

European and Asia Pacific ADRs: A Long-Term Performance Assessment

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The paper reports on empirical work recently conducted about the determinants of human resource (HR) practices based on High performance work system (HPWS) in small and medium sized enterprises (SMEs) in Vietnam. From a structural equation modeling approach; this paper analyzes data collected from 159 samples of line managers who were working in limited and joint stock companies. The paper explores a system of HR practices implemented in Vietnam, including job description and appraisal, extensive training, employee security, internal mobility, selective staffing and incentive reward. Research findings suggest that there is considerable diversity amongst SMEs in relation to their use of HR practices. Moreover, the research implications, and suggestions for future research directions are also discussed in this paper.

Keywords: American Depositary Receipts, Regional Indexes, International Diversification

Introduction

International diversification should reduce investor risk according to portfolio theory. In 1927, JP Morgan began to sell receipts backed by foreign shares in the US domestic stock market to provide US investors with an easy way to purchase foreign stocks. They converted the share price to dollars and bundled them until the dollar-translated value approximated US equity prices. All cash payments from the foreign firms were exchanged for dollars before passing along the dividends to the US receipt owner. This investment vehicle, American Depositary Receipt (henceforth ADR), provides U.S. investors with a mechanism to invest internationally. Now, investors can easily diversify internationally by using mutual funds that consist of foreign shares and even regional index funds.

Many studies suggest ADRs provide international diversification benefits to US investors. Examples include Schaub (2019a, 2019b), Officer and Hoffmeister (1988), Jiang (1998), and Schaub (2004). Other studies show that over time the benefits from international diversification have declined. These include Errunza et al. (1994), Brooks and Del Negro (2004) and Christoffersen et al. (2012). In addition, Stulz and Williamson (2003) and Pukthuanthong and Roll (2009) provide evidence that stock market correlations have increased due to global integration of markets, thus reducing these benefits. Despite these findings, Schaub and Brown (2015) indicate that although regional

indexes perform similarly (in particular European and US), NYSE-listed ADRs from Asia Pacific and Latin America performed significantly different than the indexes based on when the ADRs were listed. These results suggest ADRs can still provide extra diversification benefits to US investors.

The ADRs examined by Schaub and Brown (2015) were large firms listed on the NYSE. Because the NYSE has strict information requirements, these firms often have less informational asymmetry than smaller firms listed on the NASDAQ. Historically, smaller firms experience higher levels of return variation due to the lower level of information available and their place in the growth cycle. For these reasons, investors that are willing to take on the extra risk of small firm investing can potentially receive higher returns. Another study by Schaub (2016) focuses on the short-term wealth effects of ADRs from the Asia Pacific and European regions. The short-term excess returns for European ADRs shows positive returns for the 21-day period following initial issuance during both decades of the study. However, the Asia Pacific ADRs show mixed results.

This study extends that of Schaub and Brown (2015) into the arena of small firm investing by examining return behavior of smaller firm ADRs listed on the NASDAQ from the Europe and Asia Pacific regions relative to a US index of predominantly small firms (NASDAQ Index) and a regional one. Additionally, we extend the work of Schaub (2016) by looking at a longer performance period. Specifically, we investigate the question; how well do these ADRs perform over a three-year time frame?

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The remainder of this study is broken down as follows: the next section provides a basic background review of the topic citing some of the relevant literature. The next section then presents the sample composition, excess return computational methods and significance testing. The final sections present results and conclude the study.

Background

Understanding the ADR creation process illustrates risks added and removed from a portfolio. A large US bank will find an attractive foreign company and proceed to list its shares on US exchanges and in the OTC market. Often the company approaches the bank (called a sponsored issue) although some ADRs lack the involvement of the foreign firm (called an unsponsored issue). The sponsored issues allow the firm to raise new equity capital from investors in the US market. Regardless, ADR investors normally do not receive voting rights of the shares.

Since share prices are normally denominated in the currency of the issuing firm's country of origin, these must be translated into dollars (along with cash payments) to enable the sale of the security in the US market. Even though the US investor does not have to trade on a foreign exchange or in currency markets, there is a degree of currency risk involved in the investment. Because ADRs are originally denominated in the currency of the issuing firm and then translated into dollars, ADR investing exposes a portfolio to some currency risk. Various studies have borne this out. For example, translating market indexes of different countries into dollars shows significant impacts of exchange rate changes according to De Santis and Gerard (1998). Due to the large capitalization of ADRs, US market price changes actually have short-run and long-run impacts on forex values as suggested by Phylaktis and Ravazzolo (2005). Despite these changes in forex values Liang and Mougoue (1996) find a well-diversified portfolio of ADRs can diversify away most exchange rate risk. Even though there is exchange rate exposure, Karolyi (1998, 2004) provides evidence that the ability to list foreign equities in the US via the ADR has promoted global economic activity and stabilized emerging markets to a certain degree.

Many ADR performance studies examine returns using IPO methodology. Callaghan, Kleiman and Sahu (1999) focus on ADRs issued from 1986 through 1993 and find ADRs outperform domestic market portfolios in the first year of trading. They also determine that ADRs issued from firms headquartered in emerging markets perform better than their counterparts issued by firms from developed markets. However, Foerster and Karolyi (2000) find the opposite in a sample from 1982 to 1996. Their findings suggest ADRs underperformed the domestic market index for a 3-year holding period after the issue date for ADRs from all regions. While Schaub (2003) concurs with the Foerster and Karolyi (2000) results of underperformance by examining ADR

performance for issues listed from 1987 to 1998, in a subsequent study Schaub (2004) finds significant differences in ADR performance based on market timing (when the ADRs were listed—bull versus bear market) for Asia Pacific ADRs but not for European ADRs.

The market timing issue addressed in a series by Schaub (2013, 2014a, 2014b) persisted in that the results from ADRs listed on the New York Stock Exchange in the 1990s, when compared to those listed in the 2000s, provide significant return differences. Although the world markets developed more in the 2000s, the returns in the US market were much more volatile relative to the 1990s. In this environment Schaub (2013) finds that Latin American ADRs listed on the NYSE in the 1990s significantly underperformed the US index, while those listed in the 2000s decade significantly outperformed the US index. In addition, Schaub (2014a, 2014b) notes the decade effect persisted for Asia Pacific NYSE-listed ADRs and to a lesser extent for European ADRs. Evidence of market timing results for NASDAQ-listed ADRs based on bull versus bear US markets are addressed by Schaub (2007, 2009) using samples spanning 1990 through 2002.

With the ease of investing internationally using mutual funds, the question arises as to whether ADRs as an individual investment provides an investor with any benefits beyond those of simply investing in domestic and regional index funds. The research question addressed in this study then is: Do NASDAQ-listed ADRs just track similarly with domestic and regional indexes? Or do they provide wealth benefits beyond index investing for long-term investors? In addition, do these results vary based on conditions in the US market (market timing effect)? Schaub and Brown (2015) find NYSE-listed ADRs provide significant benefits over index investing, particularly for emerging issues listed in the 2000s (as opposed to the 1990s). However, their study focuses primarily on the larger firm ADRs listed on the NYSE. In meeting the reporting requirements to trade on the NYSE, those firms have less informational asymmetry associated with the issues. An obvious lingering question surrounds smaller firm ADRs listed on the NASDAQ. Can these provide investors with extra diversification benefits above and beyond simple index investing? Also, did these NASDAQ-listed ADRs exhibit a market timing effect? This study seeks to address these questions by examining the performance of NASDAQ-listed ADR issues from the Asia Pacific and European regions.

Data and Methods

The sample consists of ADRs listed on the NASDAQ from January 1, 1990 through December 31, 2009. Because the event window is three years, this time period gives return performance through 2013. The choice of using 10 years of data before and after the turn of the millennium provides a symmetrical analysis of two equally long 10-year time periods. Each period is characterized by short-term and long-term world events

that can occur again in the future. The 10-year sample periods contain enough ADRs with listing dates spread out over time to include vast possibilities of return variability using a 3-year investment window.

