus, the predictability of economic acceleration, documented in Table 2, primarily stems from the acquisition decisions of domestic firms, as reflected in abnormal cross-border M&A outflows.

The results thus far establish a link between cross-border M&As and future fundamentals. If the currency market gradually incorporates this information into its expectations of future fundamentals, then the announcements of cross-border M&As could also provide a source of currency and exchange rate return predictability. We now turn to explore this possibility.

4.3 Predicting currency and foreign exchange returns

We explore currency return predictability using a portfolio approach, in which weights are assigned to countries based on their abnormal M&A activity ($\widetilde{MA}_{i,t}$), defined in Equation (**3**).[25] We adopt three approaches to assigning portfolio weights denoted as "HML", "linear", and "rank", which we describe below. In each case, the portfolio is rebalanced monthly, its weights sum to zero, while the absolute sum of both the positive and negative weights sum to one.

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

Methods. To obtain HML weights, we initially 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 thus assigns weight to the extremes of the distribution but does not further distinguish between countries based on their signals—even if the signals exhibit a large range. 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 such that 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 both 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:

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

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 the linear approach.

Empirical results. Portfolio returns, and associated summary statistics, are reported in Table 4. In the first three columns we report the performance of the tercile portfolios (P_1, P_2, and P_3). Under the null hypothesis of no return predictability, we anticipate that the portfolios' average currency (and foreign exchange) returns will equal zero. However, consistent with the prediction that information which reveals stronger (weaker) macroeconomic fundamentals translates into a currency appreciation (depreciation), we observe a monotonically increasing pattern in the average returns. 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

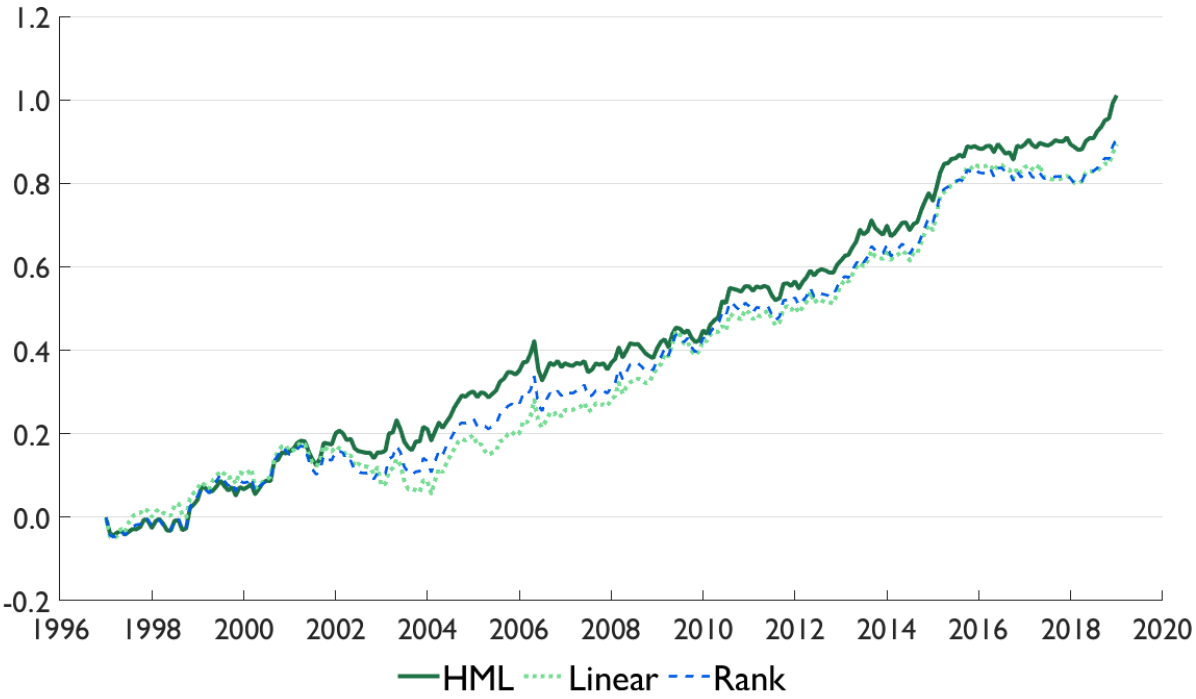

Fig 3. Cumulative Returns of Cross-Border M&A Portfolios. The figure plots the cumulative monthly returns of the three cross-border M&A currency portfolios. The three portfolios include HML (solid line), linear (dotted line), and rank (dashed line). The returns begin in January 1997 and end in December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

