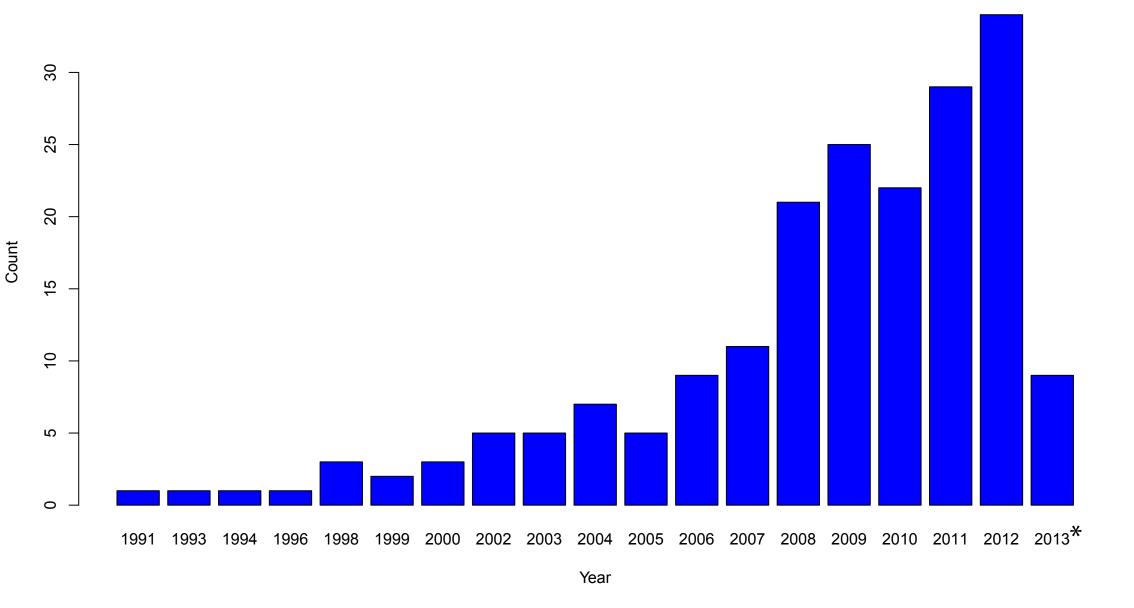
Figure-S1 Pinsent



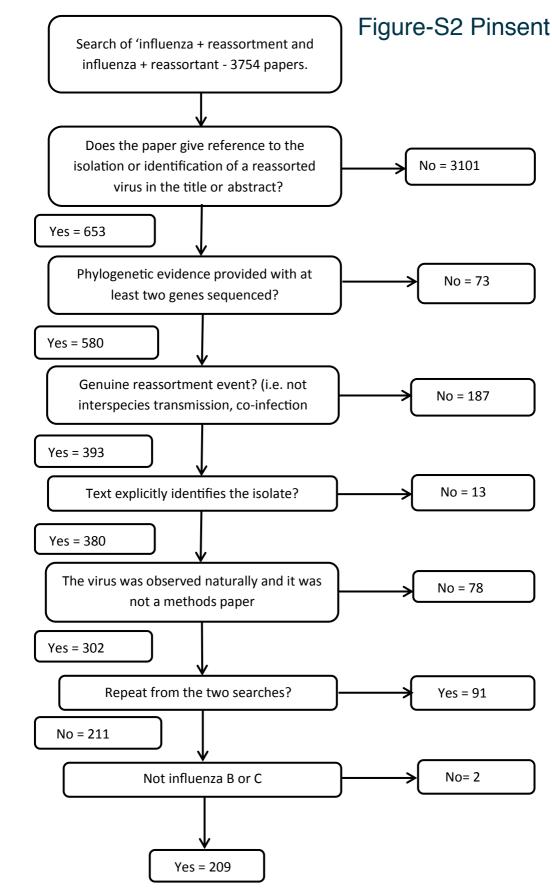


Figure-S3 Pinsent

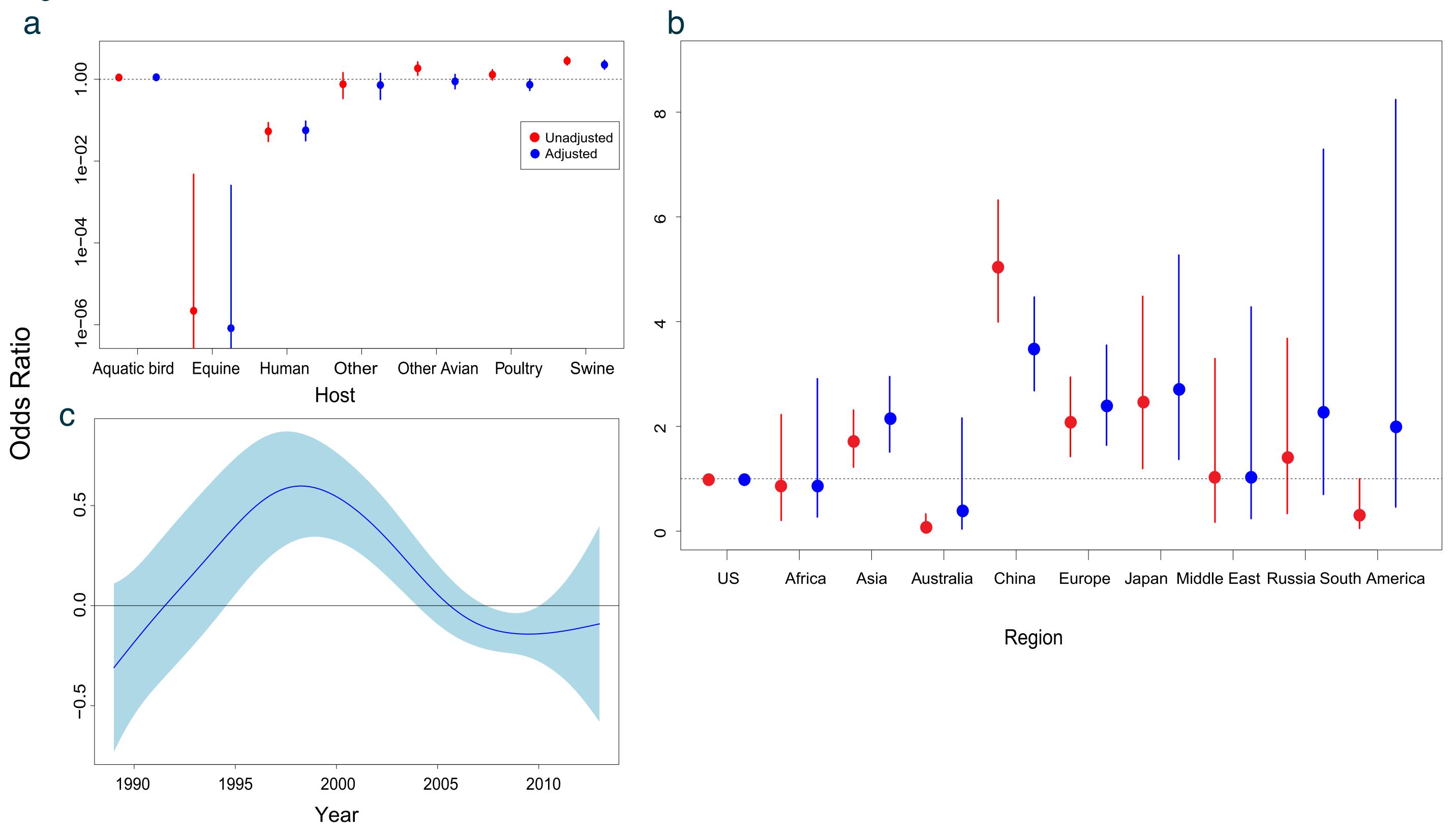


Figure-S4 Pinsent

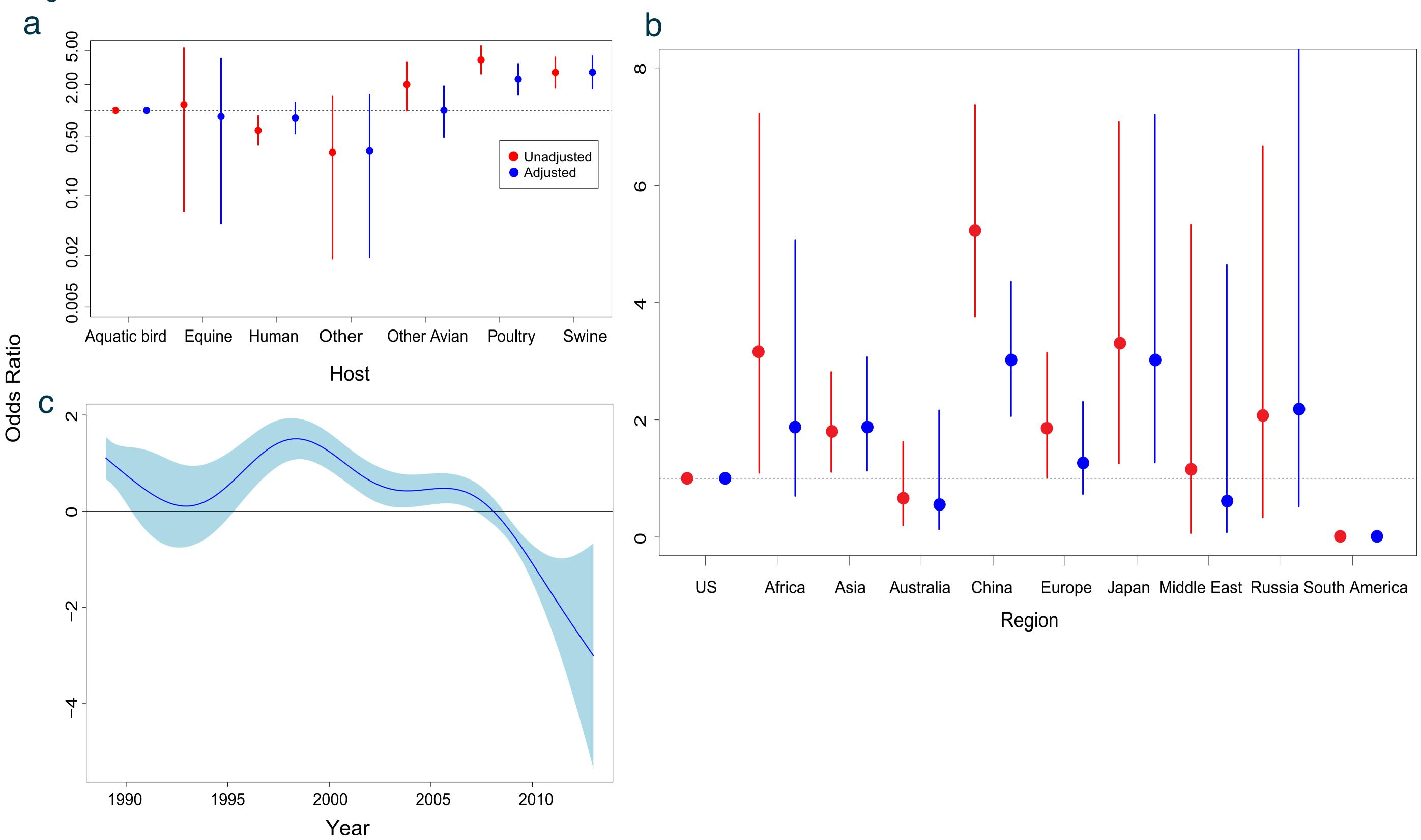


Figure S5 Pinsent

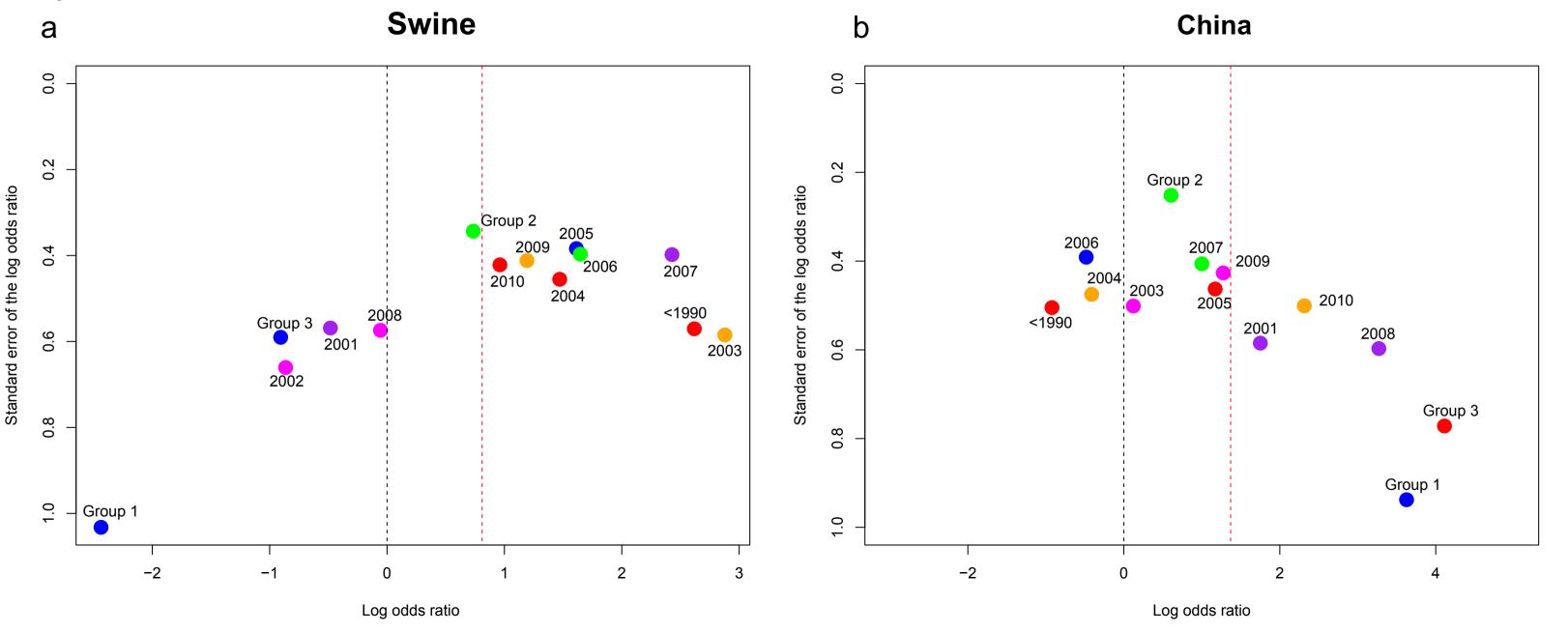


Table S1: Table for the univariate and multivariate odds for the general additive model analysis, for the 646 reported inter and intra-subtype reassortants.

	Odds Ratio (95% confidence interval) <sup>2</sup>	$p^{\beta}$	Adjusted odds ratio (95% confidence interval) <sup>4</sup>	p <sup>5</sup>