The 1990's sample includes ADRs that traded while major events occurred. Examples include the implementation of NAFTA and trade agreements that granted China "most favored nation" trading status (the impact of which greatly affected the economic development and the number of ADRs listing from that country in the 2000s). During the 1990s (in 1997 specifically) the Asian currency and financial crisis occurred causing economic uncertainty in that region and resulting in a substantial short-term drop in US markets (the Dow lost over 7 percent in one day in October, 1997). In the other region targeted in this research, the European Union was created in 1992 by the joining of 12-member nations agreeing to reduce or eliminate tariffs and create a common currency called the Euro (which began circulation in 2002). Lastly, Y2K created an investment bubble in the technology sector that caused the NASDAQ to increase substantially before the year 2000.

In the sample of ADRs listed during the first decade of the 2000s, the long-term impact of trade agreements which moved manufacturing overseas began to be realized. Countries in the Asia Pacific region became more developed and their currencies became more stable while Europe was introducing its new common currency (the Euro). The 2000s decade had several substantial world events that affected stock prices. The stock market began correcting after Y2K fears abated and the September 11, 2001 terrorist attack compounded the drop in equity values. This turmoil was followed with war in the Middle East and a substantial increase in oil prices that hit over \$145 per barrel in 2008. Also, in 2008 the effects of the financial crisis that begin in the mortgage market caused equity prices to fall substantially well through the end of 2009. Of the 2 decades sampled, the 1990s had more stability in equity prices than the 2000s decade.

As can be seen by the events that occurred in both decades, major economic events were affecting not only the values of the US stock market (NASDAQ as a proxy to evaluate NASDAQ-listed ADRs), but also the specific regions from which the sample is obtained. Therefore, there may have been more equity value adjustments in indexes of asset values of Europe and Asia Pacific companies than in the US index. These differences can be captured and compared not only index-to-index, but also with ADR-to-index comparisons. As a result, the sample window used in this research should provide results specifically tailored to show how ADRs performed over time through world events, and also how they might perform again as the world deals with more and more economic challenges.

For these reasons we collect a sample of all ADRs listed from 1990 through 2009 using the NASDAQ and the BNY Mellon websites. The majority of the ADRs

listed were firms headquartered in the European and Asia Pacific regions. Table 1 segments the sample of 152 NASDAQ-traded ADRs region and timing of listing. Segmenting the sample by issue date captures differences based on the stability/instability of the US market (1990s vs 2000s) and the development of emerging markets (2000s). As seen in Table 1, the majority of Asia Pacific ADRs listed on the NASDAQ occurred during the substantial development of that region (specifically China) in the 2000s. Quite the opposite, most of the NASDAQ ADRs from European companies listed in the 1990s. In total, both regions listed about the same number of ADRs overall during the 20-year sample period.

Table 1. Sample Description by Region and Date

Region of Issue	Number of Observations	Date of Issue	
		1990s	2000s
Asia Pacific	75	20	55
Europe	77	54	23
Totals	152	74	78

Computing and testing excess returns utilize standard ADR and IPO methodology as seen in Schaub (2003). An excess return means the return of the ADR has been adjusted by subtracting the return of the market index in order to determine how the ADR performed versus the benchmark. Since the study consists of NASDAQ-traded ADRs, the NASDAQ index, which consists of all firms traded on the NASDAQ, represents the respective US index. Also, the regional indexes provided by Morgan Stanley Capital International, and available in Morningstar, proxy the regional returns of Europe and Asia Pacific (MSCI Europe Index and MSCI Asia Pacific Index). These indexes, unlike many others, were available for the entire sample period (1990 – 2009) and represent easy to obtain investment sets for the typical investor.

Monthly excess returns, computed and tested for significance, are also accumulated and tested each month from the beginning of the ADR issue period until the 36th month after issuance. The equations below show the process. In Equation 1, the return of the respective market index in month t (r_{mt}) is subtracted from the return of the ADR in month t (r_{it}) to obtain the excess return for ADR i during month t (xr_{it}).

$$xr_{it} = r_{it} - r_{mt} \quad (1)$$

The average excess return for the sample of ADRs during month t (XR_t) results from dividing the sum of the excess returns by the number (n) of securities in the sample as shown in Equation 2.

$$XR_t = \frac{1}{n} \sum_{i=1}^n xr_{it} \quad (2)$$

Average excess returns are cumulated on a month by month basis, as shown in Equation 3, so that the cumulative excess returns (CXR) as of month s is the sum of the average excess returns starting at month 1 until month s . The results window spans 3 years so return accumulation ends at month 36.

$$CXR_{i,t} = \sum_{r=1}^s XR_t \quad (3)$$

All computed monthly average excess returns and cumulative excess returns are tested to determine statistical significance. Respective P-values for these tests indicate whether monthly and/or cumulative average excess returns are significant using an alpha level of 0.10.

Results and Discussion

Table 2 begins a series of tables that present monthly excess return results versus the US and regional benchmarks as well as how the index benchmarks performed versus each other. It shows the total sample results for the NASDAQ listed ADRs from the Asia Pacific and European regions (combined) from 1990 through 2009.

Table 2. 3-Year Monthly Performance of NASDAQ-Listed Asia Pacific and European ADRs (January 1990 – December 2009)^a

Mth	Entire Sample Versus US Index (152 Observations)				Entire Sample Versus Regional Index (152 Observations)				Regional Index – US Index (152 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	2.68%	0.11	2.68%	0.11	2.08%	0.19	2.08%	0.19	0.60%	0.18	0.60%	0.18
+ 2	0.23%	0.46	2.91%	0.17	0.12%	0.48	2.20%	0.25	0.11%	0.42	0.71%	0.20
+ 3	3.95%	0.01	6.86%	0.03	4.23%	0.01	6.44%	0.04	-	0.31	0.43%	0.33
+ 4	-0.47%	0.40	6.40%	0.06	0.63%	0.37	7.07%	0.05	0.28%	-	-	0.28
+ 5	-0.94%	0.29	5.46%	0.11	-	0.14	5.12%	0.13	1.10%	0.02	0.67%	-
+ 6	-2.94%	0.03	2.52%	0.29	1.95%	-	5.12%	0.13	1.01%	0.08	0.34%	0.40
+ 7	1.01%	0.27	3.53%	0.24	-	0.09	2.93%	0.28	-	0.09	-	0.39
+ 8	-2.04%	0.12	1.49%	0.39	2.19%	-	4.60%	0.19	0.75%	-	0.41%	-
+ 9	-0.45%	0.38	1.04%	0.42	1.67%	0.17	3.56%	0.26	-	0.11	-	0.24
+ 10	0.92%	0.23	1.96%	0.36	-	0.28	2.71%	0.32	0.66%	-	1.08%	-
+ 11	-2.11%	0.06	-0.15%	0.49	1.04%	-	3.56%	0.26	-	0.05	-	0.11
+ 12	-1.84%	0.12	-1.99%	0.37	-	0.30	2.71%	0.32	0.99%	-	2.07%	-
+ 13	-2.50%	0.02	-4.49%	0.23	0.85%	-	3.93%	0.25	0.40%	0.22	-	0.17
+ 14	0.45%	0.38	-4.04%	0.26	1.22%	0.20	3.93%	0.25	-	-	1.67%	-
+ 15	-1.88%	0.08	-5.92%	0.18	-	0.01	0.10%	0.49	0.29%	0.29	-	0.14
+ 16	-0.69%	0.32	-6.61%	0.16	3.83%	-	0.10%	0.49	1.72%	0.00	-	0.45
+ 17	1.91%	0.34	-4.70%	0.28	-	0.27	-0.94%	0.44	-	0.06	-	0.30
+ 18	0.49%	0.37	-4.21%	0.30	1.04%	-	-0.94%	0.44	0.80%	-	1.05%	-
+ 19	2.98%	0.05	-1.23%	0.44	-	0.02	-3.75%	0.28	0.31%	0.29	-	0.36
+ 20	-0.90%	0.27	-2.13%	0.40	2.81%	0.47	-3.64%	0.29	-	-	0.74%	-
+ 21	-2.18%	0.06	-4.31%	0.31	0.11%	0.47	-3.64%	0.29	0.34%	0.28	-	0.43
					-	0.17	-4.90%	0.24	-	0.11	-	0.32
					1.26%	-	-5.33%	0.22	0.62%	-	1.02%	-
					-	0.39	-5.33%	0.22	-	0.32	-	0.29
					0.43%	-	-4.14%	0.31	0.26%	-	1.28%	-
					1.18%	0.40	-4.14%	0.31	0.73%	0.08	-	0.41
					-	0.23	-2.99%	0.36	-	0.09	-	0.30
					1.15%	0.23	-2.99%	0.36	0.67%	-	1.22%	-
					3.41%	0.03	0.42%	0.48	-	0.17	-	0.25
					-	0.34	-0.20%	0.49	0.43%	-	1.65%	-
					0.62%	-	-0.20%	0.49	-	0.29	-	0.22
					-	0.14	-1.77%	0.42	0.28%	-	1.92%	-
					1.57%	-	-1.77%	0.42	-	0.14	-	0.16
									0.61%	-	2.53%	-