month of −0.89%, while, in contrast, countries observing abnormally high M&A activity, earn a positive and highly statistically significant annualized currency return of 3.71%.[26]

The next three columns in Table 4 report the performance of the cross-border M&A portfolios constructed using HML, linear, and rank weights. The HML portfolio has a large 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 each case the currency excess returns are positive and highly statistically significant, the t-statistics are over 3.50, and the associated Sharpe ratios are 0.73 and 0.76, respectively.[27] In Fig. 3, we present the cumulative returns of the three portfolios. The returns increase steadily over time, are not driven by outliers, and have remained robust following the GFC. This latter finding is in contrast to currency carry, value, and momentum strategies, which have deteriorated substantially in performance following the GFC (see, e.g. Ranaldo and Somogyi, 2021).

In the final two rows of Table 4, we report the split in the average returns between the

[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 portfolios' returns is 93%.

foreign exchange rate (fx) and forward premium (fp) components. We find the cross-sectional strategies all generate positive FX returns, which account for around two-thirds of the total average return. The M&A signals can thus be viewed, consistent with the present-value model of exchange rates, as providing a source of foreign exchange rate predictability. Indeed, P_1 currencies *depreciate* on average by an annualized 2.44% over the following month, while P_3 currencies *appreciate*, on average, by 0.84% per annum. In the final two columns of Table 4, 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 announced cross-border M&A deals are among developed market firms, our finding is not limited to developed-market currencies. In both cases the average currency excess return and foreign exchange return are positive, and the Sharpe ratios remain high albeit slightly lower than those observed in the full sample.

4.4 The source of return predictability

The previous analysis suggests that the predictability of economic acceleration is principally driven by abnormal M&A outflows. This finding raises a natural follow-on question. Is exchange rate predictability also principally linked to unusually large cross-border M&A outflows, rather than inflows? We therefore study the drivers of $\widetilde{MA}_{i,t}$, to ascertain if the source of currency return predictability can be more precisely identified.

To do so, we reclassify countries within the HML portfolios (P_1 and P_3) each month by determining whether a P_1 (P_3) country has usually "more" ("less") outflows. By addressing this question we create two new HML portfolios, denoted as the "more" and "less" portfolios. To be precise, if country i is allocated to P_1 at time t, we denote it as "more" if $|Out_{i,t} - \mu_{Out_{i,t}}| > |In_{i,t} - \mu_{In_{i,t}}|$ and as "less" otherwise. The variables $\mu_{In_{i,t}}$ and $\mu_{Out_{i,t}}$ denote the average number of cross-border M&A inflows and outflows for country i over the prior 36-months. Likewise, if country i is allocated to P_3 at time t, we define it as "more" if $|In_{i,t} - \mu_{In_{i,t}}| > |Out_{i,t} - \mu_{Out_{i,t}}|$ and as "less" otherwise.

We report results in Table 5. Two results stand out. First, 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 is, in part, because of reduced power from fewer observations. As we only keep months for which at least

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

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. Second, reinforcing the insights obtained from Table 3, we find that the observed foreign exchange rate 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 portfolios P_1 and P_3, in which acquisition decisions are driven by foreign firms, are only -0.12% and -0.03%. Overall, we view these results as supporting the conclusion that information in cross-border M&A *outflows* is the principal driver of the predictability we observe in both economic acceleration and foreign exchange rate returns.

