

Speed C++ functions

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Testing speed of c++ functions: RATE, PV and PMT.

RATE

```
df<-data.frame(nper=c(12,12),pmt=c(-500,-400),pv=c(3000,3000))
microbenchmark(RATE(df$nper,df$pmt,df$pv), ratecpp(df$nper,df$pmt,df$pv))
```

```
## Unit: microseconds
##              expr      min       lq      mean  median
##  RATE(df$nper, df$pmt, df$pv) 901.757 930.5030 1495.32309 967.2385
##  ratecpp(df$nper, df$pmt, df$pv)  30.550  33.1875   47.86557   37.5845
##              uq      max neval
## 1017.581 22677.403   100
##   41.007   794.985   100
```

PV

```
df<-data.frame(rate=c(.1,.1),nper=c(12,24),pmt=c(-10,-15))
microbenchmark(PV(df$rate,df$nper,df$pmt), pv_cpp(df$rate,df$nper,df$pmt))
```

```
## Unit: microseconds
##              expr      min       lq      mean  median      uq
##  PV(df$rate, df$nper, df$pmt) 47.576 49.2525 51.20637 50.0515 51.182
##  pv_cpp(df$rate, df$nper, df$pmt) 27.326 29.0710 31.41184 30.3480 31.442
##              max neval
## 108.881   100
## 107.857   100
```

PMT

```
df<-data.frame(rate=c(.1,.2),nper=c(12,24),pv=c(3000,1000))
microbenchmark(PMT(df$rate,df$nper,df$pv), pmt_cpp(df$rate,df$nper,df$pv))
```

```
## Unit: microseconds
##              expr      min       lq      mean  median      uq
##  PMT(df$rate, df$nper, df$pv) 43.422 45.0765 49.96176 45.981 47.2520
##  pmt_cpp(df$rate, df$nper, df$pv) 28.017 29.7220 31.88282 30.554 31.6425
##              max neval
## 409.730   100
## 103.006   100
```