+22	-1.34%	0.16	-5.64%	0.26	-	0.10	-3.54%	0.35	0.42%	0.21	-	0.21
					1.76%						2.11%	
+23	0.98%	0.29	-4.66%	0.30	0.39%	0.42	-3.14%	0.37	0.59%	0.16	-	0.28
											1.52%	
+24	0.31%	0.44	-4.35%	0.32	0.86%	0.34	-2.28%	0.41	-	0.16	-	0.22
									0.54%		2.06%	
+25	4.99%	0.00	0.64%	0.47	5.64%	0.00	3.35%	0.37	-	0.13	-	0.16
									0.65%		2.71%	
+26	-2.17%	0.08	-1.52%	0.44	-	0.14	1.69%	0.43	-	0.15	-	0.13
					1.66%				0.51%		3.22%	
+27	2.67%	0.07	1.15%	0.45	3.07%	0.05	4.76%	0.32	-	0.24	-	0.10
									0.39%		3.61%	
+28	2.71%	0.04	3.86%	0.35	2.86%	0.04	7.62%	0.23	-	0.38	-	0.10
									0.15%		3.76%	
+29	0.02%	0.50	3.88%	0.35	0.67%	0.36	8.29%	0.21	-	0.12	-	0.07
									0.65%		4.41%	
+30	-0.82%	0.30	3.06%	0.38	-	0.37	7.72%	0.23	-	0.31	-	0.06
					0.56%				0.26%		4.67%	
+31	3.87%	0.18	6.93%	0.26	3.84%	0.18	11.57%	0.15	0.03%	0.48	-	0.06
											4.63%	
+32	0.57%	0.35	7.51%	0.25	0.35%	0.41	11.92%	0.15	0.22%	0.35	-	0.08
											4.41%	
+33	-0.14%	0.46	7.36%	0.25	0.56%	0.35	12.47%	0.14	-	0.09	-	0.05
									0.70%		5.11%	
+34	3.03%	0.07	10.39%	0.18	3.70%	0.04	16.17%	0.08	-	0.09	-	0.03
									0.67%		5.78%	
+35	0.26%	0.44	10.65%	0.17	1.16%	0.25	17.33%	0.07	-	0.03	-	0.02
									0.90%		6.68%	
+36	2.47%	0.11	13.12%	0.13	3.79%	0.03	21.12%	0.04	-	0.01	-	0.01
									1.33%		8.00%	

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXr) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level.

With slight variation month-to-month over the first 36 months of trading after being listed on the NASDAQ, these ADRs tend to slightly outperform the US and regional indexes in the first month of trading on average (as seen in the first two panels) by over 2 percent. The same ADRs outperform the NASDAQ on average by 13.12 percent by the end of the first 36 months of trading

as compared to outperforming the regional index by just over 21 percent. The third panel shows that, on average, the regional indexes underperform the US index by 8 percent for the 3-year holding period. Table 2 suggests the ADRs outperform the respective indexes for the first few years of trading.

Table 3. 3-Year Performance by Month for NASDAQ-Listed Asia Pacific and European ADRs 1990s Issues^a

Month	Entire Sample Versus US Index (74 Observations)				Entire Sample Versus Regional Index (74 Observations)				Regional Index – US Index (74 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	7.18%	0.02	7.18%	0.02	9.31%	0.00	9.31%	0.00	-2.13%	0.00	-2.13%	0.00
+ 2	3.02%	0.22	10.20%	0.02	3.60%	0.19	12.91%	0.01	-0.58%	0.21	-2.71%	0.01
+ 3	6.02%	0.02	16.22%	0.00	8.01%	0.01	20.92%	0.00	-1.99%	0.01	-4.70%	0.00
+ 4	0.55%	0.43	16.77%	0.01	3.50%	0.12	24.42%	0.00	-2.94%	0.00	-7.64%	0.00
+ 5	-1.41%	0.25	15.37%	0.01	-2.00%	0.21	22.42%	0.00	0.60%	0.31	-7.05%	0.00
+ 6	-3.76%	0.07	11.61%	0.06	-1.50%	0.29	20.92%	0.00	-2.26%	0.00	-9.31%	0.00
+ 7	-0.10%	0.48	11.50%	0.07	1.60%	0.25	22.51%	0.00	-1.70%	0.02	-11.01%	0.00
+ 8	-4.62%	0.02	6.88%	0.20	-1.50%	0.26	21.01%	0.01	-3.12%	0.00	-14.13%	0.00
+ 9	1.92%	0.20	8.80%	0.15	2.28%	0.18	23.29%	0.00	-0.37%	0.31	-14.50%	0.00
+10	0.43%	0.40	9.22%	0.14	2.20%	0.13	25.49%	0.00	-1.77%	0.01	-16.27%	0.00
+11	-3.97%	0.02	5.25%	0.28	-5.60%	0.01	19.89%	0.02	1.63%	0.03	-14.64%	0.00
+12	-3.95%	0.02	1.30%	0.44	-2.07%	0.15	17.82%	0.03	-1.88%	0.01	-16.52%	0.00
+13	-1.37%	0.18	-0.07%	0.50	-1.84%	0.16	15.97%	0.05	0.48%	0.31	-16.04%	0.00
+14	-0.67%	0.37	-0.74%	0.47	-0.92%	0.34	15.05%	0.07	0.25%	0.40	-15.79%	0.00
+15	0.94%	0.32	0.20%	0.49	2.31%	0.11	17.36%	0.05	-1.37%	0.04	-17.17%	0.00