4.5 A novel source of currency return predictability?

A pertinent question is whether the predictive information we uncover in announced M&A deals is subsumed by previously identified sources of currency return predictability. There is reason to believe this may be the case. For example, Erel et al. (2012) show that a currency 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 likely be captured by other, previously identified sources of currency return predictability such as currency value (Asness et al., 2013; Menkhoff et al., 2017), foreign exchange momentum (Menkhoff et al., 2012; Asness et al., 2013), and economic momentum (Dahlquist and Hasseltoft, 2020).

If, however, cross-border M&A portfolio returns are uncorrelated with the returns of other portfolios, it suggests that the announced M&A deals provide a novel source of currency 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 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 identify novel sources 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. **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 FX predictability: only dollar-carry and macroeconomic momentum generate positive FX returns, the other portfolios' positive returns are the result of investing in higher interest-rate currencies than used to fund the position.

4.5.2 Comparing against other sources of currency return predictability

We test if the predictive information contained in $\widetilde{MA}_{i,t}$ 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 the 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 seven alternative portfolios, k = *dollar*, *carry*, ..., and α reflects the component of the M&A portfolio returns that is not explained by variation in the other returns.

The results are presented in Table 6. In the first column, we report results for all currencies. The equivalent results for developed- and emerging-market currencies are reported in columns two and three. The key finding is that the estimate of α is positive and highly statistically significant (at the 1% 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 portfolios' returns. The low adjusted-R^2 statistics of between 2% and 4%, across the three regressions, further reinforces this finding and thus we conclude that information contained in the announcements of cross-border M&A deals, provides a novel source of foreign exchange rate and currency return predictability.

Our second test investigates more directly, via predictive panel regressions, whether the M&A signal contains information about subsequent currency returns, once 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 the 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 defined in Equation (**9**) and $R^{fx}_{i,t+1} = (S_{i,t+1} - S_{i,t})/S_{i,t}$. We anticipate that the

[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 lookback rank weights.

β coefficient will be positive in both cases—higher $\widetilde{MA}_{i,t}$ implies higher currency and foreign exchange returns. The key question is whether the coefficient *remains* statistically different from zero once controlling for the other sources of return predictability.

We report results in Table 7. The coefficients reflect the monthly returns (in percentage points) associated with a rank weight of one. We find the coefficients on the rank weights of the cross-border M&A portfolio are positive and statistically significant at the 1% level in both regressions. Moreover, the coefficient estimates (0.64% and 0.66%) are similar because the majority of the return predictability stems from predicting foreign exchange returns—not from a bias towards higher interest rate currencies. This result contrasts with the rank weights of the carry portfolio, which display a positive relationship with currency returns (significant at the 5% level) but a negative relationship with exchange rate returns (insignificant at the 5%). Surprisingly, none of the other sources of currency return predictability display a statistically significant relationship in the predictive regressions with either currency or exchange rate returns.

Overall, the low correlation between the returns of the cross-border M&A portfolio and other currency portfolio returns, combined with return predictability that is not subsumed by the other sources of return predictability, both point towards the announcements of cross-border M&A deals providing a source of beneficial diversification gains to currency investors, which we now investigate.

4.5.3 Diversification gains

We explore the magnitude of diversification gains by analyzing the performance of a set of currency portfolios that incrementally introduce different sources of currency return predictability. We view diversification benefits as arising from the information contained in cross-border M&A announcements if the addition of the cross-border M&A portfolio increases the broader portfolio's Sharpe ratio. The results from these 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 (the variance is minimized) 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 to be 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 increasingly higher weight, but at lower returns the diversification gains from 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 performance is only statistically higher 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^+), while in Panel C, we report the corresponding optimal weights allocated to the M&A 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. 6 plots the evolution of the efficient frontiers as the investment universe is gradually 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 further expands the efficient frontier into the north-west region, even after all other sources of currency predictability are made available for investment, reaffirming the conclusion that information contained in the announcements of cross-border M&A deals provides 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

[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.