Host <sup>1</sup>				
Aquatic bird	1		1	
Equine	0.25 (0.01 – 1.16)		0.23 (0.03 – 1.73)	
Human	0.17 (0.12 - 0.22)	< 0.001	0.19 (0.14 - 0.25)	< 0.001
Other Avian	1.90 (1.24 – 2.62)	< 0.001	0.89 (0.63 - 1.26)	
Other	0.65 (0.30 - 1.21)		0.63 (0.32 - 1.25)	
Poultry	1.91 (1.52 – 2.40)	< 0.001	1.07 (0.83 – 1.37)	
Swine	2.87 (2.34 – 3.52)	< 0.001	2.48 (1.99 – 3.09)	< 0.001
Region				
Africa	1.55 (0.69 – 2.98)		1.44 (0.68 – 3.04)	
Asia	1.73 (1.32–2.24)	< 0.001	2.07(1.56 - 2.75)	
Australia	0.25 (0.08 - 0.55)	< 0.01	0.51(0.20-1.27)	
China	5.24 (4.33 – 6.36)	< 0.001	3.45 (2.78 – 4.28)	< 0.001
Europe	2.01 (1.46 – 2.71)	< 0.001	1.92 (1.38 – 2.65)	< 0.001
Japan	2.74 (1.56 – 4.49)	< 0.001	2.80 (1.62 – 4.84)	< 0.001
Middle East	1.07 (0.26 – 2.86)		0.88 (0.27 – 2.84)	
Russia	1.59 (0.56 – 3.53)		2.25 (0.90 – 5.64)	
South America	0.21 (0.03 – 0.68)	< 0.05	0.78 (0.19 – 3.24)	
US	0.21 (0.03 – 0.08)	<0.03	0.78 (0.19 – 3.24)	
Year	1		1	
<1990	1			
1990*	0 (0 – 0)			
1991	0.88 (0.21 – 2.48)			
1991	1.54 (0.45 – 3.94)			
1993	0.69 (0.12 – 1.74)			
1994	0.27 (0.04 – 0.88)	< 0.1		
1995	0.36 (0.04 – 1.00)			
1996	0.84 (0.29 - 1.97)			
1997	$3.70 \ (2.11 - 6.31)$	< 0.001		
1998	2.70 (1.49 – 4.70)	< 0.001		
1999	1.79 (1.06 - 2.95)	< 0.05		
2000	2.10 (1.34 – 3.26)	< 0.001		
2001	1.69 (1.06 - 2.67)	< 0.05		
2002	1.86 (1.20 - 2.86)	< 0.01		
2003	1.33 (0.86 - 2.05)			
2004	1.21 (0.78 – 1.87)			
2005	1.06(0.70 - 1.59)			
2006	1.16(0.78 - 1.74)			
2007				
2008	0.74 (0.49 – 1.11)			
	0.74 (0.49 – 1.11) 0.71 (0.48 – 1.21)			
2009		<0.001		
	0.71 (0.48 – 1.21)	<0.001 <0.05		
2009	0.71 (0.48 – 1.21) 0.24 (0.16 – 0.37)			
2009 2010	0.71 (0.48 – 1.21) 0.24 (0.16 – 0.37) 0.63 (0.41 – 0.98)	< 0.05		