+16	-2.74%	0.09	-2.54%	0.40	-2.67%	0.12	14.70%	0.08	-0.07%	0.47	-17.24%	0.00
+17	-1.11%	0.33	-3.65%	0.36	-1.64%	0.27	13.05%	<i>0.12</i>	0.54%	0.26	-16.70%	0.00
+18	-0.13%	0.48	-3.77%	0.36	1.80%	0.23	14.86%	0.09	-1.93%	0.01	-18.63%	0.00
+19	2.99%	0.13	-0.79%	0.47	4.24%	0.06	19.09%	0.05	-1.25%	0.06	-19.88%	0.00
+20	-0.86%	0.35	-1.65%	0.44	-0.11%	0.48	18.98%	0.05	-0.75%	0.17	-20.63%	0.00
+21	-3.84%	0.03	-5.49%	0.31	-2.51%	0.12	16.47%	0.08	-1.34%	0.09	-21.96%	0.00
+22	-0.66%	0.38	-6.15%	0.29	-0.74%	0.37	15.73%	0.10	0.09%	0.46	-21.88%	0.00
+23	-1.17%	0.31	-7.32%	0.26	-0.93%	0.36	14.80%	0.12	-0.24%	0.41	-22.12%	0.00
+24	2.17%	0.28	-5.15%	0.34	4.39%	0.11	19.19%	0.07	-2.22%	0.01	-24.34%	0.00
+25	2.91%	0.14	-2.24%	0.43	4.73%	0.05	23.92%	0.04	-1.82%	0.03	-26.16%	0.00
+26	-2.74%	0.11	-4.98%	0.35	-1.49%	0.25	22.43%	0.05	-1.25%	0.07	-27.41%	0.00
+27	2.85%	0.17	-2.13%	0.43	3.68%	0.13	26.10%	0.03	-0.83%	0.20	-28.24%	0.00
+28	4.46%	0.03	2.33%	0.43	4.25%	0.06	30.35%	0.02	0.22%	0.41	-28.02%	0.00
+29	-1.18%	0.28	1.15%	0.47	-0.59%	0.40	29.76%	0.02	-0.59%	0.28	-28.61%	0.00
+30	-1.08%	0.33	0.07%	0.50	-1.34%	0.30	28.42%	0.02	0.25%	0.40	-28.35%	0.00
+31	0.16%	0.48	0.23%	0.49	-0.24%	0.46	28.18%	0.03	0.40%	0.33	-27.95%	0.00
+32	2.24%	0.17	2.47%	0.43	1.54%	0.26	29.72%	0.02	0.70%	0.26	-27.25%	0.00
+33	0.15%	0.47	2.62%	0.43	0.38%	0.44	30.11%	0.02	-0.23%	0.41	-27.48%	0.00
+34	0.81%	0.39	3.43%	0.41	1.46%	0.32	31.57%	0.02	-0.65%	0.24	-28.13%	0.00
+35	-2.59%	0.86	0.84%	0.48	-1.72%	0.26	29.85%	0.03	-0.87%	0.17	-29.01%	0.00
+36	3.20%	0.16	4.04%	0.39	6.14%	0.03	35.99%	0.01	-2.95%	0.00	-31.95%	0.00

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXR) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level.

Tables 3 and 4 show how the total sample of ADRs perform when separated by those ADRs listed in the 1990s versus those listed in the 2000s. The 1990s sample contains those ADRs listed in the US on the NASDAQ from January 1, 1990 until December 31, 1999. The sample of ADRs listed in the 2000s began US trading between January 1, 2000 and December 31, 2009.

These two decades characterize different levels of volatility in the US markets. In the 1990s, the US markets were more stable with steady increases in value (stability) whereas in the 2000s the US markets experienced several large declines in between the large increases in value (volatility).

Table 4. 3-Year Performance by Month for NASDAQ-Listed Asia Pacific and European ADRs 2000s Issues^a

Month	Entire Sample Versus US Index (78 Observations)				Entire Sample Versus Regional Index (78 Observations)				Regional Index – US Index (78 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	-1.59%	0.29	-1.59%	0.29	-4.78%	0.05	-4.78%	0.05	3.19%	0.00	3.19%	0.00
+ 2	-2.42%	0.08	-4.00%	0.12	-3.18%	0.04	-7.95%	0.01	0.76%	0.18	3.95%	0.00
+ 3	1.99%	0.18	-2.02%	0.31	0.65%	0.39	-7.31%	0.04	1.34%	0.04	5.29%	0.00
+ 4	-1.43%	0.27	-3.45%	0.23	-2.08%	0.19	-9.39%	0.02	0.65%	0.09	5.94%	0.00
+ 5	-0.49%	0.42	-3.94%	0.23	-1.89%	0.24	-11.29%	0.02	1.41%	0.03	7.35%	0.00
+ 6	-2.16%	0.13	-6.10%	0.14	-2.85%	0.07	-14.13%	0.01	0.68%	0.14	8.03%	0.00
+ 7	2.06%	0.20	-4.04%	0.26	1.75%	0.25	-12.39%	0.03	0.32%	0.38	8.35%	0.00
+ 8	0.42%	0.44	-3.62%	0.29	-0.61%	0.41	-13.00%	0.03	1.03%	0.09	9.37%	0.00
+ 9	-2.69%	0.07	-6.32%	0.18	-3.82%	0.03	-16.82%	0.01	1.13%	0.04	10.50%	0.00
+10	1.39%	0.22	-4.92%	0.25	0.29%	0.45	-16.53%	0.01	1.11%	0.07	11.61%	0.00
+11	-0.34%	0.43	-5.26%	0.24	-2.15%	0.16	-18.67%	0.01	1.80%	0.00	13.41%	0.00
+12	0.16%	0.48	-5.11%	0.26	-0.06%	0.49	-18.73%	0.01	0.22%	0.38	13.63%	0.00
+13	-3.58%	0.03	-8.68%	0.14	-3.73%	0.04	-22.46%	0.00	0.15%	0.48	13.78%	0.00
+14	1.52%	0.24	-7.17%	0.20	1.09%	0.31	-21.38%	0.01	0.43%	0.27	14.21%	0.00
+15	-4.55%	0.00	-11.72%	0.09	-4.64%	0.00	-26.02%	0.00	0.09%	0.44	14.30%	0.00
+16	1.25%	0.27	-10.47%	0.12	1.70%	0.21	-24.32%	0.00	-0.44%	0.24	13.86%	0.00
+17	4.77%	0.30	-5.70%	0.32	3.87%	0.33	-20.46%	0.05	0.90%	0.07	14.76%	0.00
+18	1.07%	0.29	-4.63%	0.36	0.53%	0.40	-19.92%	0.06	0.53%	0.17	15.29%	0.00
+19	2.98%	0.12	-1.65%	0.45	2.62%	0.15	-17.30%	0.09	0.36%	0.18	15.65%	0.00
+20	-0.93%	0.31	-2.58%	0.42	-1.10%	0.29	-18.41%	0.08	0.17%	0.46	15.82%	0.00
+21	-0.59%	0.38	-3.18%	0.40	-0.68%	0.37	-19.08%	0.08	0.08%	0.46	15.90%	0.00
+22	-1.98%	0.12	-5.16%	0.35	-2.73%	0.06	-21.81%	0.05	0.74%	0.08	16.65%	0.00
+23	3.02%	0.12	-2.14%	0.44	1.65%	0.27	-20.16%	0.07	1.38%	0.00	18.02%	0.00
+24	-1.44%	0.24	-3.58%	0.40	-2.49%	0.11	-22.66%	0.05	1.05%	0.03	19.08%	0.00
+25	6.96%	0.00	3.38%	0.40	6.50%	0.01	-16.16%	0.13	0.46%	0.13	19.54%	0.00

+26	-1.62%	0.23	1.76%	0.45	-1.82%	0.20	-17.98%	0.11	0.20%	0.42	19.74%	0.00
+27	2.51%	0.11	4.26%	0.38	2.49%	0.10	-15.49%	0.14	0.02%	0.48	19.76%	0.00
+28	1.05%	0.29	5.31%	0.36	1.54%	0.21	-13.95%	0.17	-0.49%	0.13	19.26%	0.00
+29	1.15%	0.34	6.46%	0.33	1.86%	0.26	-12.08%	0.21	-0.72%	0.05	18.55%	0.00
+30	-0.57%	0.39	5.89%	0.35	0.17%	0.47	-11.91%	0.22	-0.74%	0.03	17.81%	0.00
+31	7.39%	0.17	13.29%	0.21	7.72%	0.16	-4.20%	0.40	-0.32%	0.28	17.49%	0.00
+32	-1.01%	0.30	12.28%	0.23	-0.78%	0.35	-4.98%	0.39	-0.23%	0.27	17.26%	0.00
+33	-0.42%	0.40	11.86%	0.24	0.72%	0.34	-4.26%	0.40	-1.14%	0.01	16.12%	0.00
+34	5.13%	0.03	16.99%	0.16	5.82%	0.02	1.56%	0.46	-0.69%	0.04	15.43%	0.00
+35	2.96%	0.08	19.96%	0.12	3.88%	0.04	5.45%	0.38	-0.92%	0.02	14.51%	0.00
+36	1.77%	0.25	21.73%	0.11	1.56%	0.26	7.00%	0.35	0.21%	0.39	14.72%	0.00

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXR) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level.