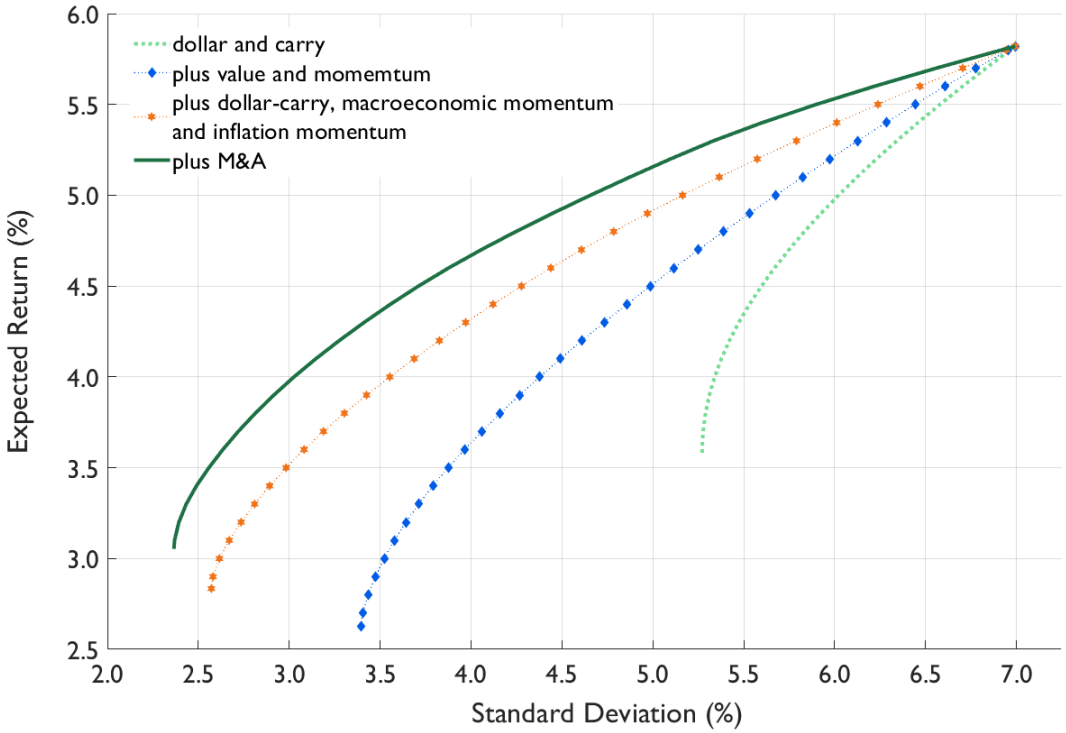

Fig 4. Efficient Frontiers. The figure plots a series of efficient frontiers for various sets of currency portfolios. The dotted line is the efficient frontier when limiting the investment space to only dollar and carry. We add value and momentum (dotted line with diamond markers, four portfolios), dollar-carry, 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.

by chance and finally test if 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 changing expectations—concerning cross-country economic growth—are the principal driving force. If true, the currency return should be permanent, rather than a transitory (e.g., liquidity) shock.[31] To study the permanence of the return, 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 18-months following portfolio formation—up to a statistically significant 2.53%. After this point the returns diminish to

[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).