Footnote: <sup>1</sup> The covariate and each level that was analysed when the analysis was performed. <sup>2</sup> The calculated unadjusted odds ratio for reporting inter- and intra-subtype reassortants for each covariate. Baseline levels for host, region of isolation and year are indicated in the table. Numbers in brackets indicate confidence intervals at the 95% level. <sup>3</sup> The p-value for each covariate for the unadjusted odds of reporting reassortants, calculated at the 95% significance level. <sup>4</sup> The calculated adjusted odds ratio for reporting inter- and intra-subtype reassortants for each covariate. Baseline levels for host, region of isolation and year are indicated in the table.

Numbers in brackets indicate confidence intervals at the 95% level. <sup>5</sup> The p-value for each covariate for the adjusted odds of reporting reassortants, calculated at the 95% significance level. We present the results for the univariate analysis for year, where year was treated as a categorical variable. Covaraites which have an \* next to them have an estimated OR of 0, as no data on reported reassortants was identified for them.

Table S2: Table for the univariate and multivariate odds for the general additive model analysis, for the 416 reported inter-subtype reassortants.

410 reported inte	Odds Ratio  (95% confidence  interval) <sup>2</sup>	<i>p</i> <sup>3</sup>	Adjusted odds ratio (95% confidence interval) <sup>4</sup>	p <sup>5</sup>
Host 1				
Aquatic bird	1		1	
Equine*	0(0-0)		0(0-0)	
Human	0.05 (0.03 – 0.08)	< 0.001	0.05 (0.03 – 0.09)	< 0.001
Other Avian	1.84 (1.25 – 2.65)	< 0.01	0.89 (0.60 – 1.33)	
Other	0.75 (0.34 – 1.45)		0.70(0.34 - 1.45)	
Poultry	1.29 (0.96 – 1.71)	< 0.1	0.76 (0.52 – 1.04)	< 0.1
Swine	2.81 (2.23 – 3.53)	< 0.001	2.28 (1.78 – 2.92)	< 0.001
Region				
Africa	0.83 (0.20 – 2.22)		0.89(0.27 - 2.91)	
Asia	1.69 (1.22 – 2.31)	< 0.01	2.11 (1.51 – 2.95)	< 0.001
Australia	0.07 (0.004 – 0.32)	< 0.01	0.29 (0.04 – 2.16)	(0.001
China	5.01 (4.00 – 6.32)	< 0.001	3.46 (2.68 – 4.47)	< 0.001
Europe	2.06 (1.42 – 2.93)	< 0.001	2.41 (1.64 – 3.55)	< 0.001
Japan	2.45 (1.19 – 4.48)	< 0.01	2.69 (1.37 – 5.27)	< 0.01
Middle East	1.03 (0.17 – 3.29)		1.02 (0.24 – 4.28)	
Russia	1.37 (0.33 – 3.67)		2.26 (0.70 – 7.29)	
South America	0.31 (0.05 – 0.99)		1.95 (0.46 – 8.24)	
US	1		1	
Year				
<1990	1			
1990*	0(0-0)			
1991	1.41 (0.22 – 4.97)			
1992	2.76 (0.63 – 8.34)			
1993	1.25 (0.29 – 3.73)			
1994	0.65 (0.10 – 2.28)			
1995	0.36 (0.04 – 1.79)			
1996	1.21 (0.28 – 3.61)			
1997	4.40 (1.99 – 9.27)	< 0.001		
1998	4.60 (2.18 – 9.40)	< 0.001		
1999	2.10 (0.98 – 4.31)	< 0.05		
2000	2.90 (1.57 – 5.43)	< 0.001		
2001	2.72 (1.47 – 5.09)	< 0.01		
2002	2.93 (1.63 – 5.37)	< 0.001		
2003	2.65 (1.52 – 4.77)	< 0.001		
2004	1.80 (0.98 – 3.33)			
2005	1.52 (0.86 – 2.75)			
2006	2.00 (1.17 – 3.54)	< 0.05		
2007	1.05 (0.59 – 1.91)			
2008	1.30 (0.71 – 2.42)			
2009	0.42 (0.24 - 0.76)	< 0.01		
2010	1.39 (0.80 – 2.47)			
2011	1.42 (0.76 – 2.66)			
2012	2.24 (1.07 - 4.55)	< 0.05		
2013	2.57 (0.14 – 0.13)			