The first panel of Table 3 shows the ADRs listed in the 1990s returned only 4 percent more on average than the NASDAQ for the 36-month holding period although in the first few months of trading those same ADRs significantly outperform the US index. In comparison, the first panel of Table 4 shows the ADRs listed in the 2000s outperform the NASDAQ by nearly 22 percent on average for the 36-month window. Compared to the regional index (second panel of both tables), the 1990s ADRs drastically outperform by 36 percent on average while the 2000s issues only outperform the regional index by 7 percent on average. This result shows the ADRs perform the same or better than both the US and regional indexes for the first 36 months of trading on average.

The third panel of both tables shows the differences in index performance for both decades. In the 1990s the regional indexes significantly underperform the NASDAQ for the entire 36 months the ADRs were initially traded, ending with an underperformance of nearly 32 percent. Conversely in the 2000s the regional indexes significantly outperform the NASDAQ for the

whole 36-month window ending with a nearly 15 percent on average excess performance. Remember that the 1990s sample more heavily reflected the European ADRs while the 2000s sample had more Asia Pacific companies.

Tables 5, 6 and 7 present the monthly excess return results of the Asia Pacific sample in total (Table 5), 1990s issues (Table 6) and 2000s issues (Table 7). The total sample results presented in Table 5 show that throughout most of the first three years of trading the ADRs were underperforming the NASDAQ, however by the end of the trading window the sample of ADRs ended up outperforming the US index by 10.27 percent on average (first panel). Similarly, these ended up outperforming the MSCI Asia Pacific index by 15.34 percent (second panel). Though not statistically significant, the ADR portfolio outperforms both indexes on average while the Asia Pacific index underperforms the NASDAQ by 5 percent for the holding period (third panel). A close look at panel 3 shows there was not much variation between the NASDAQ and regional index in total.

Table 7. 3-Year Performance for Asia Pacific NASDAQ-Listed ADRs US versus Regional Index 2000s Issues^a

Month	Asia Pacific Sample Versus US Index (55 Observations)				Asia Pacific Sample Versus Regional Index (55 Observations)				Regional Index – US Index (55 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	-5.84%	0.02	-5.84%	0.02	-7.88%	0.00	-7.88%	0.00	2.04%	0.01	2.04%	0.01
+ 2	-2.72%	0.09	-8.56%	0.01	-3.39%	0.06	-11.27%	0.00	0.68%	0.14	2.72%	0.01
+ 3	1.68%	0.27	-6.88%	0.06	1.36%	0.31	-9.92%	0.02	0.33%	0.34	3.04%	0.01
+ 4	-2.67%	0.16	-9.54%	0.03	-3.03%	0.14	-12.95%	0.01	0.36%	0.25	3.40%	0.01
+ 5	1.14%	0.37	-8.41%	0.09	0.65%	0.43	-12.30%	0.03	0.49%	0.21	3.90%	0.01
+ 6	-2.30%	0.14	-	0.05	-2.97%	0.09	-15.27%	0.01	0.68%	0.16	4.57%	0.00
+ 7	5.37%	0.04	10.70%	0.23	5.16%	0.05	-10.12%	0.09	0.21%	0.40	4.78%	0.01
+ 8	-1.45%	0.30	-6.79%	0.19	-2.47%	0.20	-12.59%	0.06	1.02%	0.13	5.80%	0.00
+ 9	-1.85%	0.18	-8.64%	0.14	-2.85%	0.09	-15.44%	0.03	1.00%	0.10	6.80%	0.00
+10	0.95%	0.34	-7.69%	0.18	0.54%	0.42	-14.90%	0.04	0.41%	0.28	7.21%	0.00
+11	-0.11%	0.48	-7.80%	0.18	-1.33%	0.24	-16.24%	0.03	1.23%	0.04	8.44%	0.00
+12	0.06%	0.49	-7.74%	0.20	-0.47%	0.44	-16.71%	0.04	0.53%	0.24	8.97%	0.00
+13	-1.99%	0.14	-9.73%	0.15	-2.68%	0.08	-19.39%	0.02	0.69%	0.15	9.66%	0.00
+14	1.20%	0.31	-8.53%	0.19	0.96%	0.35	-18.43%	0.03	0.24%	0.38	9.90%	0.00
+15	-3.37%	0.04	-	0.11	-3.11%	0.05	-21.55%	0.02	-	0.37	9.64%	0.00
			11.91%						0.26%			

+16	0.43%	0.43	-	0.13	0.88%	0.35	-20.67%	0.02	-	0.22	9.20%	0.00
			11.47%						0.44%			
+17	-5.32%	0.01	-	0.05	-5.58%	0.01	-26.25%	0.01	0.26%	0.36	9.46%	0.00
			16.79%									
+18	0.29%	0.45	-	0.06	-0.11%	0.48	-26.36%	0.01	0.40%	0.27	9.86%	0.00
			16.50%									
+19	4.64%	0.07	-	0.14	4.55%	0.07	-21.81%	0.03	0.10%	0.42	9.96%	0.00
			11.85%									
+20	-1.77%	0.23	-	0.11	-1.23%	0.31	-23.04%	0.02	-	0.24	9.42%	0.00
			13.62%						0.54%			
+21	-0.04%	0.49	-	0.12	0.17%	0.31	-22.87%	0.03	-	0.37	9.21%	0.00
			13.66%						0.21%			
+22	-0.03%	0.49	-	0.12	-0.64%	0.38	-23.51%	0.03	0.60%	0.18	9.81%	0.00
			13.70%									
+23	2.24%	0.20	-	0.17	0.46%	0.43	-23.05%	0.03	1.78%	0.00	11.59%	0.00
			11.46%									
+24	-1.48%	0.26	-	0.15	-2.83%	0.10	-25.88%	0.02	1.35%	0.02	12.94%	0.00
			12.94%									
+25	2.47%	0.14	-	0.20	1.45%	0.26	-24.43%	0.03	1.02%	0.07	13.96%	0.00
			10.48%									
+26	-1.73%	0.28	-	0.17	-1.69%	0.27	-26.12%	0.02	-	0.48	13.92%	0.00
			12.21%						0.04%			
+27	4.96%	0.02	-7.24%	0.29	4.39%	0.03	-21.73%	0.05	0.57%	0.16	14.49%	0.00
+28	-0.21%	0.46	-7.46%	0.29	-0.29%	0.45	-22.03%	0.05	0.08%	0.44	14.57%	0.00
+29	1.95%	0.31	-5.51%	0.34	2.44%	0.27	-19.59%	0.08	-	0.21	14.08%	0.00
									0.49%			
+30	-1.33%	0.29	-6.84%	0.31	-0.18%	0.47	-19.77%	0.08	-	0.01	12.93%	0.00
									1.15%			
+31	10.41%	0.17	3.56%	0.42	10.47%	0.17	-9.30%	0.30	-	0.45	12.86%	0.00
									0.06%			
+32	-3.01%	0.08	0.55%	0.49	-2.64%	0.14	-11.94%	0.25	-	0.27	12.49%	0.00
									0.38%			
+33	-0.09%	0.48	0.46%	0.49	1.21%	0.27	-10.73%	0.28	-	0.01	11.18%	0.00
									1.30%			
+34	7.55%	0.02	8.01%	0.33	8.07%	0.01	-2.65%	0.44	-	0.12	10.66%	0.00
									0.52%			
+35	3.36%	0.11	11.37%	0.27	4.13%	0.07	1.48%	0.47	-	0.05	9.89%	0.01
									0.77%			
+36	2.05%	0.28	13.41%	0.24	2.31%	0.24	3.79%	0.42	-	0.30	9.62%	0.01
									0.27%			

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXR) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level

The three remaining tables (Tables 8, 9 and 10) present the results of the European sample of NASDAQ-listed ADRs based on the total sample, 1990s sample and 2000s sample respectively. In Table 8, results indicate the European ADRs outperform the US index by nearly 16 percent on average by the end of the first 3 years of trading. Likewise, the ADRs outperform the MSCI European index by nearly 27 percent on average while the European index underperforms the NASDAQ by nearly 11 percent on average during the same event window.