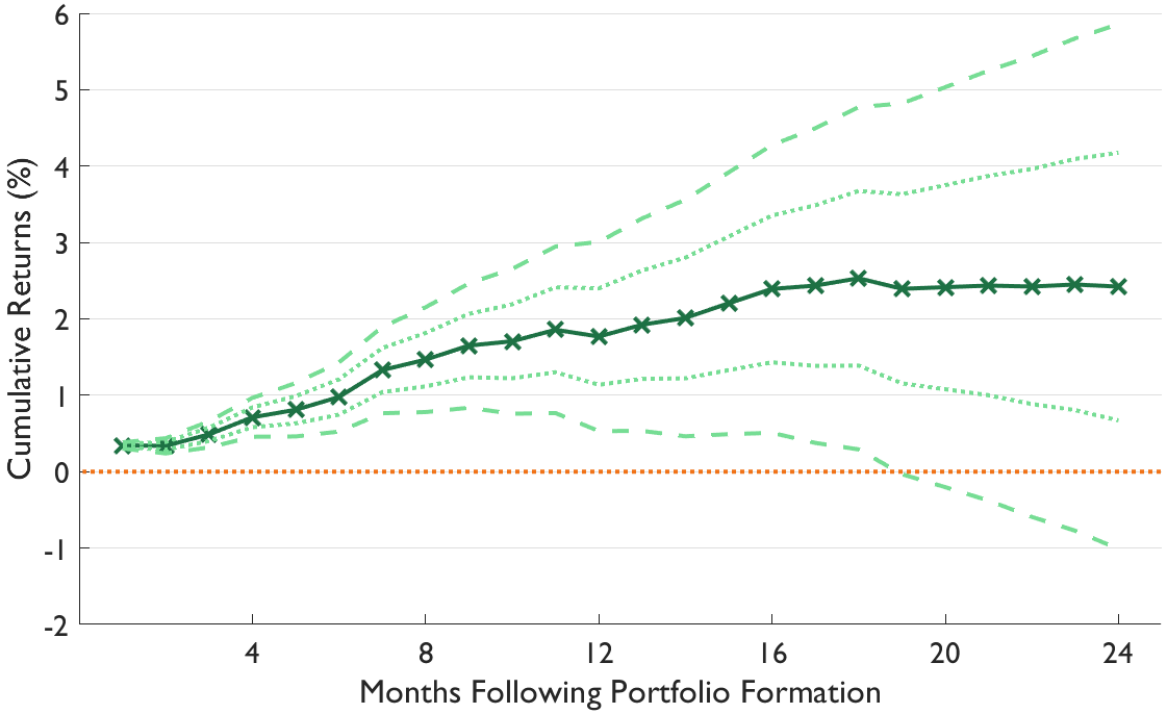

Fig 5. Persistence of the Cross-Border M&A Portfolio Returns. The figure plots the average cumulative returns to the rank-weight M&A portfolio in the months following portfolio formation. One and two standard error bounds are plotted as dotted and dashed lines, respectively. The sample includes the US 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.

zero and the curve flattens. The result supports the claim that information relating to economic fundamentals—rather than liquidity needs, drive the return predictability. This finding also has implications for policy makers, who are interested in understanding whether capital flows are likely to have a permanent or short-lived impact on the currency, because it indicates that intended FDI flows reveal fundamental information about long-lived exchange rate shocks. Moreover, we see a pronounced return *drift* following the cross-border M&A 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 FX appreciation (depreciation). This type of exchange rate reaction is inherent within models of delayed overshooting, such as Eichenbaum and Evans (1995) and Bacchetta and van Wincoop (2010).[32]

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

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 are: (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 M&A 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. 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 two bootstrap simulations. In each simulation, we