Footnote: <sup>1</sup> The covariate and each level that was analysed when the analysis was performed. <sup>2</sup> The calculated unadjusted odds ratio for reporting inter-subtype reassortants for each covariate. Baseline levels for host, region of isolation and year are indicated in the table. Numbers in brackets indicate confidence intervals at the 95% level. <sup>3</sup> The p-value for each covariate for the unadjusted odds of reporting reassortants, calculated at the 95% significance level. <sup>4</sup> The calculated adjusted odds ratio for reporting inter-subtype reassortants for each covariate. Baseline levels for host, region of isolation and year are indicated in the table. Numbers in brackets

indicate confidence intervals at the 95% level. <sup>5</sup> The p-value for each covariate for the adjusted odds of reporting reassortants, calculated at the 95% significance level. We present the results for the univariate analysis for year, where year was treated as a categorical variable. Covaraites which have an \* next to them have an estimated OR of 0, as no data on reported reassortants was identified for them.

Table S3: Table for the univariate and multivariate odds for the general additive model analysis, for the 230 reported intra-subtype reassortants.

Part		Odds Ratio	$p^{3}$	Adjusted odds ratio	$p^{5}$
Host 1 Aquatic bird         1         1           Equine         1.16 (0.06 – 5.39)         0.87 (0.11 – 6.50)           Human         0.58 (0.39 – 0.86)         <0.01         0.77 (0.51 – 1.17)           Other Avian         2.00 (0.99 – 3.70)         <0.05         0.98 (0.49 – 1.94)           Other         0.32 (0.01 – 1.47)         <0.001         2.28 (1.51 – 3.44)         <0.001           Swine         2.78 (1.83 – 4.19)         <0.001         2.28 (1.51 – 3.44)         <0.001           Swine         2.78 (1.83 – 4.19)         <0.001         2.28 (1.51 – 3.44)         <0.001           Region           Africa         3.15 (1.09 – 7.21)         <0.05         1.89 (0.70 – 5.06)            Asia         1.78 (1.10 – 2.81)         <0.05         1.89 (0.70 – 5.06)             Asia         1.78 (1.10 – 2.81)         <0.05         1.89 (0.70 – 5.06)		(95% confidence		(95% confidence interval) 4	
Aquatic bird         I         I         Equime         1.16 (0.06 – 5.39)         0.87 (0.11 – 6.50)         Auman         0.58 (0.39 – 0.86)         < 0.01		interval) <sup>2</sup>			
Equine 1.16 (0.06 - 5.39)	Host <sup>1</sup>				
Human	Aquatic bird	1		1	
Other Avian         2.00 (0.99 = 3.70)         < 0.05         0.98 (0.49 = 1.94)           Other         0.32 (0.01 - 1.47)         0.34 (0.04 = 2.51)           Poultry         3.91 (2.67 - 5.71)         < 0.0001	Equine	1.16 (0.06 – 5.39)		0.87 (0.11 – 6.50)	
Other         0.32 (0.01 - 1.47)         0.34 (0.04 - 2.51)           Poultry         3.91 (2.67 - 5.71)         <0.001	Human	0.58 (0.39 - 0.86)	< 0.01	0.77 (0.51 – 1.17)	
Poultry   3.91 (2.67 - 5.71)   <0.001   2.28 (1.51 - 3.44)   <0.001	Other Avian	2.00 (0.99 – 3.70)	< 0.05	0.98 (0.49 – 1.94)	
Swine         2.78 (1.83 - 4.19)         <0.001         2.64 (1.70 - 4.08)         <0.001           Region           Africa         3.15 (1.09 - 7.21)         <0.05	Other	0.32 (0.01 - 1.47)		0.34 (0.04 - 2.51)	