Breaking the results down into 1990s issues (Table 9), the European ADRs outperformed the NASDAQ

index significantly in the early trading, but only by about 5 percent on average by the end of the 36-month window. These same ADRs outperform the European regional index by nearly 32 percent on average during the same window in the 1990s. The third panel of Table 9 shows the MSCI European index significantly underperforms the US index in the 1990s based on the European sample. During this decade, European ADRs perform the same or better than both indexes regardless of how the respective benchmarks perform versus each other. The vast difference in index performance probably reflects the NASDAQ technology bubble of the 1990s.

Table 8. 3-Year Performance for European NASDAQ-Listed ADRs US versus Regional Index (Jan. 1990 – Dec. 2009)^a

European Sample Versus US Index (77 Observations)	European Sample Versus Regional Index (77 Observations)	Regional Index – US Index (77 Observations)
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Month	European Sample Versus US Index (54 Observations)				European Sample Versus Regional Index (54 Observations)				Regional Index – US Index (54 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	6.50%	0.01	6.50%	0.01	5.70%	0.03	5.70%	0.03	0.80%	0.21	0.80%	0.21
+ 2	1.41%	0.33	7.91%	0.03	1.02%	0.38	6.72%	0.07	0.39%	0.32	1.19%	0.18
+ 3	5.01%	0.01	12.92%	0.00	5.08%	0.03	11.80%	0.01	-0.07%	0.47	1.12%	0.24
+ 4	-0.58%	0.40	12.34%	0.01	0.18%	0.47	11.97%	0.02	-0.75%	0.17	0.37%	0.42
+ 5	-1.53%	0.23	10.81%	0.03	-3.30%	0.09	8.67%	0.08	1.77%	0.05	2.13%	0.15
+ 6	-2.96%	0.13	7.84%	0.11	-1.42%	0.30	7.25%	0.15	-1.54%	0.04	0.59%	0.40
+ 7	-1.67%	0.19	6.17%	0.18	-1.45%	0.25	5.80%	0.21	-0.23%	0.39	0.37%	0.44
+ 8	-0.68%	0.40	5.49%	0.22	0.88%	0.37	6.68%	0.19	-1.55%	0.03	-1.19%	0.32
+ 9	-0.89%	0.33	4.60%	0.27	-1.37%	0.27	5.30%	0.25	0.48%	0.25	-0.70%	0.39
+10	1.06%	0.26	5.66%	0.23	1.07%	0.29	6.37%	0.22	-0.01%	0.50	-0.71%	0.40
+11	-3.75%	0.02	1.91%	0.40	-5.93%	0.00	0.44%	0.48	2.19%	0.00	1.48%	0.30
+12	-2.23%	0.11	-0.32%	0.48	-1.23%	0.28	-0.79%	0.46	-1.01%	0.10	0.47%	0.44
+13	-3.93%	0.03	-4.25%	0.30	-3.28%	0.07	-4.07%	0.33	-0.65%	0.18	-0.18%	0.48
+14	0.59%	0.39	-3.66%	0.33	-0.58%	0.40	-4.65%	0.31	-1.17%	0.07	0.99%	0.38
+15	-2.95%	0.06	-6.61%	0.23	-2.23%	0.12	-6.88%	0.23	-0.72%	0.16	0.26%	0.47
+16	-0.89%	0.34	-7.50%	0.20	-0.27%	0.45	-7.14%	0.23	-0.62%	0.23	-0.36%	0.46
+17	7.11%	0.22	-0.39%	0.49	6.93%	0.22	-0.22%	0.49	0.19%	0.40	-0.17%	0.48
+18	1.91%	0.19	1.52%	0.45	2.83%	0.11	2.61%	0.42	-0.92%	0.11	-1.09%	0.38
+19	1.44%	0.28	2.96%	0.41	2.15%	0.20	4.76%	0.36	-0.71%	0.16	-1.80%	0.31
+20	-0.35%	0.44	2.60%	0.42	0.09%	0.48	4.85%	0.36	-0.44%	0.26	-2.24%	0.27
+21	-3.11%	0.05	-0.51%	0.49	-1.77%	0.20	3.08%	0.41	-1.35%	0.06	-3.59%	0.17
+22	-1.08%	0.30	-1.59%	0.45	-1.85%	0.20	1.23%	0.47	0.77%	0.16	-2.82%	0.23
+23	1.47%	0.30	-0.12%	0.50	1.40%	0.32	2.63%	0.43	0.07%	0.47	-2.75%	0.24
+24	2.78%	0.21	2.66%	0.43	3.96%	0.12	6.59%	0.33	-1.18%	0.06	-3.93%	0.16
+25	5.77%	0.02	8.44%	0.28	6.77%	0.01	13.36%	0.19	-1.00%	0.12	-4.92%	0.12
+26	-3.29%	0.05	5.14%	0.36	-2.79%	0.07	10.57%	0.25	-0.51%	0.25	-5.43%	0.10
+27	0.33%	0.46	5.47%	0.36	1.01%	0.37	11.59%	0.23	-0.69%	0.21	-6.12%	0.08
+28	3.69%	0.06	9.16%	0.27	4.40%	0.05	15.99%	0.16	-0.71%	0.17	-6.83%	0.06
+29	-0.20%	0.46	8.96%	0.28	1.63%	0.23	17.61%	0.14	-1.82%	0.01	-8.65%	0.02
+30	-0.45%	0.43	8.51%	0.29	-0.75%	0.39	16.86%	0.15	0.30%	0.36	-8.34%	0.03
+31	0.12%	0.48	8.63%	0.29	0.26%	0.46	17.12%	0.15	-0.15%	0.43	-8.49%	0.03
+32	2.66%	0.11	11.29%	0.24	2.19%	0.16	19.32%	0.12	0.47%	0.31	-8.02%	0.04
+33	0.29%	0.44	11.58%	0.24	0.34%	0.44	19.65%	0.12	-0.05%	0.48	-8.07%	0.04
+34	1.78%	0.27	13.36%	0.21	2.42%	0.21	22.08%	0.10	-0.64%	0.22	-8.71%	0.04
+35	-1.70%	0.23	11.66%	0.24	-0.61%	0.40	21.46%	0.11	-1.08%	0.09	-9.80%	0.02
+36	4.22%	0.06	15.88%	0.17	5.28%	0.04	26.75%	0.06	-1.06%	0.10	-10.86%	0.01

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXR) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level.