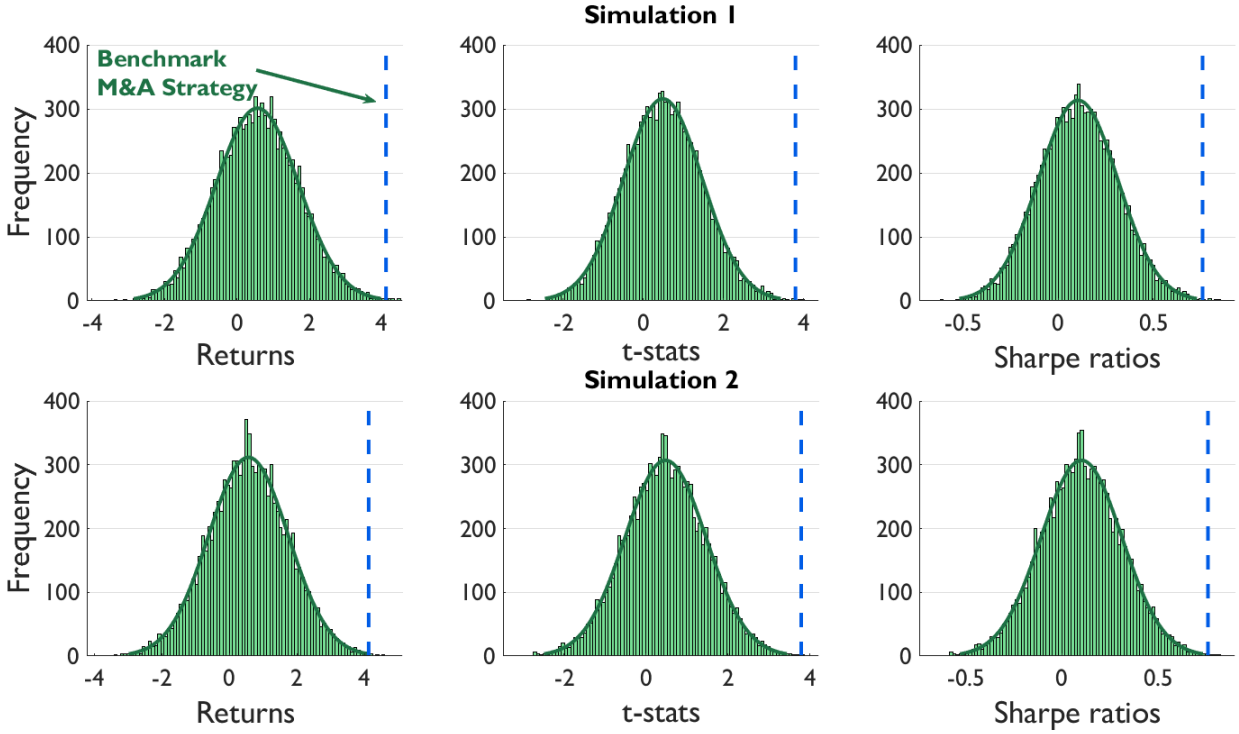

Fig 6. Bootstrapping M&A Portfolio Performance. The figure plots the histograms of average returns, t-statistics, and Sharpe ratios from two simulations involving the construction of 10,000 bootstrapped samples. The corresponding values for the observed rank-weight M&A portfolio are plotted as a dashed line in each plot.

randomly assign cross-border M&A signals ($\widetilde{MA}^{*}_{i,t}$) to countries drawn from their own vector of observed signals. In each test we form 10,000 bootstrapped samples. We then calculate the performance of the bootstrapped cross-border M&A portfolios using rank weights. If the performance of our main portfolio, documented in Table 4, is not different from the average investment performance of the bootstrapped portfolios, then we cannot confidently claim to have uncovered a new source of predictability. In the first simulation we draw signals independently across countries. In the second simulation, we form the bootstrap sample by repeatedly drawing a cross-section of monthly signals. We provide full details of the two bootstrap procedures in Internet Appendix Section B.

In Fig. 6, we plot the bootstrapped distributions of average returns, t-statistics, and Sharpe ratios for test one (upper panel) and test two (lower panel). Across both tests, the observed M&A portfolio statistics are clear outliers—only a handful of randomly assigned weights generate equivalent return predictability. The p-values are therefore low (approximately 0.001 in each case), and the average annualized returns of the simulated portfolios are only 0.5% (corresponding to a Sharpe ratio of 0.10). In sum, abnormal M&A activity is again found to provide both an economically and statistically informative signal of 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 overly 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 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. It is also not subsumed by publicly available predictors, suggesting that firms' private information about future macroeconomic fundamentals is revealed outside of FX order flow.