Region           Africa         3.15 (1.09 – 7.21)         <0.05	Poultry	3.91 (2.67 – 5.71)	< 0.001	2.28 (1.51 - 3.44)	< 0.001
Africa 3.15 (1.09 – 7.21)	Swine	2.78 (1.83 – 4.19)	< 0.001	2.64 (1.70 – 4.08)	< 0.001
Asia 1.78 (1.10 - 2.81)	Region				
Australia 0.66 (0.20 - 1.62) 0.53 (0.13 - 2.16) China 5.23 (3.75 - 7.36) <0.001 3.00 (2.06 - 4.36) <0.001 Europe 1.83 (1.01 - 3.14) <0.05 1.30 (0.73 - 2.31)  Japan 3.27 (1.25 - 7.08) <0.01 3.02 (1.27 - 7.20) <0.05 Middle East 1.16 (0.06 - 5.32) 0.62 (0.08 - 4.64)  Russia 2.05 (0.33 - 6.66) 2.19 (0.52 - 9.15)  South America 0 (0 - 0) 0 (0 - 0)  US 1 1 1  Year  <	Africa	3.15 (1.09 – 7.21)	< 0.05	1.89 (0.70 – 5.06)	
Australia 0.66 (0.20 - 1.62) 0.53 (0.13 - 2.16) China 5.23 (3.75 - 7.36) <0.001 3.00 (2.06-4.36) <0.001 Europe 1.83 (1.01 - 3.14) <0.05 1.30 (0.73 - 2.31) Japan 3.27 (1.25 - 7.08) <0.01 3.02 (1.27 - 7.20) <0.05 Middle East 1.16 (0.06 - 5.32) 0.62 (0.08 - 4.64) Russia 2.05 (0.33 - 6.66) 2.19 (0.52-9.15) South America 0 (0 - 0) 0 (0 - 0) US 1 1 1  Year  <1990 1 1990* 0 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Asia	1.78(1.10 - 2.81)	< 0.05	1.86 (1.13–3.07)	
Europe 1.83 (1.01 – 3.14)	Australia	0.66 (0.20 – 1.62)			
Japan       3.27 (1.25 - 7.08)       < 0.01       3.02 (1.27 - 7.20)       < 0.05         Middle East       1.16 (0.06 - 5.32)       0.62 (0.08 - 4.64)          Russia       2.05 (0.33 - 6.66)       2.19 (0.52 - 9.15)          South America       0 (0 - 0)       0 (0 - 0)          Year         <1990	China	5.23 (3.75 – 7.36)	< 0.001	3.00 (2.06–4.36)	< 0.001
Japan       3.27 (1.25 - 7.08)       < 0.01       3.02 (1.27 - 7.20)       < 0.05         Middle East       1.16 (0.06 - 5.32)       0.62 (0.08 - 4.64)          Russia       2.05 (0.33 - 6.66)       2.19 (0.52 - 9.15)          South America       0 (0 - 0)       0 (0 - 0)          Year         <1990	Europe				
Middle East 1.16 (0.06 - 5.32) 0.62 (0.08 - 4.64)  Russia 2.05 (0.33 - 6.66) 2.19 (0.52-9.15)  South America 0 (0 - 0) 0 (0 - 0)  US 1 1  Year  <	•				< 0.05
Russia 2.05 (0.33 - 6.66) 2.19 (0.52-9.15) South America 0 (0 - 0) 0 (0 - 0)  US 1 1  Year  <1990 1  1990* 0 (0.50 (0.02 - 2.43) 1992 0.65 (0.03 - 3.12) 1993 0.30 (0.01 - 1.42) 1994 0 (0 - 0) 1995 0.26 (0.01 - 1.27) 1996 0.58 (0.09 - 1.98) 1997 2.88 (1.30 - 5.92) <0.01 1998 1.23 (0.41 - 3.00) 1999 1.52 (0.73 - 3.00) 2000 1.44 (0.75 - 2.70) 2001 0.92 (0.43 - 1.83) 2002 1.04 (0.52 - 1.97) 2003 0.38 (0.15 - 0.84) <0.001 2004 0.77 (0.39 - 1.45) 2005 0.72 (0.40 - 1.28) 2006 0.55 (0.29 - 1.03) <0.1 2007 0.51 (0.28 - 0.92) <0.05 2008 0.39 (0.17 - 0.78) <0.05 2009 0.12 (0.06 - 0.23) <0.001 2011 0.09 (0.01 - 0.30) <0.01 2011 0.09 (0.01 - 0.30) <0.01 2011 0.09 (0.01 - 0.30) <0.01 2011 0.09 (0.01 - 0.30) <0.01 2011 0.09 (0.01 - 0.30) <0.01					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		2.05 (0.33 – 6.66)			
US         1           Year           <1990*	South America	0(0-0)		0(0-0)	