Table 9. 3-Year Performance for European NASDAQ-Listed ADRs US versus Regional Index 1990s Issues^a

Month	European Sample Versus US Index (54 Observations)				European Sample Versus Regional Index (54 Observations)				Regional Index – US Index (54 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	5.61%	0.03	5.61%	0.03	7.00%	0.01	7.00%	0.01	-1.40%	0.07	-1.40%	0.07
+ 2	2.74%	0.26	8.35%	0.06	2.59%	0.28	9.59%	0.04	0.15%	0.43	-1.24%	0.17
+ 3	5.99%	0.02	14.33%	0.01	7.69%	0.01	17.28%	0.00	-1.71%	0.04	-2.95%	0.04
+ 4	-1.47%	0.28	12.86%	0.02	0.17%	0.47	17.45%	0.01	-1.64%	0.03	-4.59%	0.01
+ 5	-0.32%	0.45	12.54%	0.04	-1.31%	0.34	16.14%	0.02	0.99%	0.22	-3.60%	0.05
+ 6	-3.44%	0.15	9.10%	0.12	-0.94%	0.40	15.20%	0.04	-2.49%	0.00	-6.10%	0.01
+ 7	0.09%	0.48	9.19%	0.13	0.66%	0.40	15.86%	0.04	-0.57%	0.28	-6.67%	0.01
+ 8	-3.04%	0.12	6.15%	0.24	-0.39%	0.45	15.47%	0.05	-2.65%	0.00	-9.32%	0.00
+ 9	0.73%	0.37	6.88%	0.22	0.65%	0.40	16.12%	0.05	0.08%	0.46	-9.24%	0.00
+10	0.47%	0.41	7.35%	0.21	1.66%	0.23	17.78%	0.04	-1.19%	0.09	-10.43%	0.00
+11	-4.96%	0.00	2.39%	0.40	-6.72%	0.00	11.06%	0.14	1.76%	0.03	-8.67%	0.00
+12	-3.36%	0.04	-0.97%	0.46	-2.14%	0.14	8.92%	0.19	-1.22%	0.09	-9.89%	0.00
+13	-2.47%	0.11	-3.43%	0.36	-2.03%	0.18	6.89%	0.26	-0.44%	0.30	-10.33%	0.00
+14	-0.13%	0.48	-3.57%	0.36	-1.42%	0.29	5.47%	0.31	1.29%	0.09	-9.04%	0.01
+15	-1.06%	0.32	-4.63%	0.32	0.36%	0.43	5.83%	0.30	-1.42%	0.06	-10.46%	0.00

+16	-2.64%	0.14	-7.26%	0.24	-1.94%	0.24	3.89%	0.37	-0.70%	0.26	-11.16%	0.00
+17	-2.16%	0.24	-9.43%	0.19	-1.39%	0.33	2.51%	0.42	-0.78%	0.17	-11.93%	0.00
+18	1.48%	0.30	-7.95%	0.24	3.15%	0.13	5.66%	0.32	-1.67%	0.04	-13.60%	0.00
+19	2.48%	0.22	-5.47%	0.32	3.90%	0.11	9.56%	0.22	-1.42%	0.06	-15.03%	0.00
+20	-0.96%	0.37	-6.43%	0.30	0.47%	0.44	10.03%	0.22	-1.43%	0.04	-16.46%	0.00
+21	-3.62%	0.06	-10.05%	0.21	-1.36%	0.30	8.66%	0.26	-2.26%	0.03	-18.71%	0.00
+22	1.29%	0.32	-8.76%	0.24	0.65%	0.41	9.32%	0.25	0.64%	0.27	-18.07%	0.00
+23	0.00%	0.50	-8.75%	0.25	0.08%	0.49	9.40%	0.25	-0.08%	0.48	-18.15%	0.00
+24	4.54%	0.16	-4.22%	0.38	6.37%	0.07	15.76%	0.14	-1.83%	0.03	-19.98%	0.00
+25	0.69%	0.38	-3.52%	0.40	1.75%	0.22	17.51%	0.12	-1.05%	0.17	-21.03%	0.00
+26	-4.12%	0.05	-7.64%	0.29	-3.07%	0.11	14.44%	0.17	-1.05%	0.15	-22.08%	0.00
+27	1.91%	0.31	-5.74%	0.35	2.33%	0.29	16.77%	0.14	-0.42%	0.36	-22.51%	0.00
+28	3.53%	0.12	-2.21%	0.44	3.74%	0.13	20.51%	0.10	-0.21%	0.42	-22.72%	0.00
+29	0.05%	0.49	-2.16%	0.44	2.11%	0.22	22.62%	0.08	-2.06%	0.03	-24.78%	0.00
+30	-1.18%	0.35	-3.34%	0.41	-1.50%	0.32	21.11%	0.10	0.32%	0.39	-24.45%	0.00
+31	0.08%	0.49	-3.26%	0.42	-0.11%	0.49	21.01%	0.10	0.19%	0.43	-24.26%	0.00
+32	2.18%	0.21	-1.07%	0.47	1.57%	0.28	22.57%	0.09	0.62%	0.32	-23.65%	0.00
+33	0.92%	0.36	-0.15%	0.50	0.68%	0.41	23.25%	0.09	0.24%	0.42	-23.40%	0.00
+34	2.81%	0.23	2.66%	0.44	3.27%	0.21	26.52%	0.07	-0.45%	0.35	-23.86%	0.00
+35	-3.28%	0.13	-0.62%	0.49	-2.28%	0.24	24.24%	0.09	-1.01%	0.18	-24.86%	0.00
+36	5.55%	0.07	4.93%	0.39	7.64%	0.03	31.88%	0.04	-2.09%	0.03	-26.96%	0.00

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXR) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level.

Table 10. 3-Year Performance for European NASDAQ-Listed ADRs US versus Regional Index 2000s Issues ^a

Month	European Sample Versus US Index (23 Observations)				European Sample Versus Regional Index (23 Observations)				Regional Index – US Index (23 Observations)			
	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value	XR	P-value	CXR	P-value
+ 1	8.58%	0.11	8.58%	0.11	2.64%	0.36	2.64%	0.36	5.94%	0.00	5.94%	0.00
+ 2	-1.70%	0.29	6.88%	0.18	-2.66%	0.21	-0.02%	0.50	0.96%	0.32	6.90%	0.01
+ 3	2.71%	0.23	9.60%	0.13	-1.05%	0.39	-1.07%	0.45	3.77%	0.00	10.67%	0.00
+ 4	1.52%	0.38	11.12%	0.12	0.19%	0.48	-0.89%	0.46	1.34%	0.21	12.01%	0.00
+ 5	-4.38%	0.09	6.74%	0.26	-7.97%	0.02	-8.86%	0.20	3.59%	0.04	15.60%	0.00
+ 6	-1.85%	0.33	4.89%	0.33	-2.55%	0.26	-11.41%	0.15	0.70%	0.36	16.29%	0.00
+ 7	-5.83%	0.04	-0.94%	0.47	-6.41%	0.04	-17.82%	0.07	0.58%	0.34	16.88%	0.00
+ 8	4.89%	0.20	3.95%	0.38	3.85%	0.27	-13.97%	0.15	1.04%	0.27	17.91%	0.00
+ 9	-4.70%	0.13	-0.76%	0.48	-6.13%	0.10	-20.09%	0.08	1.43%	0.18	19.34%	0.00
+10	2.46%	0.19	1.70%	0.45	-0.32%	0.46	-20.41%	0.08	2.78%	0.03	22.11%	0.00
+11	-0.91%	0.42	0.79%	0.48	-4.09%	0.23	-24.50%	0.06	3.18%	0.02	25.30%	0.00
+12	0.41%	0.46	1.20%	0.47	0.93%	0.43	-23.58%	0.08	-	0.38	24.78%	0.00
+13	-7.38%	0.07	-6.18%	0.35	-6.24%	0.12	-29.82%	0.04	0.52%	-	-	-
+14	2.29%	0.31	-3.89%	0.41	1.40%	0.38	-28.41%	0.06	-	0.22	23.63%	0.00
+15	-7.38%	0.02	-11.27%	0.25	-8.30%	0.01	-36.72%	0.02	1.14%	-	-	-
+16	3.21%	0.21	-8.07%	0.32	3.66%	0.21	-33.06%	0.04	0.89%	0.24	24.52%	0.00
+17	28.90%	0.16	20.83%	0.27	26.45%	0.18	-6.61%	0.42	0.92%	0.18	25.44%	0.00
+18	2.91%	0.20	23.74%	0.25	2.06%	0.29	-4.54%	0.45	-	0.36	25.00%	0.00
+19	-1.00%	0.39	22.73%	0.26	-1.98%	0.32	-6.52%	0.43	0.45%	-	-	-
+20	1.08%	0.36	23.81%	0.25	-0.79%	0.41	-7.31%	0.42	2.44%	0.03	27.44%	0.00
+21	-1.93%	0.26	21.89%	0.27	-2.71%	0.20	-10.03%	0.39	0.84%	0.19	28.28%	0.00
+22	-6.65%	0.00	15.24%	0.33	-7.73%	0.00	-17.75%	0.31	0.97%	0.16	29.25%	0.00
+23	4.91%	0.21	20.15%	0.29	4.49%	0.23	-13.27%	0.36	1.87%	0.03	31.13%	0.00
+24	-1.34%	0.37	18.81%	0.30	-1.68%	0.35	-14.94%	0.34	0.79%	0.19	31.92%	0.00
+25	17.70%	0.01	36.51%	0.16	18.57%	0.00	3.62%	0.46	1.08%	0.10	33.00%	0.00
+26	-1.35%	0.32	35.16%	0.17	-2.13%	0.22	1.50%	0.48	0.42%	0.31	33.41%	0.00
+27	-3.38%	0.19	31.78%	0.20	-2.07%	0.28	-0.57%	0.49	0.34%	0.36	33.75%	0.00
+28	4.07%	0.14	35.86%	0.17	5.94%	0.06	5.37%	0.44	-	0.21	32.89%	0.00
									0.86%	-	-	-
									0.77%	0.18	33.66%	0.00
									-	0.07	32.36%	0.00
									1.30%	-	-	-
									-	0.01	30.49%	0.00
									1.87%	-	-	-