The paper contributes to a growing literature investigating ties between economic funda-

mentals and FX returns, and provides new insights into how private information my be revealed and incorporated into exchange rates—connecting to the broader study of asymmetric information and the determination of exchange rates. The results of the study have broad practical implications: For policy makers, the findings provide a way to identify informed capital flows that have a permanent exchange rate impact. 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 ($\widetilde{MA}_{i,t}$):

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

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) 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 January 1997 and ending in December 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 ($\widetilde{MA}^{out}_{i,t}$):

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

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) 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 January 1997 and ending in December 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) have above average outflows (inflows). In the right-hand panel ("Less"), countries entering P_1 (P_3) have below average 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 5.1. 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 4.4 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						
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

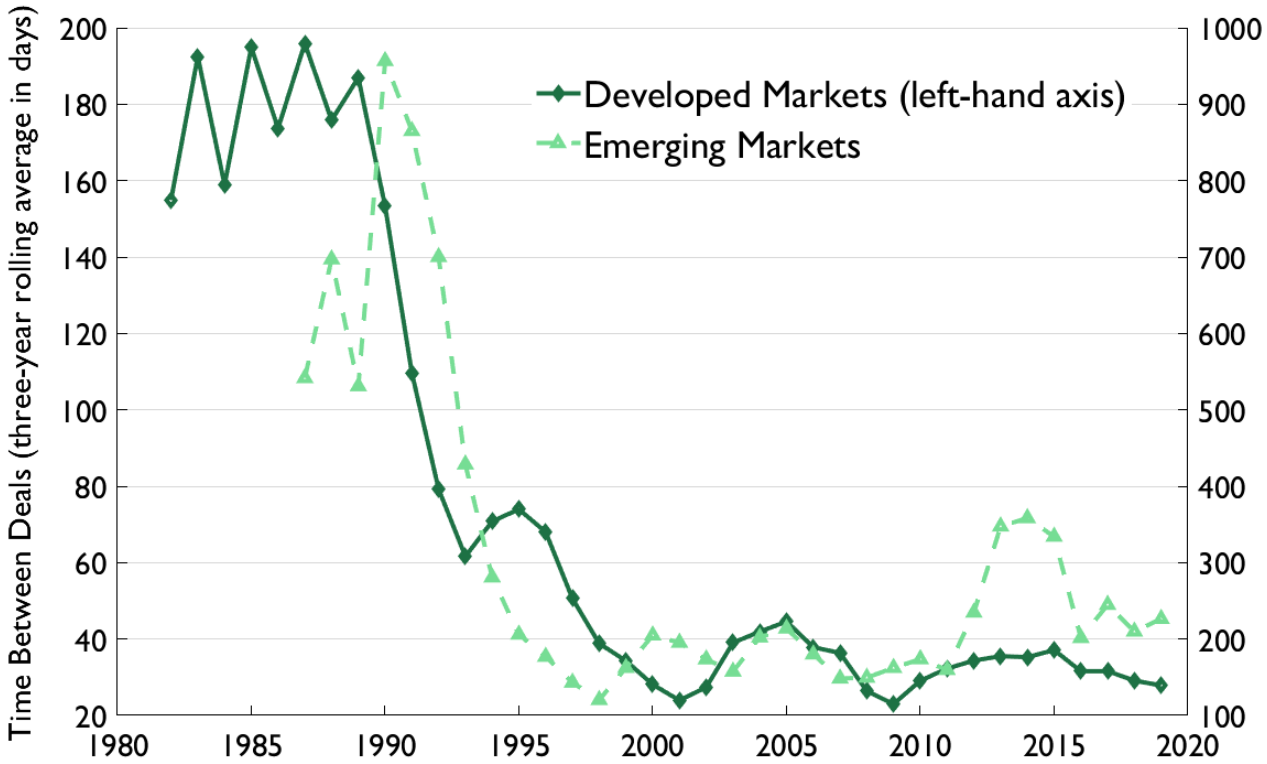

Fig A.1: Frequency of Announced Cross-Border M&As. The figure plots the average number of days between announcements of cross-border M&A deals involving the United States and either developed-market (solid line) or emerging-market (dashed line) countries over the prior 36 months. The 1995 data point,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

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 the Datastream codes and availability of foreign exchange rate data. Currencies in the Eurozone are included separately until December 31, 1998, after which the Euro is used.

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.