$ \begin{array}{c} <1990 \\ 1990^* \\ 0 (0-0) \\ 1991 \\ 0.50 (0.02-2.43) \\ 1992 \\ 0.65 (0.03-3.12) \\ 1993 \\ 0.30 (0.01-1.42) \\ 1994 \\ 0 (0-0) \\ 1995 \\ 0.26 (0.01-1.27) \\ 1996 \\ 0.58 (0.09-1.98) \\ 1997 \\ 2.88 (1.30-5.92) \\ 0.73-3.00) \\ 1999 \\ 1.52 (0.73-3.00) \\ 2000 \\ 1.44 (0.75-2.70) \\ 2001 \\ 0.92 (0.43-1.83) \\ 2002 \\ 1.04 (0.52-1.97) \\ 2003 \\ 0.38 (0.15-0.84) \\ 0.77 (0.39-1.45) \\ 2005 \\ 0.72 (0.40-1.28) \\ 2006 \\ 0.55 (0.29-1.03) \\ 0.72 (0.40-1.28) \\ 2007 \\ 0.51 (0.28-0.92) \\ 0.005 \\ 0.005 \\ 0.001 \\ 0.0$	US	1			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Year				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	<1990	1			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1990*	0(0-0)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1991	0.50 (0.02 - 2.43)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1992	0.65 (0.03 – 3.12)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1993	0.30 (0.01 – 1.42)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1994	0(0-0)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1995	0.26 (0.01 – 1.27)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1996	0.58 (0.09 – 1.98)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1997	2.88 (1.30 – 5.92)	< 0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1998	1.23 (0.41 – 3.00)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1999	1.52 (0.73 – 3.00)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2000	1.44(0.75 - 2.70)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2001	0.92 (0.43 – 1.83)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2002	1.04 (0.52 – 1.97)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2003	0.38 (0.15 - 0.84)	< 0.001		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2004	0.77 (0.39 – 1.45)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2005	0.72 (0.40 – 1.28)			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2006	0.55 (0.29 – 1.03)	< 0.1		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2007	0.51 (0.28 – 0.92)	< 0.05		
2010 0.10 (0.03 – 0.27) <0.001 2011 0.09 (0.01 – 0.30) <0.01 2012 0 (0 – 0)	2008	0.39 (0.17 – 0.78)	< 0.05		
2011 $0.09 (0.01 - 0.30)$ $< 0.01$ 2012 $0 (0 - 0)$	2009	0.12 (0.06 – 0.23)	< 0.001		
2012 0 (0 – 0)	2010	0.10 (0.03 – 0.27)	< 0.001		
· · · ·	2011	0.09 (0.01 – 0.30)	< 0.01		
2013 0 (0 – 0)	2012	0(0-0)			
2015	2013	0(0-0)			

**Footnote:** <sup>1</sup> The covariate and each level that was analysed when the analysis was performed. <sup>2</sup> The calculated unadjusted odds ratio for reporting intra-subtype reassortants for each covariate. Baseline levels for host, region of isolation and year are indicated in the table. Numbers in brackets indicate confidence intervals at the 95% level. <sup>3</sup> The p-value for each covariate for the unadjusted odds of reporting reassortants, calculated at the 95% significance level. <sup>4</sup> The calculated adjusted odds ratio for reporting intra-subtype reassortants for each covariate. Baseline levels for host, region of isolation and year are indicated in the table. Numbers in brackets

indicate confidence intervals at the 95% level. <sup>5</sup> The p-value for each covariate for the adjusted odds of reporting reassortants, calculated at the 95% significance level. We present the results for the univariate analysis for year, where year was treated as a categorical variable. Covaraites which have an \* next to them have an estimated OR of 0, as no data on reported reassortants was identified for them.