+29	-0.77%	0.40	35.08%	0.17	0.49%	0.44	5.86%	0.44	-	<i>0.03</i>	29.22%	<i>0.00</i>
+30	1.26%	0.37	36.35%	0.17	1.01%	0.40	6.87%	0.43	1.26%	0.36	29.48%	<i>0.00</i>
+31	0.19%	0.48	36.54%	0.17	1.13%	0.38	8.00%	0.42	0.26%	0.12	28.54%	<i>0.00</i>
+32	3.79%	0.16	40.33%	0.14	3.67%	0.16	11.67%	0.38	0.94%	0.43	28.66%	<i>0.00</i>
+33	-1.20%	0.36	39.13%	0.15	-0.46%	0.45	11.20%	0.39	0.13%	0.20	27.93%	<i>0.00</i>
+34	-0.65%	0.42	38.49%	0.16	0.44%	0.45	11.65%	0.38	0.74%	-	26.84%	<i>0.00</i>
+35	2.02%	0.26	40.50%	0.15	3.29%	0.15	14.93%	0.35	1.09%	-	25.57%	<i>0.00</i>
+36	1.11%	0.35	41.61%	0.14	-0.25%	0.47	14.68%	0.35	1.27%	-	26.93%	<i>0.00</i>
									1.36%	<i>0.05</i>	26.93%	<i>0.00</i>

^aThe computation of average excess returns (XR) is described in equation 2 in the text and the computation of cumulative excess returns (CXR) is described in equation 3 in the text. P-values in bold italics represent returns that are significant at the 10% alpha level.

Table 10 shows the European ADRs listed in the 2000s decade outperform the NASDAQ by a margin of 41.6 percent on average over the trading window (statistical insignificance is probably due to large return variability coupled with a smaller sample). They also outperform the MSCI European index by nearly 15 percent on average during the same time period. During this decade for the trading window of the ADRs, the European index outperformed the NASDAQ on average by nearly 27 percent for the 36-month trading period. The ADRs outperformed both indexes for this period. Also, the underperformance of the NASDAQ versus the MSCI European Index may be due to the bursting of the technology bubble in the US.

Taking the results presented in Tables 8 through 10 together, European ADRs listed on the NASDAQ seem to provide good diversification benefits for investors that seek small-firm exposure in their portfolios based on the excess returns provided versus the US and regional benchmarks for the first 3 years of trading on the NASDAQ.

Concluding comments

This study presents results of trading ADRs like IPOs. While some ADRs actually are IPOs (representing the company's first listing), others are previously issued securities already trading on the respective exchange of the country of issue or even SEOs (a second issue used to receive new equity funding overseas). Like many other ADR performance studies, this one emphasizes a 3-year holding period. Unlike most other ADR performance studies, this one focuses on mostly smaller firm ADRs that list on the NASDAQ. These tend to have more volatile returns than the larger firms that list on the NYSE.

Results show overall the ADRs perform slightly better than the NASDAQ index over the 3-year holding period (beating it by 13 percent) and a good deal better than the respective regional index (beating it by 21 percent). The 1990s sample performs roughly the same as the US index (beating it by 4 percent) but much better than the regional index (beating it by nearly 36 percent). The ADRs listed in the 2000s beat the NASDAQ by

nearly 22 percent while only returning 7 percent on average better than the regional index. These findings suggest the ADRs tracked better with the US index in the 1990s but better with the regional index in the 2000s. Overall, the ADR portfolios still did as well if not better than the indexes, suggesting ADR investing may be advantageous to investors and encouraging to firms listing equities in the US (as these equities appear to be well received in the US market).

Specifically, honing in on the market timing aspect, overall the issues listed in the 1990s did not perform as well versus the NASDAQ as those listed in the 2000s. The opposite was true when comparing the ADRs to the regional indexes (the 1990s sample did much better versus the regional index than the 2000s ADR sample). This result, perhaps unseen in other research, shows the benefit of market timing differs based on the benchmark used (regional versus US index).

Distilling the results by region shows Asia Pacific 1990s ADR issues outperformed the regional index by over 47 percent while returning only 1 percent better than the NASDAQ. Quite the opposite, 2000s Asia Pacific ADRs did better versus the NASDAQ (outperforming by 13 percent) than the regional index (outperforming by less than 4 percent). Once again the timing benefit differed based on the choice of benchmark (US versus regional). Without segmenting the sample into 1990s and 2000s issued, the Asia Pacific sample performed well versus both benchmarks overall (beating the NASDAQ by 10 percent and regional by 15 percent).

The European ADRs overall outperform the NASDAQ index by nearly 16 percent and the regional index by almost 27 percent suggesting these ADRs were beneficial to return-seeking investors regardless of their preferred investment habitat. The 1990s European ADRs performed much better versus the regional index (beating it by almost 32 percent) than the US index (beating the NASDAQ by only 5 percent on average). The 2000s sample did the opposite, beating the NASDAQ by 42 percent and the regional index by about 15 percent. Similar to Asia Pacific ADRs, the benefits of market timing for European ADRs differed based upon the benchmark.

In summary, as compared to the US market both the Asia Pacific and European ADRs performed better in the

2000s decade than the 1990s. When compared to the regional index, the opposite was true in that both samples did better in the 1990s than the 2000s. These results may be due to the economic shocks in the 2000s in the US market and the development of foreign economies during the same time frame. Overall, the results from this study suggest NASDAQ ADR investing provides good results regardless of market timing strategy. There were

superior returns for stockholders and investors, heavy volume (very few of these were thinly traded once hitting the US market), and evidence of how welcome foreign equities are in overseas markets. Perhaps the guesswork involved in trying to time the market is wasted when the overall performance suggests small company ADR investing gives the same or superior returns to indexes.

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